Quarterly of the American Primrose Society

VOLUME XXIII
SUMMER 1965
NUMBER 3

P. Klein x Poulter seedling. Grown and photographed by

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Foreign (except Canada) subscription price (including membership): $1.00 per year. All dues are payable each November 15 and should be sent to the treasurer: MRS. LAWRENCE G. TAIT, 14015 84th Ave. N. E., Bothell, Washington

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Subscription price (including membership): $3.50 per year, $10.00 for three years paid in advance. Old Quarterly available at Treasurer’s Office—see index with Winter 1959 issue. Treasurer, Mrs. L. G. Tait, 14015 84th Ave. N. E., Bothell, Wn.
(See cultural chart and Seed Exchange privileges with new memberships.)

The editor is Mrs. Lucien B. Alexander, 11848 S. E. Rhone St., Portland 66, Ore. It is published at the Arrow Printing Co., Portland, Oregon. Published four times a year—Winter, Spring, Summer, Fall. Copyright 1948 by American Primrose Society.
Notes from Rhone Street

"The silence of the place was like a sleep, so full of rest it seemed."
— Longfellow

In one sense, my primrose garden, secluded as it is in the woods, is blessed with restraint and silence. An occasional jet overhead creates the only mechanical interruption. The fast moving rocky creek and various families of birds create a companionable clatter. Lately, I have spent many hours pricking out acaulis and polyanthus seedlings and hand pollinating candelabras. Early in the morning and late in the evening I've been puzzled by a sound, different from creek and birds, a swish now and then, or a low pitched thump. Now that deer tracks are pressed down in the precious seedling flats of Gold Lace, I know who is watching me at work. "When the black bear follows the salmon-run up the creek I am less comfortable, despite my intellectual conviction of safety.

I talked with Ray McNeiland, the agricultural extension service Multnomah County Agent, concerning the methods of control of strawberry root weevil. His recommendations, which I pass along to you, are: Soil treatment for ornamentals, any one of the following: aldrin, chlordane, lindane, dieldrin, or heptachlor. Malathion, diazinon, or D. D. T. dusts applied on the wee "beaver" stack up the candleabra blooms and leaves in neat haystacks.

Will each of you whose address is in the United States please check your name in the roster, and send your zip code number to me if it is not included with your address? We pre-sort by zones now, but the time will soon come when the post-office will not deliver any second class mail that is not sorted by zip code.

Those of us who labor to compile a useful Quarterly wish to thank all of you who have assisted with material. We appeal to each and all of you to devote a few minutes of their time to type of Origin section in our seed lists, as the weevil stack up the candelabra blooms and leaves in neat haystacks. Membership awareness and participation is the lifeblood of our Society.

Seed Exchange Notes

by ELMER C. BALDWIN, Syracuse, New York
Regional Editor and Seed Exchange Chairman

Most sincere thanks are extended to the contributing members for their very generous support in making possible the 1965 seed list, which resulted in the largest number of requests to date. The requests indicated, in turn, the popularity of — and the need for more — seed of P. juliae and the succeeding hybrids; unusual forms of primulas of the Vernales section; Exhibition forms of P. auricula; double forms of P. caulis, polyanthus, and auricula; Adonis, Dodecatheon, Erythronium, Galax, Gaultheria, Iris, Lewisia, Pinguicula, Shortia, and Soldanella.

This is the second year of the Country of Origin section in our seed lists and it is time for comments and reports on the member-experience with the growing of these recently developed strains: germination; health of plants; productivity of bloom, plant offsets, etc; hardiness and longevity of the plant. The reports are solicited from as many of those who requested seeds from this section, as will kindly, in the interest of public knowledge, devote a few minutes of their time to put on paper — or a postcard — their comments and send them to the Seed Exchange Director for study and correlation. The experiences of many must be known before an accurate, over-all evaluation of any product may be obtained and this surely applies to seeds fully as much as to soaps or cake mixes.

In December, 1963, a germination test was run on each item listed in the C. of O. section. #488 germination was zero! This was disturbing as all seeds were planted in the same soil mixture, in the same large tray. All other seeds responded from a low fair, to excellent. Believing that the seed may have been "dead," the necessary number of seeds were sent to our state Seed Investigating Station for examination and germination test. With the sample, was enclosed a sample of our own seed, #363, as a check, as I knew this seed germinated well. In due course the report was received and read: #488 — 60%, #363 — 55%! Not doubting the report but just curious, a further planting of 488 was made and — germination was good to excellent! Which only illustrates the need for a wide cross-section of opinion before drawing a conclusion.

Won't you take the time to state your experiences on a postcard, from time to time? In this particular instance, it will help to weed out the plants or strains which do not prove worthy on a comparative basis, and help to maintain the quality of the exchange material at as high a level as possible.

E. C. B.

Editor's Note...This quotation from a letter of Mr. Baldwin's is of interest to all the Society. "This winter we attended a dedication of the new facilities of the Dept. of Seed Investigation of the Geneva Exp. Station. One important aspect of the comprehensive seminar on new methods could be summed up by a remark noted by the Station's first Director, Dr. Sturtevant: "It is difficult for the average grower to realize that cheap means cheap yields, that quality in seed costs the grower and costs the dealer, and must be paid for in the end by the purchaser. High cost seeds, provided there is honesty in the growing and sale, are the only economical seeds to buy."
Show Reports

National Primrose Show 1965
Orval Agee, Show Chairman

The National Show this year had quite a variety of Primulas and we certainly appreciate the many entries by other members. Being a small group, and hard hit by the December freeze, would have found it very difficult to give the Show without this help.

Mrs. A. C. U. Berry is a very busy person, but took the time to bring in plants to enter. Washington members responded with many good plants; Show, Alpine, Double and Garden Auriculas, also well grown species. This is the first time we have had a good showing of the Double Auriculas in this area. Mrs. L. G. Gentner of Medford added to the Decorative Division with some lovely arrangements.

Staging Chairman, Mrs. William Tate, had a very interesting floor display. A large mural of a mountain with a forest and lake in the foreground covered a space between two windows from the floor to ceiling. A planting was brought out into the room giving the effect of a mountain meadow in front of the lake, using candelabras and other Primulas with a covering of fresh green moss. It was an unusually attractive planting.

TROPHY WINNERS

Sweepstakes, professional
Dicksons Perennial Gardens
Sweepstakes, Amateur
Ivanel Agee
Bamford Trophy — Best Show Auricula Seedling
Cyrus Happy III
Michaud Trophy — Best Named Show Auricula
Cyrus Happy III
Haddock Trophy — Best Seedling Alpine Auricula
Herbert Dickson

Shuman Trophy — Best Named Alpine Auricula

Cyrus Happy III
Captain Hawks Trophy — Best Gold Laced Polyanthus
Not Awarded
Wesley Bottoms Trophy — Best Hose-In-Hose
Not Awarded
Oregon Primrose Society Trophy — Best Seedling
Nancy Ford
Oregon Primrose Society Trophy — Best Species other than Candelabra
Dicksons Perennial Gardens
Best Polyanthus
Mary Bernhardt
Best Candelabra
Ivanel Agee
Best Double Auricula, amateur
Ivanel Agee
Best Garden Auricula, professional
Ralph Balcom
Best Garden Auricula, amateur
Ivanel Agee
Best Seedling Polyanthus, amateur
Ivanel Agee
Best in Junior Division
Susan Alexander
Best Arrangement
Mrs. L. G. Gentner
Best Arrangement, Junior
Valora Macfarlane

East Side Garden Club — Kirkland

Sweepstakes winners in the horticultural division were: Mrs. Mary Baxter, Bothell, Amateur; Mrs. L. G. Tait, Bothell, Professional. Junior horticultural sweepstakes winner was Bette Dines, Redmond.

Winning awards of merit for best plant were: Mrs. John Siepman, Amateur, and Mrs. Robert Putnam, Professional. Kirkland had another beautiful three day show this year, and drew an excellent attendance.

Show chairman and club president, Mrs. . L. Clark.

Mt. Angel Primrose Show

Mrs. Alan Obersinner of Mt. Angel, last year's novice winner, won the grand sweepstake prize at the 18th annual Mt. Angel Primrose Show, held in St. Mary's School, Sunday, April 11. The prize, a beautiful milk-glass console set, was presented by Mayor Leonard Fisher. Since the first show, this prize has been donated by the City Council.

Mrs. Obersinner had 28 plant entries in the show, 15 of them winning firsts.

The highest number of points, 218 points with 43 entries, went to Mrs. David Shepherd, show chairman and sweepstake winner for several years, who insisted on stepping aside in favor of the next highest winner.

In the Novice Class the sweepstake went to Mr. and Mrs. Bernard Schiedler.

The gold bowl, donated by Governor and Mrs. Mark O. Hatfield, and awarded for the period of one year, was also won by Mrs. Obersinner. The award is given for the best Polyanthus plant in the show and Mrs. Obersinner's plant was a huge gold and bronze specimen with 11 gorgeous stalks of bloom.

Mrs. Shepherd won the awards for the best seedlings in both the Polyanthus and Auricula class.

In Cut Flower Arrangements, the Advanced Amateur Sweepstake went to Duane Farmer, and the Amateur Sweepstake to Mrs. Richard Harris.

In the Children's Division, the 12 and Under Age Sweepstake went to Duane Schiedler, and the 13 to 16 Award to his sister, Barbara Schiedler.

Garden Club winners were Show and Grow, Salem; Camellia Society, Salem and Labish Meadows Club, Brooks, Oregon.

It was estimated that nearly one thousand people attended the show. The two large halls were thronged with visitors most of the time from 12 noon to 6 p.m. The plant sale, which finances the show and consists of plants donated by members of the Mt. Angel Garden Club, sponsors of the show, was sold out shortly after 3 p.m.

Polyanthus dominated the show, showing a wealth of color. The Auriculas were a small group, due to the early date. There were a few Sieboldi, and Acaulis and Cowichan; but the Juliae and Candelabra were not represented at all.

Mr. and Mrs. Agee brought some Barnhavens' new doubles for a courtesy showing.

Judges were Mr. and Mrs. Orval Agee and Mrs. Lawrence Tate, all of Milwaukie, and Mrs. Mary Zack, Portland. Carl Starker of Jennings Lodge judged the arrangements.

Washington State Primrose Society Auricula Show

Bellevue, Washington

This was a beautifully staged show, the best effort yet of co-chairmen Ruth Smith and Mary Baxter, whose efficiency as staging chairman has reached the perfection point. Revival of the old Auricula Theatre idea brought in both Polyanthus and Auricula class.

Winners of the new perpetual trophies were:

Sweepstakes — The Marion Hannah Trophy
Beth Tall, Primrose Acres

Brightest Seedling Garden Auricula — The James W. Watson Trophy
Ralph W. Balcom

Best Seedling Show Auricula — The East Side Garden Club Trophy
Cyrus Happy

Best Auricula Theatre — The Nancy Ford Trophy
Dr. Patricia Albynson Winter

Best Alpine Border Auricula — The Alice Warenick Trophy
Ralph W. Balcom
Best Named Show Auricula — The Primrose Acres Trophy
Novice: Mrs. R. Leamy

Div. III — Acaulis-Poly.
Mrs. L. G. Taft

Div. IV — Juliae
Mr. Ross Willingham

Div. V — Show Auricula
Mr. Cyrus Happy

Div. VI — Exhibition Alpine Auricula
No Award

Div. VII — Garden Auricula
Mrs. Agnes Lindsey

Div. VIII — Double Auricula
Mr. Cyrus Happy

Div. IX — Border Alpine Auricula
No Award

Div. X — Species and Hybrids
Mr. Herbert Dickson

Div. XI — Seedlings
Mrs. L. G. Taft

Canadian Primula and Alpine Society Awards

TROPHIES

George Boening Trophy —
Best Alpine
Mrs. D. Angerman
Novice: R. Woodward

D. W. Duncan Trophy —
Best Primula
Mrs. E. C. Dartis
Novice: Mrs. Sherlock

E. F. Miller Trophy —
Best Planted Tufa
Mrs. C. A. Ross

Walter Langton Trophy —
Best Native (B.C.) Plant
Mrs. G. Conboy
Novice: Mrs. R. Burnham

AWARDS

Best Bulbous Plant
A. Guppy
Novice: R. Woodward

Best Primula Species
K. Wrase
Novice: R. Woodward

Best Primula Hybrid
Mrs. E. C. Dartis
Novice: Mrs. O. Sherlock

Best Cushion Plant
R. Woodward
Novice: R. Woodward

Best Plant Suitable for Woodland
Mrs. C. A. Ross

Best Collection
Mrs. B. Leamy

Best Bonsai
K. Wrase

Best Trough or Miniature Garden
Mrs. C. A. Ross

Best Decorative 1st
Miss C. Macey

Best Decorative 2nd
Miss C. Macey

The A.P.S. Hybridizing Award this year is given with great pride and admiration to Ralph Balcom, for the development of the double Auricula. This work began back in 1953 when he discovered growing in his garden one plant that had extra petals in some blossoms.

This one plant became the parent of all of his doubles, using the pollen to pollinate single flowered plants. In 1957, four years later, after a series of additional crosses, he got his first double progeny.

Each year he has been improving them until now his seed will produce a higher percentage of doubling plants with blossoms of better color and texture than any ever so far obtained. They now come in every color except green. His strain is unique in that it was developed largely from the Alpine variety and hence has the shading and luminous body color, with good strong stems.

Because of his great patience, thoroughness, and the very complete records he has kept on his crosses, they will be of great value to other Primula breeders.

Through Ralph’s generosity in sending seeds to England, Mr. E. Balcom has the shading and luminous body color, with good strong stems.

As far as the show is concerned, I think that we succeeded in showing a good display and producing the usual number of entries, in spite of the unusual winter and spring. The Primula entries were down, but the alpines were increased, both in number and quality of entries — it was a good winter for them.

Ralph Balcom Wins 1965 Hybridizing Award

Lester Smith was awarded the coveted Lindley Award for an Outstanding Double Auricula display.

Ralph is a modest man, and has given unselfishly of his knowledge, time, seeds, and plants to interested people who have grown them on to win many awards.

It is with the greatest pleasure that the staff of the A.P.S. Hybridizing Award gives this Premier Award For Outstanding Achievement To Mr. Ralph Balcom.

SHOW REPORTS, Continued

Best Dwarf Tree or Shrub
Mrs. T. Chapman

Best Bonsai
K. Wrase

Best Trough or Miniature Garden
Mrs. C. A. Ross

Best Collection
Not Awarded

Best Decorative 1st
Miss C. Macey

Best Decorative 2nd
Miss C. Macey

Highest aggregate points, all classes
Mrs. C. A. Ross

Highest aggregate, novice
R. Woodward

by

Mrs. JOHN SIEPMAN,
Bellevue, Washington
Recording Secretary

Recording Secretary
Primula Abschasica

by H. LINCOLN FOSTER, Falls Village, Connecticut
President, American Rock Garden Society

Primula abschasica leaves me completely puzzled and enchanted. In the first place I have no clear record of the source of my seed. I do remember growing it from seed some years ago, one of those offers in one of the seed exchanges which could not be resisted. Yet I could find no reference to it in any of the standard works in my library. As I remember now, there were only a few seeds in a packet. I have recently had a letter from Mr. Elmer Baldwin, Seed Exchange Director of the American Primrose Society, that seed was offered of this primrose in 1960, contributed by our friend and fellow member, Stephan Schatzl of the Botanic Garden at Linz Donan, Austria. It was sent without comment as to nature, habitat, or description. This was probably the source of my seed.

Three plants germinated from the seed and reached transplanting size. Two of the three thrive in a fairly deep, sandy peaty mix, beneath pines. Corsar and in Blasdale, gave no primula species earlier in the alphabet than P. acaulis. By chance, however, I did find a passing reference to P. abschasica in the account of a field trip into the Caucasus by a Russian woman botanist. It was published as Early Spring in the Caucasus by Zinaida T. Artiuschenko in the Bulletin of the Alpine Garden Society (Vol. 30, No. 2, June 1962). "In the broad leaved forests we also enjoyed the delightful sight of P. abschasica, the fragrant flowers of which have a purple perianth and a yellow throat bordered by a brown rim."

At least, it was some assurance to know that the smudgy label by the two plants in my garden was not altogether a fiction or an error.

The next spring the two plants, despite their autumn display, were in full flower as the snow vanished. When the blooms had shriveled and the leaves expanded, I took courage and dug one plant early in July for division. From it I was able to make three crowns with good roots. These I put into a fairly heavy soil in the shade of an apple tree at one end of the trial nursery. They fattened and flourished, and again began a premature blossoming in the fall and a full show the next spring, very early. Once again I divided them in July. This time even more drastically than before. Even the tiniest crowns, with small incipient roots, took hold — seventeen plants from the three, as I remember.

Some of these I gave away. From the twelve I had left I made a total of 86 divisions in mid-June of this year. I deserted them without care soon after, leaving them to fend for themselves in the midst of a record drought. Today, November 2, all are alive, most are showing an open flower or two, and all have tight clusters of buds down in the heart of the bright green husky leaves.

Not once have I found a seed. Thinking that perhaps the late fall and early spring blossoming dates were untimely for insect pollination, I took one plant into the alpine house last November. It blossomed right through the winter, not just as occasional bloom but a steady full sheaf, renewed over and over right up till May. Despite hand pollination and the application of pollen from a potted white P. acaulis, not a plump seed. But the white acaulis produced seed with abschasica pollen.

This is such an easy, floriferous and beautiful plant — though puzzling — that I am amazed it has not become a garden standby or the base for hybridization.

How, I wonder, would it behave in a climate where there is little snow in the winter and only occasional freezing temperature? Perhaps it would bloom all winter — as I suspect it does here unseen in northwestern Connecticut beneath the snow.

Does anyone else grow Primula abschasica in America? I would like to hear of the experience of others with this puzzling and enchanting species.

When buying anything advertised in these pages, please say you saw it in the Primrose Quarterly.
The Auricula
Aristocrat of the Primroses

by CYRUS HAPPY III, Tacoma, Washington
Regional Editor

The following is partially reprinted from Pacific Gardens and Homes.

Alpine Seedling

If we were to move backward in time 350 years, and visit some old English gardener, the chances are that conversation would turn to one of the latest fads of the day—the Auricula. This hybrid of several species from the high Alps was showing a remarkable tendency to mutate, producing a constant increase of new colors, stripes, plus doubles and, most remarkable of all, flowers edged with leaf tissue.

Throughout the succeeding years the Auricula has become divided into several groups. With the beginning of its popularity, the Auricula proved very adaptable to pot culture, and, as heavily mealed and edged plants were produced, the group referred to as the Florist Auricula was formed. This group enjoyed tremendous popularity in England and Europe through Victorian times. Very strict rules were established for the form the flower was to take, rules which are still followed today. For the casual observer at a Primrose show, it is enough to know that even spacing of the color zones, flatness and roundness of the individual flowers, and an air of great refinement is what is desired.

The modern Florist Auricula is now divided into two main groups, the Show Auricula and the Alpine Auricula. The Show Auricula is always characterized by a white and heavily mealed eye. This meal, which is actually composed of tiny transparent globules of wax carried on short glandular hairs, also appears in varying degrees of density on the leaves and stem. The foliage is among the loveliest in nature, and different plants, with their neat rosettes of leaves, will vary in color from green to soft grey-greens to pure white. To protect this meal is the only reason Show Auriculas are kept under glass. They are completely hardy, but rain will spot their foliage and flowers.

The Show Auricula group is organized into four different classes according to color. As you can see by the picture, the most noticeable features of the flower are a white eye surrounded by a ring of black, the most desirable body color, and an edge of leaf tissue which in this case is heavily mealed or white. This plant then is termed a white edge. A
grey edge is one less heavily mealed and a green edge has no meal at all on the edge. A fourth class of Show Auriculas is the Selfs. They have no edge of leaf tissue and are character-
ized by the pure white mealed eye surrounded by petal tissue of any color. These colors include yellow, orange, red, black, purple and blue and they must be solid, not shaded colors. They form a welcome splash of color among their more conserva-
tive companions.

The other section of the Florist Auricula, the Alpines, have no meal on flower or foliage and they grow and flower equally well in the open border or cool greenhouse. The picture of the seedling Alpine Auricula illustrates the shading characteristic of Alpines. The eye is creamy white surrounded by a deep wine red which gently shades to a lighter hue at the edge. This shading in Alpines must be seen at close range to be fully ap-
preciated. In the group known as Gold center Alpines, such color com-
binations as brown shading out to bright orange at the edge, maroon to gold, maroon to pink, black to deep red, red to buff, and many others may be expected in a group of seedlings. In the other group known as Light Center Alpines, you will find purple shaded to blue, wine to red, dark blue to light blue, purple to lilac and even purple to white.

The hobby gardener with a small cool greenhouse or cold frame is gradually becoming aware of these wonderful plants. The Auricula grower need not concern himself with the problems of keeping his greenhouse heated. He does not need much space, since an Auricula seldom requires more than a four-inch pot, and he is working with a plant which, though not difficult to grow, is a constant challenge to grow to perfection. Fur-
ther, he will be delving into garden-
ing history, he will be writing letters to Auricula fanciers in England, and Ireland, and America, and getting precious seed from them and he will begin to collect a few of the very scarce English name variety plants. Argus, for example, is now over ninety years old, which means that four generations of Auricula fanciers have treasured and passed on to others, its offsets.

To raise more plants of one certain variety is slow, but a strong plant will usually develop an average of two small crowns or offsets a year which may be safely detached when they have developed roots.

Seed from a good source will give blooming plants in about 18 months. The group portrait of my edged Auricula seedlings indicates the variety obtained from one good pollen parent, "Peter Klein." A word of caution, however, plant only the very best seed, for even it will produce many undesirable plants.

I should like to pass on to you the soil mixture that a great Auricula grower, James Douglas of England, found most satisfactory.

1 bushel of fibrous loam torn in small pieces, (decomposed sods)
1 bushel of two year old leaf mold
1 5-inch pot of bone meal
1 5-inch pot of coarse sand
1 5-inch pot of crushed oyster shell
*A rectangular box 22 inches long, 10 inches wide and 10 inches deep
holds one bushel of soil.

As you can see, almost five-sixths of the mixture is organic material. You will have to adjust your mixture to the materials available, but re-
member to keep it slightly alkaline and light in texture.

For sowing seed, I use the Douglas soil mix mixed half and half with vermiculite, sprinkle the seeds on the surface of the dry mix, give the pot or pan a few raps to settle the seeds, and put it to soak in water with a little potassium permanganate in it (just enough to color the water pink).
If the sowing is done during the warmer parts of the year, I put the pot or pan in a plastic bag to keep the moisture constant. Usually in four to six weeks some germination has started. However, I remember the *P. Klein x Copythornes* had germinated in six weeks and the *P. Klein x Slodens* waited a full year to germinate. Speaking of that last cross, I threw out quite a few bad selfs, but the few remaining edged plants are very, very good. The *P. Klein x Copythornes* produced a high percentage of green edged plants (80%) but no more first class plants than the *Slodens*.

I do not sterilize the soil. Perhaps I should. The potassium permanganate seems to do the job. Theseed pans seem to benefit from an occasional exposure to fresh air and gentle rain. I do not use a fan down on the lake shore, but if I had a location with poor air circulation, I probably would use a fan.

Since my seed soil mix is fairly rich, the seedlings stay in it until they have six or more leaves or get crowded. The main thing is to keep them going. I prefer to use thumb pots, one plant in a pot, sunk in bench sand to conserve moisture. *Give a small plant more soil than it can use in the next few months, and the soil seems to sour and hinder the plant's growth.* As the plants need it, I move them on to three-inch or three-and-one-half-inch pots for their first bloom. I never put a plant in a pot that is wider than the rosette of leaves.

General cultural directions include the following:

1. *Keep plants clean.* Pick off dead leaves. Inspect the crown for rot. Do not let water stand in leaves. A weak plant may have rot working up the carrot from below.

2. *Repotting and dividing:* Best done at start of growing season — August-September — or February-March. Remove surplus carrot and fibrous roots and every trace of brown or decaying root. I use a piece of oyster shell in the bottom instead of a crock, and crushed egg shell on top of the oyster shell to perfect the drainage.


The Show Auricula has several societies devoted to its interests. There are two in England which welcome members from the United States and both publish information packed yearbooks. The dues to either are about $1.50, and the addresses are as follows:


(2) National Auricula and Primula Society, Southern Section, Mr. G. Redvers Williams, Mount Pleasant, Eastbury, Newbury, Berks., England.

In this country the American Primrose Society, c/o Mrs. L. G. Tait, 14105 84th Ave. N. E., Bothell, Washington, devotes considerable space to the Auricula in its quarterly.


*Editor's Note: These books can be obtained from Lynn M. Ranger, 41 Lynn Shore Drive, Lynn, Mass. Auricula seed is available from advertisers in our Quarterly and the House of Douglas, Edenside, Great Bookham, Surrey. Named varieties of good edged show plants are available, in a price range of $10.00 to $15.00 each, from our members: Mr. Frank Michaud in North Surrey, B. C., and Mrs. Beth Tait, in Washington. Mr. Cyrus Happy has a "few plants I consider worthy of sale."*)
Garden Auriculas In Los Angeles
by CLARENCE NELSON, Los Angeles, California

The first week in August, I planted garden auricula seeds in my lath house. The shallow pans were filled with moist, milled sphagnum moss, and covered with a darkened pane of glass until the seeds germinated, then the glass was removed. The seedlings were left in this planting medium to develop their true leaves, after which they were transplanted into two-inch clay pots in a planting mixture of finely sifted oak leaf mold, peat moss, and fine sand.

After several months the seedlings were transplanted into three-inch pots, using a prepared planting mixture obtainable in any garden store. The plants were grown on in the lath house until November of 1963 and were then planted out into their permanent location in the garden, previously spaded up to a depth of eighteen-inches or more and enriched with oak leaf mold, ground bean straw and steer manure, plus a small amount of dry commercial fertilizer, Sponge-Rok and sand. This made a very friable, light and porous planting mixture suitable to Auriculas or any other species of primula. The planting bed was raised about six-inches above the surrounding area for good drainage during our rainy season here in Southern California. Partial shade was provided by our house, as well as taller Hibiscus and Fuchsias to the south and west.

During the Winter and Spring months the Auriculas developed stout leaves, some rounded and plain, others dentate with or without white margins. The first flowers appeared early in April and continued flowering on into May and June. We had shades of rose, scarlet, orange, yellow, white, blue, plum and pastel shades—all with contrasting centers. Have found that a light application of fish emulsion during blooming time, works wonders.

For beauty of flower we believe that Auricula cannot be surpassed, and if given a certain amount of care—namely, conditioned soil, partial shade and moisture—they can be raised successfully in Southern California.

THE AURICULA, Continued

No discussion of Auriculas would be complete without mentioning the Garden Auricula, an old friend to many gardeners in the Northwest. The only requirements of a good Garden Auricula are that it be of a good color, substance and habit, and display itself well.

The possible colors available from good seed are unlimited. Since so often the seed generally offered is of indifferent quality, a search for special seed should be made. Seed I have seen offered from time to time includes Auricula "Blue Velvet," Auricula Old Irish Blue, Auricula "Red Dusty Miller," and Auricula "Yellow Dusty Miller," and several good mixed strains. One of the two Garden Auriculas pictured is from seed from an old Irish garden, the darker with a globe of rich purple flowers. The other is a chartreuse with many double flowers. These plants are much larger, more vigorous and floriferous than the substandard Show and Alpine Auriculas, and are picture perfect. The plants were grown on in the lath house until November of 1963 and were then planted out into their permanent location in the garden, previously spaded up to a depth of eighteen-inches or more and enriched with oak leaf mold, ground bean straw and steer manure, plus a small amount of dry commercial fertilizer, Sponge-Rok and sand. This made a very friable, light and porous planting mixture suitable to Auriculas or any other species of primula. The planting bed was raised about six-inches above the surrounding area for good drainage during our rainy season here in Southern California. Partial shade was provided by our house, as well as taller Hibiscus and Fuchsias to the south and west.

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PRIMROSE SEASON CONTINUES STILL

In all the welter of beauty that is summertime, the primrose family continues to raise its voice, not in solo, but in chorus. Looking back when several of the Himalayan beauties brought a smile to stern-lipped February, the primrose pageant has proceeded with ever-increasing lavishness.

Then it was that buxom P. Denticulata and its daintier relative, P. Cashmeriana started their blooming season. Most everyone is familiar with their magnificent globes of varying violet, lilac and glistening white. But few have seen the little Himalayan P. Winteri with its silver gray rosettes studded over with large frilled flowers of the most delicate mauve.

After the official opening, we can sail a primrose sea of loveliness along banks of jeweled English Acula, past the charming old doubles and the queen of bedding primroses, the Polyanthus. We linger over the velvety, ruffled and fluted and the cushioned Juliae hybrids, swiftly drifting on into the haunting, exotic fairyland of the Asiatics.

Of every size, form and color, these primulas, as hardy as the Europeans, perfume the months from early spring until late fall. At this time there are 14 different ones blooming as happily as though they still graced the highlands of India, Tibet and China. Some are just beginning, others are giving a return engagement, and still others have been in bloom the entire month of June.

"Now Is The Time To Divide Primroses" and "Primrose Season Continues Still" . . .

Included in this last group is the fuchsia-purple, P. Poissoni, a tall candelabra from China smelling as though it had trailed through grandmother's carnation bed. And another candelabra, rich apricot-orange P. Bulleyana has been sending tier after tier of blossoms up its stately stalks in company with several of its hybrids in shades of coppery-rose and burnt orange.

The dainty Sikkim cowslip from India has flung out its bells of softest straw-yellow with a fragrance so poignantly sweet, and across the Himalayas, from the high alps of Tibet, another primula has come swinging its pendant bells, P. Meradonia Alpicola, some frosty white, the alba form, and others a soft violet.

Second Crop Now

Several primulas of the Muscarioides section are sending up a second
crop of bloom stalks from the center of the newly formed rosettes. One of these dainty blossoms, silvery stems and flower heads and its hyacinth fragrance, that it seems as though it must have strayed from some Chinese goddess’ toy-land.

Three of the most strikingly beautiful of all primulas are just beginning their season of bloom. The astonishing P. Littoniana from West China has bold spikes of compact scarlet bulbs giving way before advancing blossoms the color of hellebore.

Giant P. Floriniae, from Tibet, now 3 feet high, promises another 2 feet before it has finished arching out its hundred or more bright yellow bells above its thick, powered stalk.

Arriving ahead of schedule this year, P. Capitata Moororana was not expected before August when it would have been the honored guest until frost.

But anyone who has seen this Himalayan princess will extend their hospitality most willingly. A study in rich, sparkling violet, the great globes are yet flat on top with unopened silvery buds supported by stout stalks so silvery that one cannot see the green.

Unrestrained lavishness has gone into these exquisite Asiatic primulas yet it seems that beauty of form, of leaf and of coloring is not enough. They must be silvery in sun dust and then perfumed with odors so enchanting that one must return again and again to look and smell and wonder.

These primulas like more shade than sun and share in common with all members of the family their aversion to poor drainage. They must have moisture but they must also have perfect drainage at their roots and around their crowns.

Winter puddles, not winter cold, is the dread of all garden primulas.

**NOW IS THE TIME TO DIVIDE PRIMROSES**

The time has come to talk of neither cabbages nor kings for the moment, but of a service to your spring-flowering primroses in return for beauty rendered and anticipated.

For by dividing your primroses now when the ground is warm and moist and root growth is still active you gain many points for your primrose program. The divisions are undisturbed over the longest possible growing period and are deep-rooted at the time of freeze and thaw, thereby anchored firmly in the ground.

The main reason for dividing are for more robust plants with larger flowers and stronger stems, increasing your stock and the ever-pleasant inconveniencing of plant pests.

Clumps should be divided every year if the plants are vigorous growers, otherwise every second year. How closely you divide depends upon what future you have in mind for the particular plant.

Should you wish a rapid increase for cutting or bedding, or if you have some particularly fine plants you wish to multiply quickly, divide the clumps into single crowns.

For show blooms and specimen plants divide to two or three crowns depending upon the growing characteristics, that is, those plants whose crowns multiply rapidly should be divided more closely than a less vigorous grower.

Should you have a plant of exceptional merit exhibiting sturdiness of stalk, if a polyanthus, the blooms of which were large and of an intense, clear color of pleasing texture and beauty of form, you might wish to save it for seed. In such case it can be left undisturbed or, if the spot is to be used for the replanting of the new divisions, lifted and planted elsewhere, "as is" until seed-gathering time, after which it can be divided. Only a small percentage of the seedlings will be like the parent plant. The variance in color, size and shape will surprise you, some being inferior and a few superior to the parent.

If you have any naphthalene flakes handy, a light dressing worked into the soil will prove unpleasing to the beetle which at this time is looking around for likely spots to deposit the eggs that hatch into strawberry weevil. Cutworms and other pests will undoubtedly move to less smelly regions, thereby decreasing the mole menace.

Avoid Tearing Roots

In lifting the plants, take enough dirt to keep from tearing the roots from the crowns. This dirt is then shaken off it light and friable, otherwise washed off.

A great many times the plant will then divide of its own accord, falling into separate crowns.

If it does not, a sharp knife can be used to cut down through the fleshy rhizome that binds the crowns together. Each crown, of course, has an individual root system.

Pieces of rhizome that have a few roots but no crown may be planted and will develop into large plants.

If the roots are very long, they can be cut back to about four inches which pruning accelerates the growth of the plant and facilitates planting. The old leaves should be cut off, leaving only one or two new ones to a crown, thus checking excessive evaporation after planting.

As each division is trimmed up, toss it into a pail of water to prevent drying. This will plump out the roots, enabling them to reestablish themselves more easily. But do not leave them in the water more than an hour or two.

Water in the roots and keep moist and root growth is still active. Avoid tearing roots. If the roots are very long, they can be cut back to about four inches which pruning accelerates the growth of the plant and facilitates planting. The old leaves should be cut off, leaving only one or two new ones to a crown, thus checking excessive evaporation after planting.

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Water in the roots and keep moist and cultivated all summer while they eat and store up energy and strength for a blooming season of excellence.
Primula Spectabilis

By ROBERT LUSCHER, Thedford, Ontario
Editor in Charge of Translations

The southern limestone Alps, in particular the mountain ranges flanking Lake Garda, are rich in old endemic species and types, often confined in small areas and sometimes reaching a little beyond their boundaries. To the latter belongs one of our most magnificent primroses, *Primula spectabilis* Tratt. In the past years, I undertook a close examination of the geographical distribution, which has some interesting aspects in relation to the history of distribution.

Cartographic area illustrations of *P. spectabilis* were known before. One map of Pampanini (1903) does not correspond with facts, in spite of the small size, due to the inclusion of the near relatives, *P. Clusiana* and *P. Wulfeniana*. A second map by Luedi (1927), repeated in 1930 by Gentner and by Gams in 1933, is in general accurate, but because of small size cannot give full justice to the interesting and definite details. Therefore I have attempted in my charts to indicate the locations of *P. spectabilis* as they are today. With the critically studied literature at hand, the herbariums of the following institutes were considered:

Botanical museum Berlin-Dahlem (BEROL)
Botanical museum Munich-Nymphenburg (MONAC)
Botanical Institute of the university in Vienna (VIENNA)
Ferdinandum Innsbruck (FERD)
Museo Botanico Di Firenze (FLORENT)
Museo Di storia Nat., Della Venezia Tridentina, Trento (TRENT)

To all the responsible persons in these institutions I hereby extend my sincere thanks for the loan of materials, the histories of the herbarium specimens and their area identification. Furthermore, my appreciation is due Prof. Luedi in Zurich, Prof. V. Wettstein in Dahlem, Prof. Negri in Florence, Dr. Berger-Lanefeldt in Berlin and Mr. Cohrs in Chemnitz for valuable notes; also to Mr. L. Jelitto in Essen for the loan of the photograph, my sincere thanks.

I regret to note that the South-Alpine literature is scattered widely, and often very difficult to come by. Therefore, some smaller floristic works could not be studied. But this does not alter much the location boundaries.

**System**

TRATTINICK recognized in 1814 *P. spectabilis* as a true species, previously regarded as a relative of *P. integrifolia* and *P. carniolica*. The descriptions and illustrations by Trattinick have repeatedly led to confusion because he claimed to have received the living plants from the Carpathian mountains by J. C. Lehmann. Thus during succeeding years our species was redescribed under other names (for instance *P. polliniana*) or included with other species. The name *P. spectabilis* was extended to other species, for instance, *P. Wulfeniana* and *P. Clusiana*. PAX (1889) and Elizabeth Widmer (1891) clarified systematically the circle — *spectabilis — glaucescens — Wulfeniana — Clusiana* — in such manner. It seems Lehmann was mistaken in the true locality of his specimens, and the origin was not the Carpathian Mountains but the Southern Alps.

*P. spectabilis* varies considerably in size, size and shape of leaves, the length of the floret stems (peduncles), and the number, size and colour of...
the calyx — very often at one and the same location. Therefore I doubt the recognition of these varieties and forms. The variety parlatori (PORTA) arcangeli is most likely a hybrid.

Altitude, Soil and Location

Like so many other endemic species in the southern limestone Alps, *P. spectabilis* covers a large area in relation to the altitudes. In the alpine regions, the plant is found within 2000 to 2500 meters, and where conditions are favorable it may descend to the lowest recorded sites, along the Ledro lake in shady limestone crevasses in an altitude of only 665 meters, and, according to Luedi, in the entrance to the Val Lornia at 620 meters. More to the south, in the Vestino valley, the lowest locations of *P. spectabilis* range somewhat higher, near 700 to 800 meters. FIORI discovered it at 700 meters on Monte Grappa, its most easterly distribution. I assume that all these places do not necessarily indicate the hazardous chance of seeds being carried to lower altitudes by tumbling waters, but find here localities with very ideal climatic conditions and proper exposures, requirements so paramount even today for a solid establishment. *P. spectabilis* grows well in the low-country, for example, in the botanic gardens in Berlin-Dahlem, where it sets seeds quite freely. (Compare also KOLB 1890, and WOCKE — *Practical Hints in the Culture of Alpines*, 1928, page 232.) In contrast to this, I was privileged to observe this primula in the Brenta vicinicy, in the Bocca Di Brenta, on the Cima Di Brenta Bassa and Cima Brenta Alta in southern exposures, in large colonies at 2520 to 2530 meters; and it may likely ascend still higher. So the farthest distribution boundaries remain approximately 150 meters below the climatic snow line, which RICHTER announced in 1888 to be at 2700 meters in the Brenta groups.

*P. spectabilis* is found exclusively on limestone over dolomitic sub-soils, rejecting the Adamello tonalite and all other lime deficient soils; thus the distribution and boundaries are in direct relation with the sub-soils.

One exception is recorded as a calciphile in the notes concerning its questionable presence on the Montalon and Sette Selle in the Lagorai mountain chain, to the north of the Sugan valley; also, on the Ritterhorn north of Bozen. All three localities are within the quartz-porphyry area (igneous rocks, granitic), but in view of my closest inspection in these regions and the total absence of verification in recent times, I must judge all above localities erroneous. Notes by Porta with the original specimen var. parlatorii from Mt. Piramidi are: "in terreno granitico." As I said before, this is probably a hybrid.

*P. spectabilis* flourishes in the alpine region among the short, dense, evergreen grasses, on rocky ledges, in the more open crevasses, and migrates occasionally on talus (stone rubble). It is not restricted, according to Luedi (1927), to specific expositions in such altitudes.

I have found this primrose in lower elevations (1400 meters and less) only in large rock crevasses, always in the shade and where there is a plentiful supply of air and moisture. The plant associations change, of course, within the altitudes.

The Distribution Area

The present distribution area of *P. spectabilis* is within well-defined boundaries, restricted to the southern alpine limestone chain, reaching from the Val Trompia in the Brescia Alps to Monte Grappa in the Bassano lower Alps, as shown on Map I. This includes the following mountains:

1. The Cima Del Frate section in the southerly Adamello Alps between the Val Di Breguzzo and the Val Di Daone. The primula is endemic here.
in the Val D’Arno and Val Bondone. This is a limestone contact area with lime deficient rocks (granite), most famous for the many hybrids between \( \text{P. spectabilis} \) on the one hand and \( \text{P. glaucescens} \), \( \text{P. glutinosa} \) and \( \text{P. minima} \) on the other.

2. The Dossa Alto-Corno Blanca section in the Brescia Alps, west of Lake Idro.

3. The southern Brenta group, in particular the valleys: Val D’Ambles, Val Di Cede, Val Delle Seghe, Val Brenta Alta; also one site in the Gallina pass. The primula is absent in the northern part of this mountain group, probably also in the southwest of the valley region of Val D’Algone.

4. The Gaverdina section in the Judacarian Alps to the north of the Ledro valley.

5. The Tombea group in the Judacarian Alps between the Idra and Garda lakes, descending to Lake Ledro.

6. The southern Monte Baldo section, beginning with the Punta Di Naole in a northerly direction to the attractive Di Pozzette. This primula is not on Monte Altissimo in the northern part within this group.

7. The Vizenti Alps to the east of Lake Garda and south of the Sugan Valley, including Monte Lessini and the Sette Communi.

8. The Monte Grappa region in the preceding Bassano Alps. Most remarkable in this area formation is that the boundary correspond only in part with those of the limestone dolomite mountain groups. Therefore this primula is absent in localities where one would expect to find it. I convinced myself of this within the entire range and possibly the southern part of the Brenta section; also in the northern part of Monte Baldo.

The area boundaries seem at first most unnatural, inexplicable; especially so in the Brenta section. According to all accounts, and testimonies revealed to me by Professor V. Wettstein, \( \text{P. spectabilis} \) is absent also on Monte Bondone, Monte Gazzu and Paganelia, the limestone mountain chains to the west of Rovereto and Triente. \( \text{P. spectabilis} \) is very often plentiful within its split-up areas, where it forms dense carpets; but it is also, at times, for instance, at the dolomite mountain peak in the Judacarian Alps. Mr. COHRS discovered this primula only on three of the eight peaks he ascended. \( \text{P. spectabilis} \), in the various split areas and in the different altitudes, gives the impression of a very vigorous plant, producing plenty of seeds. Such vigor should assure its existence in the future.

** Doubtful Area Notes **

Whoever has studied the distribution of the alpine flora knows that, concerning the given areas, altitudes, etc., it is all too easy to commit mistakes which, once published, will continuously reappear in print. It is therefore my sincere aim to correct such errors whenever possible. Thus we find with \( \text{P. spectabilis} \) some more than doubtful distribution information, which in all honesty was not included in my map. The Montalon, near the Lagodai chain to the north of the Sugan valley is cited by BERTOLINI (1835), HAUSMAN, and with doubt by Dalla Torre in 1812. Revealing, too, for all these localities, is that AMBROSI did not include this primula in his Flora of the South Tirol (1853), in spite of the reappearance of these sites with other plants. I have never seen this primula near the Montalone, nor in other parts of the Lagorai mountains, and must now assume it all to be an inaccuracy.

In the herbarium in Florence is a \( \text{P. spectabilis} \) presumably collected by O. BERGEO on the Ritterhorn. I dispute vigorously the verity of this site north of Bozen, not only because unsuitable growing conditions in this area, but also because this primula has never been found since within this frequently visited region. The same is true for the mountain plateau "Laas" at the Nous valley entrance into the Etsch valley north of Kronmetz, a location note dating back to SARTORELLI (1880) and disputed before by Dalla Torre.

** History of Migration **

\( \text{P. Spectabilis} \) stratt, composes a close relationship with \( \text{P. glaucescens} \) Moretti (Bergamask Alps), \( \text{P. Wulfeniana} \) Schott. (southeast limestone mountains east of the Piave river), and \( \text{P. Clusiana} \) Tausch. (northeast limestone alps), all in the subsection Arthritica.

GAMS (1832, page 23) believes, and likely with every justification, that the relation cycle in the North Balkan countries originated from Asiatic forebears, and reached the Alps only during the Ice Age. According to Gams this migration took place during the old-pleistocene (that is, the Guenz or Mindel ice era). Only in the Alps did the separation take place into the four now existing species. It explains the presently well defined and distinct regional horizontal vegetation, noticeable also within many other primula relations.

The compactness of the distribution area speaks convincingly for the idea that \( \text{P. spectabilis} \) evolved gradually inside the present localities. It is impossible to say with any certainty when this development took place. We must assume it happened at least before the last ice age, wherefore \( \text{P. spectabilis} \) as such survived the past icy time. As places of refuge, the south slopes of the Judacarian Alps are to be considered, the southern part of Monte Baldo, and the southeast slopes of the Vicentine Alps, territories remaining free of ice during every and BRUCKNER, also KLEBELSBERG.) \( \text{P. spectabilis} \) migrated from these refuges anew, in step with the retreat of the glaciers, to arrive presently inside today's boundaries.

It is not impossible that the post-glacial warm period can be considered the reason for the absence of this primula in some places, for instance on Monte Bondone and the Paganelia, but for this we have no accurate details.

From the known distribution of this primula in the Brenta groups we can make further deductions about the exact course of post-glacial immigration into these mountains. The evident fact is, as mentioned already...
that this primula in valleys open toward the south or southeast: the Ambies valley, the Cedro valley, the Seghe valley; also in the Brenta valley, open to the northeast; but it is absent in the Tuckett basin, the Sinella valley, the Passo Groste, the Val Di Tovel and the Val D’Algone. Had this primula come into the Bocca Di Navene valley from the northeast, from the Campiglio valley (which it could have reached through the Rendena valley), then we could presume to find it in the Brenta valley today; also in the Valle Sinella, including the Tuckett basin and Passo Groste. The singular presence in the Val Brenta Alta is herewith a contradiction, explained only by an entrance from the southeast, through the Bocca Di Brenta.

The wide Sarca valley was ideally suited for the northward post-glacial advance of plants from the environs around Lake Garda. *P. spectabilis* may have taken this route toward the bend of the Sarca valley to reach the southwestern area. (Compare the engraved arrows.) However, the higher section of the Sarca valley did not favour a further advance, and *P. spectabilis* has yet to be found north of Stenico and in the Val D’Algone.

On the other hand, this primula found an open door into the Val D’Ambes by crossing the Nembia ridge to settle in the neighborhood of the Molveno lake, advancing from here into the Val Di Cedro and the very divided Val Delle Seghe (including Massodì and the Val Ruse). This primula is found today in these three valleys, near the vegetation boundaries at approximately 2530 meters, very frequently in large colonies in the higher basin of the Val D’Ambes, and near the Tosa Hut. A further immigration from the Ambies valley was closed by high ridges radiating from the 3173 meter Cima Tosa. The primula wandered from the Tosa Hut through the entrance of the Brenta valley into the Brenta Alta valley (2552 meters), to the Malga Brenta Alta (1670 meters) and south of the Friddola Pass. However, it never reached nor crossed over the Friddola Pass at 2133 meters.

The narrow entrance into the Tuckett valley (2656 meters) is a sharp drop, 250 meters, over a steep snow trough toward the Seghe valley, where the west slopes are encased extensively by glacial ice (Vedretta Di Brenta Alta). It is here the primula could not overcome or bypass these obstacles. Obviously the larger snow fields and the contour of this valley entrance were effective, as they still are today, as true seed catchers. This explains the total, absolute absence of this primula in the Tuckett basin and north along the path to the Passo Groste, etc.

The site near the Gallina Pass was probably reached from the Molveno Lake through the small Vallon valley.

From all that has been said, the conclusion is that *P. spectabilis* did not reach the main Brenta section during the post-glacial north migration. The area boundaries traverse here right through the centre, and do not correspond with the natural or geological circumference of this mountain group. I do not consider the course of the area boundary within the Brenta group climatically fixed; but find it of importance in relation to the history of growth and development. One observes this primula right along the area boundaries in larger numbers, and the rate of growth of individual plants and their abundant seed production give every indication of great vigor.

The peculiar distribution of *P. spectabilis* on Monte Baldo is very interesting, being restricted to the southern mountain ridge, the Monte Maggiore, composed of wild mountain peaks, where we find it from here, the Punta Di Nicolle (1660 meters) northward to the Cima Di Pozzette (2132 meters), often in large colonies. To the north on the imposing MonteAltissimo (2078 meters), separated by the Bocca Di Navene (1430 meters), the primula is nowhere to be found. The explanation may be the Monte Baldo itself, which was covered during historical times with dense forests (Baldo meaning forest). The near deforestation of this 40 kilometer long mountain crest is today’s cause of the lack of water, erosion brought on by man! (Compare also Gsaller, 1891.)

I assume the peak of Mt. Altissimo was at least covered with forests during the warm post-glacial period, because we still find here the Rhodonodron in large colonies. We may also compare the altitude of the alpine tree boundary during the warm post-glacial time with the summation by Bertsch, The German Forests during the change of Time (1935, page 67 et al.). The Monte Maggiore, on the contrary, with the sharp sloping summits and immense and steep erosion fields, may have always extended beyond the forest belt, thus providing excellent growing conditions for this primula. It is remarkable too that since the denuding of Monte Altissimo the primula has not been able to establish itself. Of course, the wide, 1430 meter high ridge of the Bocca Maggiore intervenes, and even the relatively small and weightless, angular and longish seeds evidently could not bridge the gap by seed flight. Compare the seed transport by Vogler, The Distribution Factors of the Swiss Alpine Flora, in FLORA 89 (1901, page 51). All indications point rather toward a step-by-step advance in the migration of *P. spectabilis*.

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