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Quarterly

Florence Bellis—Editor Emeritus

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Notes from Rhone Street

The Garden Club of America has presented Mrs. C. U. Berry the Florens DeBevoise medal for horticultural achievement in the field of hybridizing. Mrs. Berry has a large collection of species primulas and rhododendrons. She has long been recognized as an authority on alpine plants.

***** ******* *****

Mr. J. Hayden Young of Wales would like to share the beauty of his doubles with us, and suggests colored prints might get through customs better than plants. We would be happy to have them for display and to photograph and convert to slides.

***** ******* *****

Mrs. Ford sent a little note, — PROTECT YOUR DOUBLES from Kitchen & Flower Garden, by Eugene Sebastian Delamer London, 1856

Persons desirous of forming collections of double primroses are advised to procure them (both for excellence, variety and cheapness) either from French or Belgian Flanders. Propagate by root-division, and keep a constant eye on choice varieties, both for their health’s sake and to prevent kidnapping. Good double primroses are exceedingly apt to make themselves scarce.

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I wish to make a public acknowledgement of my gratitude to Nancy Ford for the wealth of organized material she has turned over to me. I found little notes of clarification and guidance stapled to each assortment. That is a tremendous help to a fumbling new editor. I hope to continue to have articles of interest to the beginner and to the advanced grower, and am most grateful for suggestions on content.

***** ******* *****

I wish you could each see the authentic reproductions of choice primula on Mr. Baldwin’s stationery. The place cards and the stationery would be a pleasure to use.

***** ******* *****

Fortunately for the Society, Mr. Floyd S. Keller of Tacoma is an energetic young man who is cataloging the back issues of the Quarterly. There are many “authoritative articles on the history, development, and culture of hardy Primroses.”

(Continued on page 100)

Tribute to Retiring Editor — Nancy Ford

Few of us who are members of the American Primrose Society know how much sacrifice, heartache and actual hard labor goes into the task of editing the Quarterly Magazine. With all the other many activities that Nancy Ford has carried on the past four years besides editing the Quarterly, it is little wonder that she feels she must retire and get some much needed rest. We must not begrudge her this time of relaxation.

The quality of all the issues published during her regime was of the highest order and will be a lasting tribute to her and can never be erased from the annals of our society. She managed to put just a bit of herself into each of them and one has but to re-read her own article which appeared in the summer issue of a year ago, entitled To The Greatest Gardener, to gain an inside vision of the true Nancy Ford.

She won a host of true friends throughout the world who hope to maintain that friendship and who join with me in grateful appreciation of her unselfish service to our beloved Primrose, Primula and Auricula Society.

We hope that she will not lose her enthusiasm for the growing of beautiful primulas and will continue to compete at the primrose shows where she has won many honors in the past few years including the winning of the coveted Bamford trophy. We all join in wishing Nancy Ford the best of everything in the coming years.

Ralph Balcom

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Primula Marginata (Curtis)

R. Ruffer-Larch, of the Faculty of Sciences, University of Grenoble, and the Botanic Institute at the Alpine Station at Lautaret.

This well-known species is endemic to the South-Western Alps, from the Maritime to the Cottian Alps, on both sides of the French-Italian border. On the French side, its limit to the north is found in the region of Queyras (Hautes Alpes Department).

In nature, it occurs generally on limestone rocks (although, at times, as well on granite) growing in humus filled cracks. This humus may be neutral or even slightly acid. In our garden at Lautaret, it grows very well in sub-acid, humusy soil - I have never tried it in very limey soil.

As so many so-called calcicolous plants, it can tolerate lime but does not ask for it. What it does ask for is good drainage, particularly in winter, and some moisture at flowering time. After flowering, from early summer onward, it withstands very dry conditions.

In the wild, it is found at altitudes varying from 2,000 to 8,000 feet, mostly on rocks, generally in more or less vertical - even overhanging - cliffs, often in full sun. These habitats can be very, very dry in summer but it is remembered that the rock holds some moisture, however scanty. When hanging from cliffs, the woody rhizome of very old plants may project into the air for some 10 to 20 inches, supporting at its end the lovely rossets of white-edged toothed leaves.

In the garden, these rhizomes can easily be treated as cuttings. From seed, Primula marginata is not difficult but as with so many of the P. marginata growing near P. rubra Gmel., or P. viscosa All.

In natural stands where they are frequently abundant, coloring and leaf-edging are much less varied than is often stated: the corollas are of a lilac-lavender, more or less tinged with blue. I have not found a white form in the wild, but in full sun, the color tends to be lighter. The white farina on the leaf-margin is particularly bright on the young leaves growing in full sun, but on old leaves, as well as leaves in shade, the farina tends to be less prominent. Well grown, P. marginata merits culture even if only as a foliage plant.

The photograph on the front cover is Primula marginata, collected by the author at Col de la Cayolle, Maritime Alps, and growing in the alpine garden at Lautaret.

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P. Acaulis, double

Primula Care in South Burnaby, B. C.

Mrs. Florence Bellis' article Winter Weather Watching with reference to primula care, in the Winter Quarterly 1964, stimulates considerable comparative notes from our Vancouver, Canada area. Although we are about 10 degrees latitude farther north, the geographical location of a particular area, its prevailing winds, ocean currents, and amount of rainfall all have a bearing upon how well and what types of plants, especially evergreen, can be grown successfully.

In the Vancouver area we do have a moderating Japan ocean current which sweeps across from tropical Hawaii and turns north along Vancouver Island. The prevailing westerly winds naturally pick up warmth from this current. In our location, on a south slope, we are protected from north and east winds. Moderately heavy rainfall, spread over a good part of the year, especially during the winter months, tends to keep the garden fairly moist. Winter sees a slowing down of activity but I don't feel it ever really stops. The short spells of mild over-50° weather that drop in, on and off, through the winter months, are pleasant to us all, but demand extra surveillance for we gardeners who see lush new leaves and buds developing off season on uncautious plant material. Bough protection at hand, when a sharp drop comes, is a good precaution.

Having grown Polyanthus and Acaulis at our South Burnaby location for some twelve years, with spaces allowed to become weedy during the summer.

Regarding transplanting and moving plants in our area, I hesitate to divide later than June or during a moist spell in early July. Peaty leafmould and bonemeal are incorporated into the new pocket, intermixed well into the present sandy and clay soil. I try to avoid too nitrogenous manure dressings before June. Mushroon manure is acceptable and makes a wonderful mulch as there is a slow breakdown of its straw content and a low nitrogen action. Any plants requiring to be moved later than July are moved with a large ball of soil, firmed in tightly and stones placed beside them to hold them comfortably down. It doesn't seem to take many degrees of frost to produce long crystals of heaved soil, perhaps the moisture content is responsible, but young small plants, moved too late, will inevitably be heaved unless a very thorough mulching is provided.
and a watchful eye kept on them. I find it is safer to be sure they are all settled in and well rooted before fall comes. If plants are established and root formation good, the dry spells in July and August need not cause worry about losses.

With the above summer and winter procedures, and an early spring top dressing of rotted manure, lovely foliage and bloom can be expected.

One of the most beautiful beds of Polyanthus I have ever had were of various new Barnhaven strains. Colors ranged from soft pinks through yellows, lavenders, blues, and rich browns. Everything was in lush growth after a fall of mild warm rains. These were cut down like a mass of cooked spinach by the disastrous November 11th deep-freeze of 1955. Plant material was totally unprepared as were we gardeners. Near where my plants are grouped in beds I try to have lathe frames or boughs nearby for this sort of emergency. The past few years have rarely been more than 10 degrees of frost all winter. This means that plants like fuchsias will even come through out-of-doors.

Many of my plants are growing in a very peaty leaf-mould soil, which is quite moist through the winter, or are in very sheltered locations beneath Rhododendron or other shrubs. In such locations, where other roots tend to dry them a little in August and September, I think they receive a beneficial short semi-dormant period when they are able to ripen their fat bud crowns.

**P. Juliae** and her hybrids could be considered tougher than Polyanthus and Acaulis, but, being smaller plants with fat rhizome-like root structures that seem to go semi-dormant, they tend to raise themselves out of the soil and so heave very readily with consequent root damage. Small pieces of stone or coarse chips placed around them after they have been well firmed in works very well for these alpine types. The Juliae and double forms, old white and lavender, similar of root structure, are usually divided as soon after blooming as possible and settled in with good compost and large stone chips. The stones, as well as protecting from heaving, keep a summer coolness over the roots.

Regarding the discussion of lime for auriculas — I have grown them in almost pure peat-leaf-mould beds with not a great quantity of sand mixed in and only bonemeal to supply any lime requirement, with no lack of bloom to indicate the great need for anything more. Possibly they do maintain a more compact clump when grown in a soil that is not so moisture retentive, for I think they enjoy a dormancy more than the Polyanthus and Acaulis. Of course I am referring only to the garden types.

The Marginatas and their hybrids are one primula form that obligingly do form tightly clasped dormant buds by fall, and remain so until spring. Usually by fall they have developed a clump of longish parsnippy stems with a terminal bud. If these stems are anchored down with gritty compost (a little bonemeal and rotted manure added) and stone chips to top with — root growth is encouraged and one has a very lusty plant to grow on in spring with lots of new divisions if propagation is desired. A good large plant of the marginata type form with its beautifully serrated frosted-edged foliage is worth any extra effort to grow it to a state of perfection. Remember it does really prefer a northerly aspect with a little shade when the sun is at its peak.

For show purposes I like to put a few plants in the frame where the silvery farinous buds develop as they would in their natural habitat where dry conditions prevail.

**P. Pubescens Alba**

Pubescens hybrids are one of the most satisfying developments of the European primulas. These should be mulched with gritty compost in the fall also, and again dressed with stone chips. These good natured plants increase to make large clumps faster than any other primula, besides providing a very bright showing in spring and often again in fall. In shades from soft rose through lavenders, reds, purples, and even whites, they should certainly be more widely grown. They like a more open exposure though do not flourish for me in the rock garden, possibly because I have tried only small plants where larger clumps would do better. I feel they do not care too well for hot summer conditions and rocks get quite warm in the summer sun.

**P. Candelabra**

The winter dormant candelabras and florindae, planted in moist locations in which they delight, usually remain dormant. This year I've topped them with manure (February) and good results are expected. Fall dressing of sandy compost around the plants, pulling the leaves up over the crown buds, sees them through the winter safely.

The Japanese Sieboldi and other similar woodland types respond cheerfully with little care. The best location for them is beneath trees or shrubs where the soil tends to become dry through the summer. In such
been those of the first collectors who ventured further with. Kven cold pot conditions until there are enough bloom. What ecstatic joys must have frame handling with us can be difficult because of moist conditions. Keeping them with me more than a few years. Having as yet had only a few plants with which to experiment, I have not been able to grow them in enough different locations to succeed. From now on it will be strictly pot conditions until there are enough to venture further with. Even cold frame handling with us can be difficult because of moist conditions. One can never forget or visualize anything lovelier than the beautiful frosted buds developing in January, unfolding into such fragile delicate flowers. What ecstatic joys must have been those of the first collectors who first found whole colonies of these lovely plants blooming in their remote Alpine homes. In our location excessive moisture is their enemy — crown rot develops all too quickly, despite care. I just cannot see how Mrs. Berry grows them so well and so prolifically when her conditions cannot be so much different from ours. Of course we do have to concede that Mrs. Berry has the greenest thumb of anyone I've ever known! They do grow well out-of-doors in parts of Victoria, given rocky nooks with sharp drainage and high overhead shade. I want to try them again, when stock will allow it, in vertical peat walls that have a very sharply drained leafy soil in a northeast aspect.

In closing, I must make mention of the wonderful job Mr. Baldwin has done with the seed exchange list this year. What a challenge to try so many different forms from so many sources. This should provide material for a further article at a future date.

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Summer Protection
by Florence Bells

These few paragraphs are about winter and summer in the east and west, and how like winter is the summer from the plants' viewpoint. At higher altitudes in the Cascades, here in Oregon this winter, some primrose plants were touched by freeze. These were plants that had put on a heavy leaf growth in the fall with the aid of chicken and rabbit fertilizer, both heavy in nitrogen. With the mild temperatures during the day, and freezing temperatures at night, tips of leaves and some stalks were hit. These, of course, turned brown with rot, which progresses rapidly to all parts of the plant unless checked.

Checking consisted of trimming off all rotting parts, followed by an overhead sprinkling of Natriphene as an antiseptic to prevent spreading to healthy tissue.

Two precautions would have prevented the rot. The first, counting the omission of the rabbit and chicken diet which produced too abundantly in the leaf department. On the west coast, we are fortunate in being able to acquire a liquid which, when applied in the fall and winter, contracts cell growth and has the same effect as a frost hard enough to scare the plants into inactivity. Or, a light fluffing of wood or paper excelsior would have absorbed the scald of the freeze.

Sun scald and freeze scald amount to the same thing. The same precautions to avoid scald hold true in the extremes of summer as they do in the extremes of winter. Last year the eastern portion of the country had one horrible season — a horrible winter merging into a horrible summer. Many plants, escaping the winter, perished in the summer drought after a brief youth in spring. Perhaps there were plants which could have been saved. Here, in the Northwest where water is no problem at any time of the year, it is hard to grasp the waterless situation of some eastern summers. Following are a few mulches which might help conserve moisture during hot summers anywhere.

One New Yorker, certainly favored beyond most, saved all his plants last summer by applying fresh cow manure around them and on all surrounding soil. This is too much for earth-bound gardeners to expect. So, in place of sticky-fresh cow manure on top of the soil, use grass clippings, compost, well-rotted sawdust (not raw), straw, or paper excelsior. Place around plants and under leaves, but never on the plant itself, and as much surrounding soil as material will cover. All of this is humus in the bank, to be worked into the soil later for a livelytilth. How else did strawberries get their name? The straw was used around the plants and under the leaves primarily to keep the berries clean, but the great benefit was to the soil and the conserving of its moisture.

In summer, as in winter, a light and loose covering of wood or paper excelsior (obtainable at all drug and hardware stores for the asking) spread over the plants will shield them from sun scorch just as it does from freeze scorch. Pull it apart as it is placed over your plantings — not just primroses but all plants that suffer from drought and heat — and water right through it when water is available. Summer over-all protection should be lighter than winter protection since summer is the growing and bloom-making period, and for this light is necessary. This light, airy material absorbs the sun's rays at the same time it checks evaporation of moisture from the soil. Remove when weather cools, or rains set in, or thin if plants begin to 'draw' or show signs of yellowing.
Primula Sieboldii in Japan

In a letter to Sister Patience, O. S. A., Dr. Shuichi Hirao of Kanagawa, Japan, gives the following account of P. Sieboldii.

Primula Sieboldii was a plant found plentifully in suburbs of Tokyo in olden days. They thrived in moist places of riversides and our old literature tells us those areas were as if covered with a pink carpet in April when in bloom. Most unfortunately, these wonderful places have been destroyed by the construction of factories in recent years.

More than two hundred years ago, when the wild plants were abundant, people collected natural mutations from wild plants and tried seedlings which resulted in a golden age of Sieboldii amounting to nearly 400 variations. Though many variations have been lost since, around 300 variations are still kept alive among our fanciers.

There is an authorized way of arranging the blooming potted plants which was established over one hundred years ago and is still practiced today. Thirty to forty potted plants are prepared today with four matured plants in each 6-inch pot. They are then arranged on four to five steps, with consideration of the color harmony of the whole, in a Japanese summer show house.

We plant P. Sieboldii with acid mountain soil or leafmould compost. I think the cultivation is almost the same as other primulas. Sieboldii may be much harder than many of the alpine primulas because it is not an alpine plant but a wild plant from where summer is quite hot and winter is cold.

In the case of pot culture, repotting is to be done annually. November, when the disturbed roots find time to establish before the heavy coldness comes, or early spring when the plant has not yet started into growth, are the good seasons for replantation. Blooming season is from mid-April to the end of April in Japan. After the bloom one finds new rhizomes appear to grow on the surface of the soil and these should be covered with new soil, half an inch in depth. This practice results in better increase of well matured rhizomes for the next year. A poor growing plant will lose the foliage toward July, but one does not have to be disappointed, taking the plant to be dead. The dormant rhizome is to be protected from sunshine and dryness, thus a better plant will come out in the following spring.

Seed is best immediately after harvest. In case one fails to do it then it is best to keep the seed in a cool place in a pot, mixing it with plenty of dry sand. Sphagnum moss seems the best compost for planting seed. It takes two to three years to bloom from seed. One should keep all the seedlings until bloom, as the individual variation is large.

In my experience P. Sieboldii requires more acid conditions than does Japanese iris. My previous garden was in Tokyo where the soil was alkaline. Some of my Sieboldii suffered from the lack of iron, showing yellowish foliage. At that time I noticed a few plants growing in an iron can, which grew normally.

Orville Fay, who is a wonderful breeder in both Daylilies and Iris, advised me to propagate from root cuttings. Iro Kurabe and Tatsuta Hime. Iro Kurabe sent me some roots of Iro Kurabe and Tatsuta Hime. I used the varieties as a further experiment on propagating from root cuttings. I had two root cuttings of the variety Shun Ko, a lovely pink, using short roots about one to one and a half inches long. I used sphagnum moss and after dampening well, placed it in a shallow plastic sandwich box. I placed segments of roots on this and sprinkled a very fine layer of damp sphagnum moss over the roots, leaving the cut end barely visible and the tip of the root covered deeper. The lid was replaced on the box and the container placed in a light place with a constant temperature of 68 to 70 degrees F.

Now, eight and one half weeks later, there are two plants about one inch tall and with two leaves. They are husky and of a good green color. I will now start feeding with liquid plant food.

The root cuttings are developing so much faster than plants from seed, and it is a quick way to propagate desirable plants. In my experiment both roots sent up plants, and I imagine propagation would prove very good.

I hope these experiments prove to be as interesting to the others as they have been to me.

Mrs. Heacock sent an addendum to the above letter:

On January 4, I put down root cuttings of two more variations of P. Sieboldii as a further experiment on propagating from root cuttings. In this experiment I used the varieties Iro Kurabe and Tatsuta Hime. I planted the plastic box with damp sphagnum moss the same as for the first experiment, but instead of putting it in the window I placed the box ten inches below 40 watt daylight fluorescent lights... the lights burning about 12 to 14 hours a day. Now since January 4 to February 3, or 30 days, I find that two roots of Iro...
Kurabe have plants one-half inch tall with one leaf each and another leaf starting, while the two roots of Tatsuma Hime have only one plant one-fourth inch tall with one leaf. The other cutting has a bulb-like growth on the cut end. The roots in the box placed in the window made husky growth after 8½ weeks. The roots planted under the fluorescent lights have developed plants in thirty days' time, so it proves to be the most effective method of propagating. Whether there is a difference in the speed with which different varieties send up plants, I cannot say. Also, it is possible the health and vigor of the plants from which the cuttings were taken could be an important factor in the time required for plantlets to appear. As nearly as I can tell, all plants appeared to be healthy, but they had just arrived from Japan, and were, in a sense, in a state of shock from traveling.

Dr. Hirao has sent us 34 named variations of *P. Sieboldii*. These all have Japanese names and I do not know if any are the same as other named variations with English names.

Sincerely,
Mary Ann Heacock

Mrs. Heacock suggests that in propagating new plants from separated roots of *P. Sieboldii* it might be well to cover the pots with Saran Wrap to hold the moisture at a constant level until the roots form a bud eye at the cut end. A rubber band could be used to hold the covering on and should be lifted occasionally to let fresh air into the pot. Dr. Hirao recommends late fall as the best time to cut the root from the rhizome. This is planted shallowly in a pot with fine leaf mold or sphagnum moss. In the spring a small eye will be seen at the cut end. It will take two years to bloom.

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**American Rock Garden Society**

*(Organized 1934)*

Its objectives have been to encourage and promote:

a) the cultivation and knowledge of rock garden plants, their value, habits, and geographical distribution,

b) interest in good design and construction of rock gardens,

c) to hold meetings and exhibitions,

d) plant exploration and introduction of new species and forms,

e) study of history and literature on the subject,

f) acquaintance between members and groups with the resultant mutual exchange of experience and knowledge.

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**Show Reports**

**NATIONAL PRIMROSE SHOW**

by Floyd S. Keller

Sweepstakes winner in the Horticulture Division was Mrs. Lawrence Tait. Runner-up was the Dickson Perennial Gardens. Novice Sweepstakes was won by Marian Beesler and Runner-up was Mrs. Springer.

The Bamford Trophy for the best Green Seedling auricula was won by Cy Happy. He also won the Mebanau trophy for the best named Show Auricula. The Dickson Perennial Gardens won two perpetual trophies: the Shaman trophy for the best named Alpine Auricula, and the Haddock trophy for the best Seeding Alpine. The Captain Hawkes Perpetual Trophy for the best Gold-Laced was won by Agnes Lindsay.

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**OREGON PRIMROSE SOCIETY SHOW**

Sweepstakes, Mrs. William Tate; Best Seedling Polyanthus, Perpetual Trophy, Mrs. C. E. Hanson; Best Seedling in Show, Perpetual Trophy, Ross Willingham; Best Polyanthus, Commercial, Mrs. Frank Ott; Best Polyanthus, Amateur, Mrs. Lu Alexander. Best Species, Mrs. C. S. Higgins; Best Acaulis, Mrs. Lu Alexander; Best Juliae, Mrs. Orval Agee; Best in Decorative, Mrs. Orval Agee. Best Novice, Mrs. Richard H. Wilcox; Best Junior, Susan Alexander. A large display of interesting double auriculas was provided by Denna Smuffer of Bay City, Oregon.

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**EASTSIDE GARDEN CLUB—KIRKLAND**

by Anne Skippin

The Primrose Path led to Kirkland again when about 2,500 enthusiasts
Show Reports {Cont'd}

CLARK COUNTY PRIMROSE SOCIETY SHOW
by Mrs. Seth Barnett

Horticulture Division: Sweepstakes, Mary Ramsden; Best Plant in Show, Laura Jensen; Most Blue Ribbons, Lucille Lippit; Runner-up, Laura Jensen.

Arrangement Division: Garden Club Div., Hazel Dell; Coffee Table, Norma White; Buffet, L. Gray; Driftwood, Marie Morrison; Miniature, Marle Morrison; Junior Arrangement, Cindy White.

MT. ANGEL PRIMROSE SHOW
by Mrs. Wilbert Schaecher, Show Chairman

Sweepstakes winner, Mrs. Joe Annen; Runner-up, Mrs. Dave Shepherd. Novice Sweepstakes, Mrs. A. Oberhumer; Runner-up, Mrs. Alfred Huber.

The Governor Hatfield Perpetual Trophy for the best Polyanthus in the Show, and the Bochslcr Trophy for the best auricula grown from seed were won by Mr. Joe Annen. The Best Polyanthus Seedling award was won by Mrs. Dave Shepherd. Mayors Trophy for Men was won by Duane Farmen.

Sweepstakes in Flower Arrangements was won by Dolores Hall and Runner-up was Duane Farmen. Novel Sweepstakes was won by Mrs. Richard Harris; Twelve and Under Junior Sweepstakes won by Barbara Schledler; 13-16 Junior Sweepstakes won by Mary Anne Wachtcr.

In the Garden Club Division: First, Lake Labish; Second, Salem Grow and Show; Third, Silverton Mum Society.

AURICULA SHOW—WASHINGTON STATE SOCIETY
by Ida Magnus

Winners were: Sweepstakes, Herbert Dickson; Runner-up, Kitty Schwartz. Best Show Auricula, Nancy Ford; Best Seedling Auricula, Cy Happy; Best Border Auricula, Ross Willingham; Best Gold Lace, Herb Dickson; Best Double Auricula, Nancy Ford; Best Species Hybrid, Orval Agee; Best Species, Bob Pulnam; Best Candelabra, Mary Baxter; Best Arrangement, Mary Baxter.

CANADIAN PRIMULA AND ALPINE SOCIETY

Perpetual Trophies: Best Alpine, Mrs. Charles Ross; Best Primula, Mr. Karl Wrase; Best Ranised Tufa, Mrs. B. Windsor; Best Native B. C. Plant, Mr. Arthur Guppy.

Best in Show Awards: Best Bulbous Plant, Mr. Arthur Guppy; Best

American Primrose Society

Show Reports (Cont’d)

Primula Species, Mr. Karl Wrase; Best Primula Hybrid, Mrs. P. Guppy; Best Cushion Plant, Mrs. C. Ross; Best Plant suitable for Woodland, Mrs. D. Munday; Best Dwarf Tree or Shrub, Mr. Karl Wrase; Best Bonsai, Mr. Karl Wrase; Best Trough or Miniature Garden, Mrs. R. Boyces; Highest Aggregate Points, all classes, Mrs. Grace Conboy.

LEWIS COUNTY PRIMROSE SOCIETY

Springtime in the Valley was the theme of an informal and non-competitive show held during one of the regular meetings in April.

Showing Ads

SHOW REPORTS

Classified Ads

DOUBLE AURICULA SEEDS and PLANTS... New colors in these. Seeds sold in mixtures only. A few 1963 seeds left, but order early for 1964 crosses. Plants for sale at garden only. No shipping. Good choice of garden auriculas. MRS. JANET ROUND, SOUTH COLBY, W. N.

ROSEA GRANDIFLORA — 75c. Species Juliae—$1. Julianna hybrid "Buttercup" $1. Frodose 75c and several rare species in limited supply. See these plus a wide selection of auriculas, candelabras and polyanthus at DICKSON'S PERENNIAL GARDENS — 13347 56th Ave. S., Seattle 78, Wn.

VERMONT HARDY Sky Hook Giant Polyanthus, Acaulis, Auriculas, Heathers, Heaths, Dwarf Evergreens, Dwarf Cotoneaster, Vaccinium caespitosum. Seeds of double auricula, 50/3.00; and all other seeds $1.00 per packet. Double auriculas, $3.50 each. SKY HOOK FARM, Johnson, Vt.

The Seed Exchange is a very important part of the Society. Remember the Seed Exchange this summer, and help by participating. Collect ripe seed, protect it from insects, let it dry out before packaging. Label the seed packets carefully, and send to Mr. Elmer C. Baldwin, 400 Tecumseh Road, Syracuse 10, New York.

LYNN M. RANGE

41 Lynn Shore Drive, Lynn, Mass.

P.S. I search for ANY BOOK, and not just for Garden Books.

There is an old saying that "The Canadian Mounted always gets his man." I cannot make the same claim concerning my search for rare and scarce books, but I am really doing better than just "very good."

So drop me a line giving the author(s) and title(s) and I will search and report what is available with condition and price, with no charge or obligation on your part.

Also, send for my list of 200 carefully selected titles of garden books. Some new, many out of print, with a large proportion about Primulas, Alpine and Rock Garden plants, and those regarded as "classics."

Due to steadily increasing individual incomes in Great Britain the local demand for many items will rise rapidly and prices are unlikely to remain as low as of today.

LYNN M. RANGE

41 Lynn Shore Drive, Lynn, Mass.

P.S. I search for ANY BOOK, and not just for Garden Books.
Concerning Primulas

GRACE DOWLING, Seattle, Washington

Chapter 15
PROPAGATION

There is nothing incomprehensible or mysterious about raising primulas from seeds. Generally it is neglect, at one stage or another, rather than poor seeds, that causes most of the failures. Many times I have been sure that I must have had poor seed, and have laid the blame for non-germination on the shoulders of the seedsman, but in the last few years if I have felt any doubt about the age of the seeds, I have tested some of them in a warm, damp cloth, and always a large portion has germinated. A piece of rated flannel, four inches wide and six inches long, with the seeds laid on one-third of the length, and the whole piece rolled up and dampened, is all that is necessary. The roll should be kept damp for a week or two, or until the seeds begin to plump up, showing they are alive.

Fresh seeds germinate much sooner than those a year or so old, but the remarkable vitality of a seed will often assert itself, even if it has lain dormant for some time.

Each spring there is an urge in the soul of many gardeners to start on a pilgrimage to all nurseries, searching for new primula plants. For almost the price of one plant, a packet of seeds can be bought, and literally dozens of primula plants can be raised with every possibility that there will be, not one, but many as fine as those the nurserymen have for sale. The Seed Exchange of the A. P. S. offers a selection from all over the world and every year new varieties of polyanthus and primroses are listed in American and overseas catalogs. Seeds from polyanthus in our own gardens compare favorably with many purchased, and it is an exciting experience to raise plants from ones own seeds.

In order to be able to gather worthy seeds all the mediocre plants are eliminated, with poor colors, weak stems and inconspicuous blooms—must be discarded very early in the spring as soon as their characteristics are known, and before there is a chance for pollen to be carried. The ones whose seeds you wish to save should be marked, and just as the seed pods open, the seeds should be collected from the plants. This takes daily inspection. I use a cigar box, the cover serving as a handle, and place the box close to the stem holding the seed pods. Then it is a simple matter to bend the stem with the scissors until the seed pods are over the box, thus keeping the seeds from falling on the ground. If for any reason there is danger of losing the seeds before they are ripe, the whole stem, just previous to the opening of the seed pods, may be picked and placed in a glass of water to ripen. An especial danger to be guarded against may be caused by ants which inevitably eat the seeds as soon as they are ripe. The stem should be removed from the glass of water when the pod starts to crack open, releasing the seeds and letting them dry gradually.

To hand-pollinate is simple, but must be done painstakingly. Parents must be carefully chosen, a pin-eyed and a thrum-eyed one. The pin-eyed flower shows the stigma, like the head of a pin, at the opening of the throat of the corollas, but in a thrum-eyed primula only the stamens are visible, fastened to the throat or tube and extending to the opening. This intelligent device insures cross-fertilization because the pollen and the pistill of the same flower are never mature at just the same time. The pollen has, in most cases, been carried away by the insects before the pistill is ready to receive it.

Cross-fertilization means that pollen is brought to the stigma from the stamens of a flower growing on an entirely different root; self-fertilization is caused by the pollen of a flower being placed on its own stigma. Many flowers are able to pollinate themselves without the aid of insects or wind.

The following is an example of the method used when choosing flowers to pollinate: a large white pin-eyed flower which is charming, but has a weak stem, may be used for the seed plant, the one on which the seeds are to form. With the hope that the stem may be strengthened, it could be crossed with a fine pale-yellow, husky-stemmed, thrum-eyed flower, and there are chances something nice may be produced. However, dreams are not always realized, as children do not always fulfill the hopes of their parents. So it is with primulas. Some sunny morning, after the dew has left, a bud should be selected that is not yet open; remembering that the pin-eyed flower is the one whose seed is to be saved. By gently pressing the bud open and removing the petals, the stamens which are attached to the petals are removed before the pollen has escaped and there is not yet a possibility of self-pollination. This operation is called emasculation. Tweezers or dexterous fingers can skillfully detach the petals without letting the stamens touch the pistill, which is left to stand erect and solitary. It is important not to let a bit of pollen stick to the fingers or tweezers. Sterilizing the fingers and instruments with alcohol before touching a different variety avoids this danger.

After the pistill has been stripped of the surrounding growth, pollen from the selected thrum-eyed flower must be placed on it. A camel's hair brush may be used or a single flower may be picked and gently rubbed over the pistill. The pistill shines like glass, has a transparent look and is definitely sticky when it is ready to receive the pollen, but even if the pistill has not developed to precisely that stage, pollen may be scattered over it, as the pollen generally remains wiry for a day or two. As a precautionary measure, pollen may be spread over it again as the pistill develops. Then, of course, it is necessary to keep the bees from bringing foreign pollen to the pistill. The flower head must be covered. I have found the little cellophone bags, used by grocers, fairly satisfactory. As they are not made with water-proof glue, it is necessary to fasten the bottom securely. The bottom may be folded back upon itself for about an inch and fastened with paper clips. Because this bag with the clips may be too heavy for the stem, a stake may be placed in the ground beside the stem and under the bag to keep it from falling over.
classical soil, consisting of one-fourth to keep an even moisture and the page 90

peat moss is laid on these pebbles or gravel should be placed in the ten inches, or ten by twelve inches, especially important and broken pots in the bottom. Good drainage is the case of rare varieties, become a numbers that pots or pans, except in my greatest P. acaulis; pans for sowing the seeds of poly-

acaulis seeds of polyanthus and P. ture from the soil they contain. The failures, when growing primulas, are generally planted in such great

my data is in a notebook designating the cross and the year. At a glance my notebook tells me the parents. These tags are put into the packages of seeds when they are finally harvested and the same symbols are written on the labels used to mark the seedlings. Plants from these seeds should be saved and crossed again with the parent plants. The second generation shows the characteristics of ancestors not shown in the first generation. The very abbreviated description should be supple-

mented by more detailed directions in Mr. W. J. C. Lawrence's Practical Plant Breeding.

Many growers use pots or seed pans for sowing the seeds of polyanthus and P. acaulis; my greatest success has been in cold frames or in flats. Probably nine-tenths of the failures, when growing primulas, are caused by letting the soil dry at one stage or another. Earthen pots and pans dry very quickly and take mois-
ture from the soil they contain. The seeds of polyanthus and P. acaulis are generally planted in such great numbers that pots or pans, except in the case of rare varieties, become a burden when caring for them.

My flats are fairly small, eight by ten inches, or ten by twelve inches, made with plenty of cracks or holes in the bottom. Good drainage is especially important and broken pots or gravel should be placed in the bottom of the flats. An inch of wet peat moss is laid on these pebbles to keep an even moisture and the classical soil, consisting of one-fourth garden loam, one-fourth leafmold, one-fourth peat moss and one-fourth sand is sifted and used to fill the flats. Nearly every grower has his own pet formula for the mixture. A little richer mixture, with a little more nourishment (one complete fertilizer mixed well with the soil for each flat) is often used in order that some of the seedlings may be left in the flats until they are well started. Some very successful gar-
deners use one part soil and three parts sand, thus almost eliminating the "damping off" bug-bear.

Before mixing, each ingredient is sifted fairly fine (through a one-fourth inch mesh sifter) and the loam and leafmold sterilized separately. Here again schemes may differ. Boiling water poured over the soil, or the soil baked or boiled until sterile are the most popular amateur methods, but electric soil sterilizers are the most efficient. After the soils have been sterilized they should be mixed with the peat moss and clean sand. A layer of the mixture, approximately two inches, is placed over the wet peat, and a thin layer of the same mixture, more finely sifted, is placed over the top and the whole firmed well with a brick or smooth block of wood. This makes a medium that will hold the roots firmly when they start to grow. After the firming, I add less than an eighth of an inch of sand over the whole surface, sifted on with a flour sifter. On this the seeds are very thinly scattered and again, a sifting of sand, enough to barely cover the seeds.

After sowing the seeds they are firmed with the same block, and two or three thicknesses of newspaper, cut to fit the top of the flats, are gently laid over the seeds and moistened with water by sprinkling with a rose spray, and covered with a pane of glass. Keeping the paper damp is probably all the moisture the seeds will need during the first few days. When they have grown four leaves should be far enough apart not to crowd each other, it is easy to under-
stand the importance of sowing thinly. Crowded seedlings often cause the dread "damping off" disease, to which primulas are peculiarly sensitive, and undergoing a siege of this malady is one of the first discouraging experiences of every gardener. Its scientific name is Pythium debaryanum. It may be caused by poor ventilation when seeds are too crowded; by soil that is kept too wet; by sour or non-sterile soil, or by imperfect drainage. Sour leafmold in the soil mixture is, un-
doubtedly, the most common cause of this malady. Care should be taken not to use an excess of leafmold when preparing mixtures for the sturdier kinds of primulas and it should never be used when growing rare alpine primulas. The disease is most preva-


cient in cloudy or dull weather — another reason for keeping seedlings far apart, in order to get all the light possible.

This disease comes on very sud-


denly. In the morning all the little seedlings seem in perfect health, but in the evening a few are limp and have fallen over at the top of the soil. The next morning more have fallen. By immediately scattering powdered charcoal or fine sand over the surface of the soil some may be saved. In bad cases a sprinkling of powdered flowers of sulphur may help but the most successful treat-


tment of this disease is preventive. Careful preparation of the flats and watering from the bottom rather than sprinkling the top of the soil is quite worth the effort. Watering by im-


ersion is simple. The flats should be set in a pan of water, allowing the water to come only half-way or two-thirds up the sides. As soon as the soil is damp on the surface, remove the flat and set it to drain. The "damping off" fungus may be carried from year to year in soil, pots, pans, or flats, an indisputable reason for sterilization. Recently, several com-


mercial products have been developed which claim to prevent "damping off". Semasan, dusted on the seeds, has proved successful in many cases.

The method of growing the so-
called alpine primulas is another story and one that can only be touched upon. Volumes have been written, each writer suggesting a new scheme for success. When I have watched the pains with which primula enthusi-
asists prepare, first the containers, then the drainage material, the soil, the watering contrivances, I realize it is only the art collector, with a craving for fine and rare things, that should attempt this fascinating, if sometimes heart-breaking, pursuit.

For seeds that have been kept some time after harvesting, freezing in a mechanical refrigerator is a safe procedure. They should be frozen steadily for five days and nights and allowed to thaw out each day for five more days. This is an effort to ap-


proximate the treatment nature gives them in the mountainous regions where they originally grew.

If alpine primula seeds are ob-
tained early enough to sow in July, the seedlings should be large enough to pull through the winter without difficulty, but unless facilities are perfect, August and September sowing brings an indispensible so late into winter that it is extremely difficult to carry them through. When seeds are planted at the turn of the year, allowed to be covered with snow, if only for one day, the seedlings catch up to those planted in the fall without any difficulty.

Now only sterilized six inch pots should be used. It is not necessary to soak them before filling as
they are well saturated during the process of wetting and draining the soil. Over the hole in the pot is placed a concave fragment of broken pot and over this about one-half inch of crushed rock (about one-half inch in size) and one inch of tiny pebbles to settle through the crevices of rock; another inch of crushed rock and then more pebbles. This is all jounced together in a very professional way and then a light sieving of peat, sifted through a one-eighth inch sieve, is scattered over the rocks.

For all seeds the mixture used is two parts of any soil, one part of sand and one part of peat, all mixed together and sifted through a one-fourth inch sieve. Leafmold is never used because some of the many different varieties of fungus it may contain are injurious and the soil is never sterilized. After placing this soil over the crushed rock in the pots, the pot is jolted, gently, on the potting table to settle the soil somewhat. The pots are now placed in pans containing about two inches of water for the soil to gradually become moist and settle. Pans of heavy tin, approximately three feet square and three inches deep, with a hole in one corner, can be made at any tin shop. This hole is made for the tiny plant with the pointed end of the pencil and the soil tucked around with the soft, blunt eraser. The new Liquid Control Developed by Regional Chemical has proved a successful instrument to use for the next step. A hole is made for the tiny plant with the pointed end of the pencil and the soil tucked around with the soft, blunt eraser. The only subsequent treatment is intelligent watering, until the plants are ready to place in the garden, or in other pots if they are to be kept in the alpine house.

The majority of the family of primulas increase naturally by sending out, on the same root, new crowns around the original rosette of leaves. These new growths may be detached and planted separately from the parent plant, thus making two or several plants, identical with the original. This not only increases the number of plants but it exactly repeats the original plant’s habits—color, size and form—an invaluable method to the grower, for in this way he can establish a large planting of an exceptional plant. Seeds from the original plant may not always repeat the self-same plant, but vegetative division is positive.

There is a small group of primulas that do not increase in this fashion, but fortunately most of these produce seeds more or less willingly, and by seed reproduce themselves with slight variation. P. Forresti is a typical example of this peculiar deviation from the generally accepted family idiosyncrasies. Plants of this group grow several crowns on one woody stem.

Divisions of primulas with known preferences varying from the usual order have been described under the separate species.

This is the final chapter of Mrs. Dowling’s book. On the behalf of the Society, I wish to thank Mrs. Dowling and Mrs. Ford for the reprint of this comprehensive and useful book on our favorite plants.
On Pollinating Double Auriculas

by RALPH W. BALCOM

It was eleven years ago this spring that I first started hybridizing for double auriculas. During the first few years, the seed crop from these double crosses was rather scant in comparison with what I had been getting from pollinating other primulas, especially the polyanthus. How frustrating it was to carefully choose two plants that seemed suited for a particular cross and then, after painstakingly pollinating the two together, have the pods and stems dry up, resulting in no seed. Oftimes it would break the link in a series of crosses and would waste several years of effort. And so I began haunting the libraries for written information on the subject of pollination and asking questions of other hybridizers. With the knowledge thus gathered, together with what I learned after several years of experience involving the trial and error method, I have worked out a system of my own that is producing better results. In fact, I am now getting seed from about twice as many crosses as I did when I first started.

Here is an account of methods that seem to produce the most seed.

In the flower used as the maternal parent, one must be sure that the anthers have burst and released the pollen before attempting to make the cross. If the tiny longitudinal ridges on the anthers are visible, it is too early. Wait until they have disappeared and the anthers have a dusty feathery appearance. It is unnecessary to use a brush. Simply rub the anthers over the stigma, but it should be done very gently because the stigma can be easily damaged by rough treatment. It should be covered as evenly and completely as possible with pollen in order to get the maximum amount of seeds.

It is best not to pollinate too many blossoms on any one plant. Fewer flowers used are apt to produce more and better seed. If the stamens or the pistil are defective or perhaps even lacking, one should wait for the later blossoms which are often more perfect. It makes no difference genetically whether one uses fully doubled blossoms or the more single ones, as long as they come from the same plant. The type of progeny will be the same in either case.

In the matter of heterostyles, it has been quite definitely established by several authorities including Darwin himself, that the legitimate crosses (thrum x pin and pin x thrum) produce much more seed than do the illegitimate crosses (thrum x thrum and pin x pin). So it is better to cross the pins by the thurums and the thurums by the pins. By crossing the plants in this way, one would expect to get a greater percentage of pin-eyed progeny, but would get more seed than by crossing a thrum by a thrum. A pin x pin cross should never be made except as an experiment.

When I first began hybridizing primulas, I was of the opinion that one should do his pollinating on sunny dry days because it was then that the bees were out and so I thought it would be nature's way of doing it. Then I read an article by Mr. Brian J. Langdon of the famous Blackmore & Langdon Nurseries of Bath, England. It was published in the 1958 Year Book of the English National Auricula & Primula Society - Southern Section. He said: "I wonder how many people have noticed that their flowers quickly die after the plants have been watered . . . ? The reason is this — in order to set seeds, all polyanthus require a moist atmosphere, and all seedsmen know the seed crop is improved by overhead watering of the plants when in flower . . . (By watering) seed-setting conditions are vastly improved, and the flowers die quickly as pollinated flowers always do. For this reason, the flowering period of the polyanthus is much shorter in a wet season than in a dry one, and for this reason also, many Parks Superintendents will not water flagging polyanthus." After reading this, I did some checking on the effect of moisture on auriculas in the matter of producing seed and became convinced that the same applied to them as to the polyanthus. At the time of year in the Pacific Northwest when we do our pollinating, the air is usually humid, but, if it is dry and warm, I often spray the plants in the evening and then the next morning do my pollinating. If the pollinated plant is in a pot, I often spray the foliage with an atomizer type sprayer, being very careful not to wash away any pollen from the stigma. Then I also give the soil in the pot a good watering.

Plants, because of some instinctive trait, will often set seed in abundance if injured in some ways. Drought, starvation or even root damage will do it many times. A plant, believing it may die, and in order to perpetuate the species, will get busy producing seed. I haven't had much success starving the plants or watering them scantily, but have obtained some apparently good results by injuring the roots. This was accomplished by repotting a plant if already in a pot, or by potting it up if it was growing in the ground. This is done two or three days prior to pollinating and one should make sure in each case that quite a bit of damage is done to the fibrous roots so that the plant will get a good shock. Care should be taken, however, not to injure them enough that the plant cannot recover in good condition. And this should only be done to hard-to-cross individuals.

Sometimes two plants will not cross with each other but will cross with other plants. If a cross fails and the plants involved are outstanding and worth while perpetuating, I will occasionally try switching combinations. Quite often, where the A x B cross will fail, the B x A cross will produce seed. If possible, it is wise to make the reciprocal cross, which means crossing each with the other.

Another reason that some crosses will not produce seeds is what is known at cross-incompatibility, which means that, due to the effect of certain genes, the pollen-tubes fail to grow down the style. Close relationship between two plants used in a cross increases the chance of incompatibility between them. This is one of the reasons for occasional failure to obtain seed in a back-cross or in a sib-cross. There are crosses that no matter what technique is used will fail because of some deformity or because of some genetic reason, of which there are very many. This means that one must always expect some failures. It could be that some of these processes that I have described have no bearing on the increased production of double auriculas since I have just been working my imagination overtime. It is true, however, that by the combined use of all these various procedures that I now use, the number of my successful crosses has increased from 33% to approximately 68% during this past period of eleven years.
The Heavenly Keys of Mile-High Denver

by MARY ANN HEACOCK
1235 South Patton Court - Denver, Colorado, 80219

I first made my acquaintance with primroses at the age of twelve, when early one spring an elderly friend gave me my sister and me three plants of *Primula auricula* and about a dozen plants of a polyanthus type primrose. We were living in central Kansas and these were planted in the shade of a large American elm tree. This was the beginning of the terrible drought years that hit the midwest in the '30s and every spare drop of water was faithfully carried and poured around these prized plants. We even saved the rinse water after the dishes were washed and scalded, to water the primroses and the plants did thrive and were beautiful.

Just before the plants were to bloom our aged grandmother came to spend three months in our home. She had come to America from Germany at the age of twenty-five. Probably it was due to her supervision that the plants lived thru the hot dry summer. She was familiar with primroses and told us many stories about these plants.

An old German folk tale explains the presence of the primroses. As St. Peter stood at the gates of heaven, someone told him that certain black-hearted souls were trying to get into heaven by a back door. St. Peter was so upset at this outrage that in his excitement he dropped all the keys to the doors of heaven. They fell to earth and where each key fell a clump of primroses appeared. Grandmother called all primroses *Himmelschuschen*, or Heavenly Primrose. The *Primula auricula* she called *Schusselblume*, meaning Key Primrose, or to be specific it means "key bloom."

Grossmutter explained that when she was a child, the young ladies used the juice from crushed blooms of *Auricula* and *Tradescanthus* (Spiderwort) to rub over their cheeks to give them a rosy color. At that time it was considered improper and even sinful for genteel ladies to use cosmetics. Heaven help the girl whose father caught her indulging in such beauty aids; he promptly turned her over his knees and tanned her fanny soundly with his leather razor strap!

An old wives remedy for young girls was a herb tea made from the leaves of tansy and primroses. Whether the tea was actually beneficial or whether the vile taste of such a brew was enough to make a person forget all physical discomfort I will never know, for I never gave Grandmother a chance to try it on me.

When our friend had given my sister and me those first primrose plants she explained that the polyanthus type primroses were called Fairy Bells by her mother, who was from England. The young children of England believed that fairies lived in the blossoms of primroses. I remember thinking that English primroses must be very large and their fairies small, or that English people had whopping big imaginations, never dreaming that about a decade later myself I would marry a man whose ancestry and name were English. Big imaginations and small fairies indeed!

My husband and our three children share my love for all garden flowers and the primroses in particular. We live on a small two-lot city location in a fairly new section of Denver, and there are few shade trees. We use tall growing perennials to shade the primroses from the midday sun. The climate of Colorado is very dry and lacking in humidity; naturally, with very little moisture we must irrigate or water with the garden hose. This must be done in the very early morning or late at night, else the plants would cook in the hot sun. Our nights are very cool and this gives the plants a chance to renew themselves. We do have outstanding success with the limited varieties we grow. Our primrose venture is on a small scale as far as the number of varieties is concerned. We have Polyanthus, *Auricula*, *Denticulate*, Auriculas, Juliana Wanda, an old double called Quaker Bonnet and this past winter we were lucky enough to receive many named Sieboldii from a friend in Japan.

North of our house in the moist shade and growing with ferns and other shade loving plants we have a couple of plants of the wild Primrose Parryi, which have grown and bloomed well for three years. They seem happy but do not set seed. Possibly the fact that I practice overhead watering would keep the pollen too wet and seed cannot form. This season I will try using a soil soaker on these plants — if they do not set seed this year I will be convinced the Denver area is too hot and dry for seed to form. Growing next to the primula Parryi we have many *Dodecatheon* pauciflorum in shades of pink and red and a choice white variant. These all set seed well and each year the plants are a mass of bloom. As with all our moisture loving plants we incorporate a large amount of peat moss and compost into the soil when we transplant the *Dodecatheon*, Primulas or any of their relatives.

Our main flower border is about 12 feet wide and about 75 feet long. Winding thru this border is a very narrow gravel walk edged with rather large variegated rocks. These rocks were gathered during our frequent trips to the mountains and are small enough to handle with ease, yet are large enough to "stay put," and not be kicked out of place by romping dogs or playing children. We tuck the primrose plants into the space where each rock is set next to another; providing moisture and a cool root-run for the primroses during the heat of our summer days.

Perennials are planted with the taller plants near the fence and the lower and more bushy plants near the walk, thus helping to shade the primroses. We planted iris, lilies, daylilies, penstemons, phlox, delphinium, hardy gloxinia, heuchera, and many other perennials. Any gaps along the borders are filled with spring petunias, lobelias, and other annuals. The primroses start the blooming season and as they come to America from Germany at three months in our home. She had shining their ancestry and name were English.

Big ancestry and name were English. Big imaginations and small fairies indeed!

My husband and our three children share my love for all garden flowers and the primroses in particular. We live on a small two-lot city location in a fairly new section of Denver, and there are few shade trees. We use tall growing perennials to shade the primroses from the midday sun. The climate of Colorado is very dry and lacking in humidity; naturally, with very little moisture we must irrigate or water with the garden hose. This must be done in the very early morning or late at night, else the plants would cook in the hot sun. Our nights are very cool and this gives the plants a chance to renew themselves. We do have outstanding success with the limited varieties we grow. Our primrose venture is on a small scale as far as the number of varieties is concerned. We have Polyanthus, *Auricula*, *Denticulate*, Auriculas, Juliana Wanda, an old double called Quaker Bonnet and this past winter we were lucky enough to receive many named Sieboldii from a friend in Japan.

North of our house in the moist shade and growing with ferns and other shade loving plants we have a couple of plants of the wild Primrose Parryi, which have grown and bloomed well for three years. They seem happy but do not set seed. Possibly the fact that I practice overhead watering would keep the pollen too wet and seed cannot form. This season I will try using a soil soaker on these plants — if they do not set seed this year I will be convinced the Denver area is too hot and dry for seed to form. Growing next to the primula Parryi we have many *Dodecatheon* pauciflorum in shades of pink and red and a choice white variant. These all set seed well and each year the plants are a mass of bloom. As with all our moisture loving plants we incorporate a large amount of peat moss and compost into the soil when we transplant the *Dodecatheon*, Primulas or any of their relatives.

Our main flower border is about 12 feet wide and about 75 feet long. Winding thru this border is a very narrow gravel walk edged with rather large variegated rocks. These rocks were gathered during our frequent trips to the mountains and are small enough to handle with ease, yet are large enough to "stay put," and not be kicked out of place by romping dogs or playing children. We tuck the primrose plants into the space where each rock is set next to another; providing moisture and a cool root-run for the primroses during the heat of our summer days.

Perennials are planted with the taller plants near the fence and the lower and more bushy plants near the walk, thus helping to shade the primroses. We planted iris, lilies, daylilies, penstemons, phlox, delphinium, hardy gloxinia, heuchera, and many other perennials. Any gaps along the borders are filled with spring petunias, lobelias, and other annuals. The primroses start the blooming season and as they come to America from Germany at three months in our home. She had shining their ancestry and name were English.

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The Red Spider's specific name, Tetranychus tetrarius, is as fantastic as this tiny eight-legged mite who is neither an insect nor a spider. It sucks the juices from the foliage, leaving the leaves blotched and yellow looking. The underside of the leaves appears to have been dusted with fine white powder, but looking thru a magnifying lens one sees that this powder is minute eggs suspended on strands of fine silk spider-like webbing along which crawl the small green, yellow, black or red mites, depending on their stage of development. These felons thrive on hot dry weather and a good forceful stream of water daily discourages them, but this must be done in the early morning.

This past year we had a bad infestation of red spider on all plants. I have found the best solution to my problem is to use a bottle sprayer such as is used for window cleaning and fill with a prepared solution of Malathion or some other product which the label reads is safe for primroses, and the right proportion of water. Wearing a rubber glove on my left hand, I lift the leaves of the plants and spray the solution with the right hand, hitting the infested area point-blank. This bottle sprayer is much better than my old method of using the garden sprayer attached to the hose. This made the spraying so heavy that it knocked the flower beds, I caused havoc to tall plants in the flower border. For a bad infestation of red spiders, it is necessary to spray every three days, for at least nine days.

Malathion used to control red spider mites also keeps aphids under control. Whether it is the diet of our aphids or whether they are living up to the reputation of Colorful Colorado I do not know, but our aphids come in different colors, every shade of green, gray and black. Rose dust is excellent to rid the plants of aphids; a new spraying or dusting is necessary within a day or so, as a very dead aphid can still hatch out very live young aphids as long as two days after its own death. Unlike the red spider who lives on the underside of the leaves, the aphids cover the stalk, stems and petals as well as the leaves of plants, and are visible to the naked eye.

I have raised the largest majority of our plants from seed. The seed is planted in pots of vermiculite; as soon as the seedlings have two leaves I prick them out with a #7 crochet hook. The seedlings are transplanted into flats with prepared soil of sand, soil, peat and compost. I use the hooked end of the needle to prick them out of the vermiculite and the blunt end of the needle to nudge the plants into place and then tamp the soil around each tiny plant with the blunt end. I leave them in this flat until the plants are large enough to transplant to their permanent position in the garden.

I like all the primroses which we grow, but I am partial to the Auriculas. These seem to like our alkaline soil and respond well with little or no pampering. They are ideal in the rock garden and combine well with other perennials. I think they were well named in the old German folk tale, they are Heavenly Primroses and are the Key Flower in our garden, truly they are Heavenly Keys!
FROM RHONE STREET
CONTINUED

"It is amazing how much cooler the air and soil will be in the shade of a tree, and how much more moist the air will be at ground level in such a place. On hot days the soil temperature of beds in the sun (especially when the soil was dark and rich in organic matter) actually got 20 to 30 degrees hotter than the air temperature, while beds in shade were cooler than air temperature. The soil temperatures were measured in the first inch or so of surface soil."

from V.4 : 1 : p. 5

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The gregarious root weevils each lay 100-200 eggs about the crowns in late spring and early summer. The young larvae or grubs work down three to ten inches and feed on the rootlets. If a plant is not prospering, dig it up and check what is going on around the roots. There are approximately seven kinds of weevil in the Northwest, several of which are resistant to Aldrin. If treated ground is no longer effective, use a good insecticide on the leaves. About nine in the evening, the weevil climb up on the leaves to feed, and can be caught with a dust on the leaves. Commercial strawberry growers are now using dust, applied late in the day, as one means of control. Summer division of large plants helps to control the weevil. The ground can be treated and the individual larvae detected and destroyed.

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Summer division gives the plants time to get well established before fall, and lengthens the span of bloom in mild areas. Lift the plant, hose off the dirt, separate the crowns, cut the roots off to about four inches, remove the old leaves. Keep the divisions soaked and wet with moist sacking, or in a pan of water, and piddle into the ground.

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The Spring Yearbook carried a list of A.P.S. Judges. Two names should be included: Mrs. William L. Hagerman and Mrs. James W. Watson.

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