

• Primroses



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On the cover

Primula nutans - the enchanted
Primula from China. Photograph
 taken by Larry Bailey in his garden.
 See page 10.

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President's Message

The holidays, joyous reunions and celebrations are over. I hope they were joyous for all concerned. We now look forward to a new year with renewed hope and expectations that it will be better than the last. During these winter months, as gardeners, we make out our seed orders, sort out and clean any seed of our own we have saved, do our dreaming and planning for all the things we are going to do with our plants this coming season.

If you are the practical person and keep your plans within the limits of your ability to accomplish, you are the exception among gardeners. Most gardeners plan during the winter months more than they can complete during the rush of activity during the spring; so, some projects have to be postponed to another year. That is why we live so long trying to complete our projects.

As A.P.S. members I would recommend two things to put in your plans. First, grow more species Primula. Second, make some hand pollinated crosses with a purpose. These can be very flexible in amounts depending on your available space and time. They can also give you a lot of personal satisfaction of accomplishment. There are many other things we can do as A.P.S. members, such as, entering primrose plants in flower shows, making your surplus Primula plants available for garden club sale and plant exchanges, and getting new and young people interested in primroses and joining the A.P.S.

If you give top priority to the first two things, the others will follow naturally.

I hope to see many of you at our shows and annual meeting this year.
 To all a Happy Primrose Year,

Herb Dickson

Memories from Maine

by Harriett Gurney
Fairfield, Maine

My first encounter with the primrose was a chance seedling that came in the soil of some perennials. When I first noticed this plant, it was quite large-looking much like a chinese cabbage. No one seemed to know what it was. The first year it grew quite large; came Spring it was a very large plant. In the late spring, lo and behold it bloomed—the most beautiful thing I had ever seen. Determined to know what I had, I went back to Mr. Ralph Taylor's. There were many of these plants scattered about, in full bloom and many colors. Mr. Taylor only knew this was a Primrose.

Reading a garden book, I found an ad for the American Primrose Society. By sending dues of \$3.50 to the Treasurer, Mrs. Lawrence Tait, I promptly became a member in 1967. I was fascinated with the Quarterly, it had thirty pages; Mrs. Grace Conboy was then President of the A.P.S. In the Fall 1967 issue Mrs. Lucian Alexander wrote her last 'Notes from Rhone Street'. Florence Bellis, of the famous Barnhaven, received a citation from the National Council of State Garden Clubs for distinguished achievement in hybridizing new primroses (Barnhaven Strain). Beth Tait won the Bamford Trophy for her yellow self Show Auricula seedling.

Spring 1968: Dickson's Gardens had auricula seed for \$1.00 pkg. (at least 200 seed); also Sky Hook Farm. Oh, what a joy to correspond with Alice Hills Baylor. I learnt more about primroses and received many a lovely plant from her. Through Alice I found out about **Primroses and Spring** by Doretta Klaber; the pages

are now tattered and torn, loaned out, lost and found so many times. I must buy a new copy.

Summer 1968: the cover showed *Primula acaulis*, 'Vatters Kirchenfenster', I still wish I had this plant. Mr. Herbert Dickson became President and Mrs. Orval Agee won the Bamford Trophy. In this issue I discovered the Barnhaven primrose ad from Far North Gardens; most of my primula seed then came from them. The first officially named double auricula in America, was named Ellen Page Haydon, a lovely peach, the pride of Ralph Balcom. **Fall 1968:** this was my first venture in planting seeds of primulas, with not very much luck.

Winter 1969 was my beginning in the Seed Exchange, with Mr. Elmer C. Baldwin as the Director; what fun! The Quarterly cover featured *Primula marginata*. I sent to Sky Hook Farm for this beauty and grew it five years before it departed; I am still without a replacement. Did you know that even back then Alice Hills Baylor was answering questions in the Quarterly? Such dedication and love for Primula and people. It was in this issue I saw the ad for the American Rock Garden Society, I promptly became a member. The article by Ralph W. Balcom 'Seeding Methods for Primroses' helped me to plant seed and to grow many a fine seedling. By Ralph's methods my germination improved 100%.

Spring 1969:, Joined a Round Robin with Mrs. Olaf E. Robins as chairman; this was a most successful venture. **Summer 1969:** After reading 'Cowichan I love You' by

Dorothy Ross Springer, I bought seed and still grow this lovely thing. Sent to Wagon Wheel Gardens for my first Doubles, (100 seed \$3.00). Mr. and Mrs. Fred Clarke won the National Sweepstakes at the Tacoma Show. The cover picture was Best Auricula Seedling of 1969, Winner of the Bamford Trophy, grown by Mrs. Orval Agee. **Fall 1969:** The most beautiful double acaulis you ever saw appeared on this cover! Dues are now \$5.00. Miss Fayme Haverty was Seed Exchange chairman.

Winter 1970: A Life Membership was awarded to Mrs. Lawrence G. Tait for her devoted service. Can you imagine serving nine years as Treasurer? I counted eight members from Maine in the 1970 Membership list printed in this issue. **Spring 1970:** Mrs. Thelma Nelson became the Round Robin chairman, I read those letters with much interest. **Summer 1970:** Mrs. William Dines is the new APS President. A 'Newcomer wins Bamford Trophy', and to whom are they referring? Why, Mr. Al Rapp of Tacoma, Washington. I never think of him as ever being a newcomer! Mrs. Ivanel Agee wins the American Primrose Society Hybridizing Award; a deserving and most earned award. Excerpts from **Primroses and Spring** is wonderful reading in this issue. If you do not have this book by all means buy it! A picture *P. abschasicana* inspired me and this I still grow. **Fall 1970:** **Primroses and Spring** excerpts continue; a picture of *Primula kisoana* was such a beauty and a joy. Lost my start three winters ago when there was no snow cover; it is now on my wish list!

Winter 1971: I sent for seed of Alpine Auriculas from Primrose Acres. I still have some. These beauties are now happy in my garden after years of trying to grow them. **Spring 1971:** the Chehalis Rare Plant Nursery offered *Primula sieboldii*,

mixed colors; I received a beautiful white and one rose. I would guess I have given away at least two hundred plants over the years and they are still just as beautiful as when I first purchased them. The amazing durability of some of the Primula by Herbert Dickson was what prompted me to purchase my first *P. sieboldii*.

Summer and Fall 1971: New President is Mrs. Olaf E. Nelson. Also at this time an article 'The Fascinating Candelabra' by Dr. O.W. Hillery appeared. Used my seed exchange allotment for *P. candelabra* and over the years these have been my favorite. By the by, Mr. Keith F. Elcombe was the Seed Exchange chairman.

Winter 1972: Picture on the cover was *P. farinosa*, and as a result I grew it from seed. this dainty plant is still with me. Ralph Balcom and Evelyn Balcom were given Life Memberships. Round Robin chairman was Mrs. Ruth Bartlett. 'Moist Sand Beds', a Round Robin letter from Norman Deno; if you have a difficult time germinating *P. rosea* try this method, it works!

Spring 1972: Mr. Albert Rapp became the new APS President. Spring Hill Farms offered Double Vernales (\$3.00 for 50 seed) and I had to try these; a beautiful soft lavender and a nice white. However, being new to these lovely primulas I only had them two years. The double primroses bloomed from early spring to late fall, but did not come up the next spring. Primula Family Chart; this has been such a help over the years. **Summer and Fall 1972:** Seed Exchange was transferred and now members send only Primula seed to the Exchange. The membership is still climbing! There are now ten Round Robin groups. Sent to Far North Gardens for Double Primulas seed, I just had to try again.

Winter 1973: 'Pollinating' by Florence Levy Bellis, I have always wanted to try this interesting repro-

duction of plants; perhaps in the future. This was the last issue under the direction of Emma Hale. A very dedicated person to have edited the Quarterly for five and a half years. **Spring 1973:** the new Editor was Dorothy Springer and the 'Wish Corner' made its first appearance; I found it most helpful. **Summer 1973:** on the cover was Dorothy Campbell's prize-winning polyanthus, a Lime-light strain of chartreuse coloring, I have high hopes of having this some day! Something new appeared: 'Down The Primrose Path' with the Editor and 'Mulches' by Ruth Bartlett Huston. Got started on mulches, and to this day I use them to the fullest extent, here in Maine they have saved many a primula. **Fall 1973:** Notes from the Seed Exchange chairman, less seed and a bit more money. Costs are rising all round. Treasurer Beth Tait reports membership of 655, we are growing!

Winter 1974: a new look for the Quarterly; the cover and pages are a lovely dove gray. Thelma Genheimer is now Treasurer. **Spring 1974:** the look goes on, a restful soft green. 'Primula Chromosome Count' by Darlington and Janaki Ammal; this chart is of utmost value to the hybridizer of primulas. Also of value is the 'Seven Aspects of Color' by George L. McAlevy.

During this period I parted with some of my Quarterlys, now much to my distress! Skipping to the **Summer 1977:** A full picture cover, Clara S. Skupen is pictured in her garden with beautiful exotic candelabras. Dues are now \$7.00. Anita Alexander is APS President and Alice Hills Baylor's Questions and Answers is under the Heading of 'I Have A Question'! I see many new changes, more pages: 'Beginner's Luck With Tony', 'Letter Box', page numbers on the side in bold numbers, along with the Quarterly Volume numbers on the

inside cover. I don't think I like the volume numbers located here.

Winter 1978: another beautiful full cover, this one is of Mrs. Corydon Wagner's garden. Looking for the whereabouts of the Yin/Yang bowl Trophy called Cooper's Chinese Bowl was under discussion. 'Indoor Gardening under Lights', this article has helped me so much. I have two lights set up in the basement, fine for seed and seedlings. Ross Willingham is now Seed Exchange chairman. Have been reading 'Dairy of a Primroser', by Cy Happy; most interesting! **Spring 1978:** all about voting, absentee ballots, it is a pleasure and duty to help elect the new officers, we should all be prompt to return the ballots. 'Changing Cowichans,' these beauties have come a long way and for the better. **Fall 1978:** such beauty! What color! This special color edition in memorial to Agnes Johnson is one of perfection. James Menzies is our new President and the Volume and Numbers of the Quarterly are back on the outside cover; thank you!

Winter 1979: Sent for Double Vernales Seeds by Rosetta; I find the ads most helpful. Alice Hills Baylor is still answering questions for us with her usual know how. What would we do with out her! **Spring 1979;** forty three pages in our Quarterly, we are growing! 'Making Seed Pellets' by Earl Welch; I must try this with some of my Seed Exchange seeds. **Summer 1979:** 'Lollipop *P. denticulata*' by Elizabeth van Sickle. I have had the white for years, I don't care for the purple, but oh—to have a red! 'Japanese Alpine Primulas' by Cy Happy; what a dream it would be to go to Japan to see these beauties.

Winter 1980: the study weekends sound so wonderful, I hope some day to attend one. 'Juliaes intrigue hybridizers, collectors' by Dorothy Springer; the Juliaes are the jewels of the primrose path, what a bleak path

indeed without these gems! 'Candelabras like artificial bogs' by Ralph Benedict; I read with much interest. When I made the lined bog, it worked just fine; thank you. We had 625 members; 34 who donated seed to the exchange. **Spring 1980:** Herb Dickson is now President once again. We seem to keep 40 pages to our Quarterly and so many pictures, how can one not treasure and read the Quarterly over and over. 'Benedicts create lakeside heaven', by Clarence Owens, and Dr. Jim Wilkins; pure heaven! **Summer 1980:** 'The Auricula by George Glenny, if you don't grow *P. x auricula*, after reading this you will! In reading the Quarterly ads have you noticed how many growers ship seed only, no plants? 'Notes on Woodland Primroses' by Ralph Benedict, the *P. sieboldii* I have in many colors and forms, but a red one! I would like *P. kisoana*, but where? I have the rock wall but no *P. kisoana*. *P. cortusoides*, *P. saxatilis*, and *P. polyneura* all grow well here in Maine.

Fall 1980: The Quarterly did it again with a full color cover, *P. japonica*, the little chance seedling that started me on this quest. Did you ever see anything as beautiful as the color plate of *P. cockburniana*? I must have a start of this one! 'Create a successful rock garden'; this I have, to a degree. Here in the East there is and Eastern Chapter of the APS, the extra \$1.00 is well worth it!

Winter 1981: *P. marginata*; I planted my little seedlings with care in my rock wall hoping someday it will look like the cover photograph. 'What does that word mean?' by Ruth Huston, a glossary of a most wonderful aid to identify plants. I see by the membership list that Maine now has 11 members. **Spring 1981:** Show time with the beautiful people and their wonderful plants. Awards and trophy so justly deserved; Helen

Clarke, Jim Menzies, Rosetta Jones, also Orval Agee, Ruth Huston, Ross Willingham, Fred Clarke and Vasco Fenili. On and on they march and toil so that others may reap the harvest of such beautiful primroses. **Summer 1981:** What happened? Only 27 pages in this Quarterly. I see we can expect new changes in the format of future Quarterlys; change and growth are good. 'Importing Auriculas and Primulas'; from Edmonds, Washington; with this knowhow many plants may be brought from across the waters, also a fine shipping method for us here at home. Herb Dickson is scheduled for new knees at the end of October, a gritty one, that Herb. 'Collecting Seeds for the APS Seed Exchange' by Irene N. Buckles; no excuse now not to send seed to the Exchange. 'From the Mail box', I like this, it makes one feel a closeness of members. Sent for seed from Spring Hill Farm and received a very nice letter from Ruth Bartlett Huston, and many nice seed packets. I have them all planted and under lights in the basement. How many times has Ross Willingham served as Seed Exchange Chairman? Pure dedication; we all love you Ross! **Fall 1981:** 'Winter Readiness' by Irene Buckles, this is so important in Maine. Winter of 79-80 had little or no snow cover and I lost 75% of my primroses. Hints on 'Double Primroses' by James F. Long, I found this of much interest. Planted several packages of doubles this winter, high hopes for a fine crop of seedlings come Spring. *P. ioessa* in Washington Garden' by Vickey Sauer; I do hope these will be hardy here in Maine. I have my seeds planted. Dues are now \$10.00 and worth every penny! The Seed Exchange as of this year still only had 34 donors. Out of nearly 700 members, why are there so few donors? I must save more seed! We need more growth in the area of the

Seed Exchange. Received my Winter 1982 issue today, My Oh My what a beauty! 'Standard Fluorescent Light for Indoor Gardening' by Joe Dupré, this is information I have longed for. 'Pop Bottle Gardening' by Rosetta Jones; I have used glass gallon jugs this way for years but never plastic bottles; thank you for sharing. Now

Correcting Chlorosis on Primroses

Suffolk County, Long Island Horticulture News
Ralph Freeman, CEA

Primula × *polyanthus*, commonly called primrose, is a popular crop today. The circle of textured spatula-shaped leaves with a nosegay of colorful flowers rising from the center makes it a most interesting plant. The color range is wide and attractive. Although primrose is a plant that has great demand, many growers do not grow it because throughout the growth of the crop leaves may become chlorotic, thus unattractive, and sales are reduced.

To help learn how to correct the chlorosis problem, the literature was surveyed and an experiment was designed to determine if applications of some of the minor elements would help.

Materials and methods: Thirty pots, cv. Laser, in each of four treatments were carefully selected for severe chlorosis problems and labeled for treatment at Stan's Plant Farm in Blue Point, New York. The plants were transplanted to 4" pots on October 10 and treated on November 24, 1980. The growing mix was Ball Growing Mix I. Treatments included: check (no treatment); magnesium sulfate at three lbs./100 gal.; hydrated limestone at two lbs./100 gal.; and sequestrene iron 330 at two lbs./100 gal. Plants were grown at 55°F night temperature.

the biggie, the 'Resource Directory'; this is the mark of wonder, Super!

My dream is to have an APS chapter in Maine; to see the 'Wish Corner' back, this was fun and so helpful; and to retire in the Spring so as to devote my time to the ever beautiful Primrose!

Results and discussion: Ten days following treatments the plants treated with iron were turning green. The other treatments showed no improvement. Twenty-one days after treatment plants treated with sequestrene iron were nearly normal in leaf color.

Still, the other treatments displayed an immeasurable improvement. It appears the application of iron will help correct the chlorosis problem in primula production. The treatment with hydrated limestone did not help. Even though this increased the pH of the mix, an increase of pH is not sufficient to correct the problem. Perhaps the combination of increased pH plus iron will alleviate the problem. This will be investigated in a subsequent study.

Conclusion: *Primula*, cv. Laser, grown in 4" pots were treated with iron, magnesium sulfate and limewater to help correct the chlorosis problem which often occurs on this crop. The only treatment which helps correct the chlorosis difficulty was through the use of iron.

reprinted from the Long Island Horticulture News, August 1982; brought to the APS attention by Mrs. Lee Nelson, Binghamton, N.Y.

Blue Ridge Mountain Notes

by James F. Long
Marion, Virginia

Have you ever taken a walk in the woodland in the misty air of the early spring morning? If not, you may have missed one of the greatest thrills of nature. To pass by a pine knoll and see a pink Lady Slipper nestled in the pine needles with layers of ferns in the background, is an unforgettable sight that will linger on and be imprinted in memory most of one's life. It is these images that have so thrilled me in a way that is difficult to put in words.

Primula in the Woodland

A person need not possess acres of land, but perhaps just a few trees and the passion to create "a spot of beauty" to make a dream come true.

A narrow trail that combines the true primroses, although not excluding other primula, with ferns for a backdrop and a few natural woodland wildflowers, can create an unforgettable impression. One group of three to a dozen *P. vulgaris* single color ranges takes a small amount of space; but a real challenge is to be able to develop one beauty spot and then be able to stop there! One area leads to another, combining different colors and plants, no matter how many times a person says the last cultivated setting is enough.

Combining plants of the primula family and natural ferns, along with wildflowers can perform dual purposes. One, it will allow gardeners to grow and preserve wildflowers, protecting them from the ravages of civilization; and then secondly, it will expand and have more varied gardens for primula. There is no limit to what can be created if a person has (and most gardeners do) a small area one can devote to this type of garden.

Morning rays of the sun shine like a beacon on a planting of pale yellow *acaulis* dew on the bloom and native bloodroot with its glistening white beam is an unforgettable sight. Beauty is, as the old saying goes, in the eyes of the beholder; so if this is true, the combinations of gardens are limited only by our enthusiasm and imagination.

Intentionally trying to force ideas onto others is never good, but rather explain and tell the joys of appreciating the beauty of nature so that anyone else may become interested, and then perhaps enjoy the same things. Thinking back, most of all we have learnt has already been done many times over. People need to be reminded that we are only custodians of what is around us but for a short time. We must pass not just the physical plants, but what knowledge and ideas that have been gained to the next guardian to carry on where others will leave off.

Many people have their own personal areas of horticultural interest and beauty; perhaps only you know this source. If a few growers would share in small articles and photographs, I believe many more people would then be willing to share their ideas. The whole idea would be to promote the growing of more primula types and to use primroses in more varied ways.

I never cease to be thankful for the beauty and joys of nature and that we are allowed the time and space in the scheme of things to experience them.

Nutans - The Enchanted Primula from China

by Larry A. Bailey
Edmonds, Washington

"If there was only one flower that could be made into perfume, then I wish *Primula nutans* would be that plant". This casual comment by my wife when she encountered the fragrance of *Primula nutans* settling in the garden during an early warm summer evening hour only begins to touch upon the enchantment of this fairytale primula.

Until this last summer, I had never seen a *P. nutans* plant nor viewed its flowering form. Before 1982 my only encounter with this plant was through old magazine clippings and the few books specializing in primula. Each brief article that was read alluded to its exotic nature and would whet one's appetite to experience this asiatic primula. The photographs that accompanied these publications did not emphasize the individual flower features, but usually showed the plants growing in clustered arrangement at some botanical garden on the 'other side of the world'.

Seeing *Primula nutans* in full bloom for the first time is an experience never to be forgotten. I was not prepared for the unusual beauty of this plant, but was expecting something in the nature of the dainty *P. capitata*, with its clustered tight grouping of droopy bells on a thin reaching stalk.

Seeds were obtained from the APS Seed Exchange the previous year (1981) and sowed in a small lightly heated greenhouse. These were planted in a plastic potting pack and covered with a pane of glass to retain

moisture. Germination of the seed was good, but only a few made it from the seedling stage to actually being planted into the garden. Reasons for this heavy loss included a proneness to damp-off, too much heat (forgetting to open the vents on warm days), drying out (forgetting to water before going off to work), and an impressive array of slugs, snails, grubs, worms and the usual assortment of creatures that thrive where you don't want them.

After transplanting the few remaining plants into the 'specie bed' (a raised planter on the north side of a cedar hedge), a couple more of the plants were lost to the ever present cutworms, squirrels and dogs. By early spring of the next year, the only sign of any plants were the bare and lonely white plastic labels, marking the suspected grave of neglected efforts. By late spring one small crown of *P. nutans* was starting to make itself known by peeking out from the loose soil of rotted oak leaves and compost.

Interest in the reappearance of the one *Primula nutans* plant was only casual and of passing notice, as its neighbor in close proximity was one of Mr. Goodwin's Fiesta Double Polyanthus, putting on a fantastic display of gigantic yellow blooms, completely dominating that corner of the garden. It wasn't until the beginning of summer that I first noticed the lone plant of *P. nutans* showing signs that it might reward us by flowering. But by that time I was sure that *P. nutans* was just another primula that "I couldn't grow".

As the flowering stalk started to rise, I became fascinated with the frosted scaly head of the emerging truss. The pattern of the scales were intriguing and something that I had never seen growing before; foretelling of adventures to come. Slowly beginning to dominate my interest, the stalk grew far faster and much larger than I expected. In fact I was starting to have suspicions that what I was growing was not a *P. nutans*, or even a primula. When the first buds opened, I was away on a business trip, but upon returning and during my usual tour of the garden, I first noticed a fragrance that I could not identify. It was only after seeing the *P. nutans* in bloom and then leaning over to get a sniff did I realize the full potency of this fantastic flower. It is truly remarkable; when one is first enchanted by this peek at a fairytale world, no one quite expects to see a flower so unique in its large frosted blue clustered bells and its intoxicating fragrance. The size of the umbel in bloom was approximately 2 to 3 inches across and trussing 5 inches high with a total height of the stalk about 12 inches; being far greater than one would imagine from previous photographs. The delicate fragrance was completely unexpected, especially the potency of it; indeed it would make a fantastic perfume.

Running back to the house, I immediately drug my family and neighbors into the back yard to see this wonder upon wonders for themselves. It wasn't many days before the neighbors and friends were starting to bring their friends and acquaintances around to the back yard to see and smell the delightful "new discovery". Throughout its long blooming period as the buds opened up along the extending umbel, it became the "show" of the Bailey's household. A couple of times I found complete strangers touring

the back yard, having been told by our neighbor friends to see for themselves.

Suddenly, in late summer it stopped blooming and immediately shrivelled its flower stalk, and in a few more days the leaves dried or rotted. Gone—completely gone; no seeds were set although it was attractive for the bees. Scratching around the ground in the late fall, I did find healthy root systems and a crown. I can only surmise that the much read about monocarpic nature of *P. nutans* might be more from the difficulty in carrying them over in damp weather along with being extremely susceptible to rotting off.

Looking into the history of this plant I am somewhat confused as to its proper name. Until recently, the name *P. nutans* had been the common reference, but lately the name *P. flaccida* has been utilized by the American Rock Garden Society. The name *P. flaccida* was also indicated as a synonym by Roy Green in *Asiatic Primulas*.

In recent sources of reference, *P. nutans* is indicated to have been first noted by Abbe Delavay in 1886 and introduced to cultivation by George Forrest in 1914. Having a distribution in western Yunnan, China at the 3500m (11,500 ft.) range.

Culture: Having extremely limited experience with this primula, I can only relate to what conditions were prevalent in a successful culture for one season. The raised bed (2 x 10's) was alternating layers of compost and oak leaves; with the final 5" filled with compost. This mixture rested and was allowed to settle from late fall to late spring before cultivation and planting. The soil is very rich with excellent drainage. The raised bed is protected from the usual southern wind and rain pattern by a large cedar hedge. Much of the time the soil remains fairly dry even during heavy



Primula nutans -

photo by C. G. Haysom

mists that frequently occur during the fall and winter months in the Pacific Northwest. The cedar hedge is on the south side of the bed allowing the morning eastern sun to penetrate. The area is cool in the summer months and seldom needs watering. This raised bed has proven to be

exceptional for trying out most primula species native to the higher elevations. Lack of sun can cause some of the species to appear leggy, although the *P. nutans* appeared to thrive under this growing condition. Good rich soil with excellent drainage in cool areas would appear to be a key

to successful cultivation. Allowing the plants to completely dry could prove fatal or prevent the flowers from developing.

Germination has not been a problem when sowed in a greenhouse environment with temperatures around 55° to 60°F. I have found a higher degree of success when the seedlings in the greenhouse have avoided direct sunlight. Handling the seedlings when the first true leaves appear and pricking out into plastic bedding pot packs did not check the growth cycle. The starter and first transplant mix was a sterilized

product called 'Terri-Lite' Redi-earth by the Grace Horticultural Products Company. This mix is a very fine peat with vermiculite, giving it good drainage. A light fertilizer should be applied if the seedlings are kept in the transplant mix longer than three months. Mid fall transplanting into the garden was completed without serious consequences (except for bugs). With ideal growing conditions, I would guess that with a very early sowing period, some limited blooms might be able to be achieved the first summer.

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Rough typewritten copies of the above referenced text on *P. nutans* from the bibliography listing may be obtained by request from L. Bailey, 1570 9th Ave. N., Edmonds, Washington 98020, USA.

Helen Clarke

by Cy Happy
Tacoma, Washington

Helen Clarke died suddenly and quietly at age 87 on December 24, 1982.

New seed catalogs are coming in the mail, pussy willows are emerging and *Primula sibthorpii* is bravely blooming. For the first time in many years Helen is not here to share the pleasure and anticipation of the passing winter.

For more than 25 years Helen and Fred Clarke have been involved in APS and Tacoma Primrose Society, holding office and guiding from the background. As exhibitors they came away with the sweepstakes many times. Theirs was always a joint contribution. In recent years when one developed a health problem, the other took over temporarily—and it was only temporarily because nothing kept them out of the garden for long.

Their present garden, about two acres, has a base of thin, rocky prairie soil covered with many loads of muck from a nearby swamp. Years of manuring made it fertile. Many old varieties of shrubs, bulbs, roses, fruits, vegetables, perennials and the primrose collection all have their places.

Among the interesting plants are at least six clones of boxwood with different growth rates, the Clarkes' own variety of yellow raspberry and trailing blackberry, thousands of our native erythronium and trillium, a magnificent pink (I suppose Shirley) poppy that seeds itself, an old indestructible cream-yellow polyanthus and the old favorite white-eyed salmon phlox, Elizabeth Campbell. There are choice plants at every turn.

As the Clarkes' interest in primroses developed, they took over some of the

late Wes Bottoms' breeding stock of fine polyanthus and hose-in-hose. They got some of the last of Linda Eichman's Crown Pink and Warm Laughter polyanthus seed and kept these strains going.

Helen did most of the hand pollinating. Their entries at our primrose shows were spectacular, and Helen's new seedlings were exciting. Among the best was a group of pastel cowichan polyanthus, marvelous colors but with delicate constitution.

The Clarkes liked and got along well with *P. rosea*, *P. clarkii* and their hybrid *P. × 'Peter Klein'*. Helen saw that the hybrid crossed back to *P. rosea* produced especially nice plants and flowers with variations in shades of pink.

From these arose what appeared to be a typical *P. rosea* with white flowers. It would not breed true but would reappear among the seedlings of that cross. As far as I know the white *P. rosea* was a new development.

Helen crossed an old pink juliana hybrid with a good hose-in-hose and produced a nice low dusty pink juliana with mostly hose-in-hose flowers—a plant I called "Helen Clarke." Now at least ten years later it is still strong and charming but reluctant to produce hose-in-hose flowers every year—just when it feels like it. However, it is an excellent parent of hose-in-hose types.

My friendship with Helen evolved from garden talk into something much broader. Spring will not be quite the same without being able to share it with her.

Fred's interest in primroses and our society is strong as ever. He hopes anyone interested will drop in.



Fred and Helen Clarke - 1969

photo by Cy Happy

APS at AHS

by Herb Dickson
Chehalis, Washington

The American Horticulture Society celebrated its sixtieth anniversary on October 15 at their River Farm Headquarters in Alexandria, Virginia. The theme was sixty, with sixty horticulture related societies represented; many with plant displays.

As A.P.S. President, I represented our society at the celebration with a display of six *Primula* plants in good foliage but no bloom at that time of year. The Rose Society and the Chrysanthemum Society had impressive arrangements. The Hibiscus Society stole the show with beautiful six to ten inch hibiscus blooms here and there all around the hall. One eight inch pink hibiscus bloom was beside the primrose plants. A beautiful young lady asked me if that flower was a primrose flower.

However, the emphasis was not on plants but on conversation, food and drink. I met and talked with many interesting people beside the Officers of A.H.S. There were more than two hundred in attendance. It was a buffet feast with more than enough for everybody. A huge birthday cake about four by eight feet was cut by the President of the Society.

Now many more people know about the A.P.S. I think the trip from Washington State to Washington, D.C. was very worthwhile for the A.P.S. and myself as I spent the weekend with my daughter and her family in Newark, Delaware.

The fiftieth anniversary of the A.P.S. is coming up in 1991 only eight years away. It is not too soon to start plans for how and where of a celebration.

Section *Proliferae* Pax (Section *Candelabra* Balfour f.)

by G. K. Fenderson

South Acworth, New Hampshire

The section *Proliferae* (*Candelabra*) contains some of the most handsome and conspicuous species of the entire genus. When grown under favorable conditions the members of this easily grown group can produce a garden display unrivaled in the genus. Despite its current popularity, the group is relatively new to cultivation; only eight species of the section *Proliferae* were known before 1913, in which year Balfour termed the group "the section *Candelabra* of the genus *Primula*" in the report of the Primula Conference of the Royal Horticultural Society. Although the more familiar name must yield to the section *Proliferae* which has precedence, the section will surely remain known as the "Candelabra Primulas" for some time to come.

Bruun (1932) found the section to have a chromosome base number of $n=11$, and cytological characters approaching section *Crystallophlomis* (*Nivales*). Spanowsky (1962), found the pollen to be of the "Auriculate-type" and that of *Primula anisodora* to represent in his view a somewhat advanced state of development within the section.

The members of the section *Proliferae* in common cultivation are nearly all easily grown plants needing only a fertile deeply cultivated soil, partial shade, and a copious supply of moisture during the growing season. In the wild most species inhabit streambanks or wet meadows, conditions when duplicated in the garden provide many weeks of colorful display. Lack of moisture during periods of active

growth will result in a very limited display of bloom and loss or weakening of many plants.

The term "candelabra" derives from the habit of most species of the section to open successive superimposed whorls of blooms on tall slender scapes. Each whorl of bloom remains attractive for nearly a week and well developed plants often produce four to six tiers, providing a flowering period rarely equaled among herbaceous perennials.

Nearly all species of the section produce copious seed which germinates with relative ease and in generous quantity, thus easily perpetuating the plants which themselves tend to be short lived (or in areas without reliable snowcover, monocarpic). It is recommended that seed be stored for a few months before sowing for best germination and that most species require some cold and light to germinate. McKelvie (1979) suggests that alternating temperatures between 10° and 20°C (50° and 60°F) is preferred to constant high temperatures. Care should always be taken that the young seedlings or the germinating seeds never be allowed to become dry.

Young seedlings will develop with great rapidity if they are provided with a constant supply of moisture and adequate nutrition. They may be transplanted when the first true leaves are about 1 cm across into individual containers or sheltered nursery beds where they will spend the first winter. Mortality rates can be high with young plants so they are best installed in permanent

planting sites only after having obtained some size and substance (5 to 10 cm across) in more favorable locations. Seedlings of many species will produce at least one small whorl of bloom when one year old but the best display will occur the second season of growth. Many species self-sow in great quantity (spontaneous hybrids are also common where several species are grown together). However, these seedlings must be thinned ruthlessly or established in freshly prepared locations if they are to provide a satisfactory display or truly perpetuate themselves.

Plants of some species such as *Primula chungensis*, *P. japonica*, *P. bulleyana* and hybrids of the latter will divide with ease but can be slow to re-establish themselves. Others such as *P. prolifera* and its allies form more tightly joined crowns and require more care in separation. Division in all species is best carried out at the first sign of growth in the spring; alternatively (in the more robust species) it may be done immediately after flowering.

Some species have rosettes of foliage that are persistent and should be protected from winter sun when the ground is frozen. A light mulch of evergreen boughs applied after the ground is first frozen is beneficial for both evergreen and deciduous species. It will also assist in reducing mortality among young plants through dislodgement and dessication by frost. A light top dressing of compost, ground leaves, rotted sawdust, or well decomposed manure will provide both winter protection and a source of organic matter to benefit growth in the spring.

Primula anisodora Balfour f. et Forrest is found in moist open pastures in northwestern Yunnan, and western Sichuan, China where it was first collected on the Chungtien

Plateau at an altitude of 3700 m (12,140 ft.) in 1913. The species has deep blackish-purple flowers on a scape to 60 cm (24 in.) tall arising from a basal rosette of persistent foliage. Closely allied to *P. poisonii* and *P. wilsoni*, the species is distinguished from the former by its smaller, more funnel-shaped corolla and by the anise-like fragrance of the foliage from which it takes its name. From *P. wilsoni*, the problem is somewhat greater and is based primarily on the color of the corolla which is very dark in *P. anisodora*, and paler in *P. wilsoni*. More significantly, *P. anisodora* is said to have sub-quadrangular corolla lobes, broader than long and a less conspicuous annulus which is only distinctly lobed. The three species may someday prove to be a single polymorphic taxa.

Primula aurantiaca W. W. Smith et Forrest is a handsome orange flowered species. In the sometimes confusing company of orange to yellow-flowered species and hybrids of this section it is distinguished by its total lack of farina and often by its red-pigmented scape and mid-ribs. It is reputed to be more tolerant of drier conditions than other members of its section, but is far more rewarding when grown with a copious supply of moisture. As the uppermost umbel of flowers fade, the scape of this species sometimes continues to elongate and lean which may bring the small tuft of leaves that often forms at its apex, in contact with the ground. This tuft of vegetation can be detached and after a short period in a shaded, damp location, it will soon become an independent plant.

Forrest first found *Primula aurantiaca* in 1922, growing along small brooks in alpine meadows in Yunnan, China along the Chienchuan-Mekong divide at an altitude of 3500 m (11,500 ft.). It has been

in cultivation since 1923 and presumably remains a distinct species with no proven hybrids.

Primula beesiana Forrest was found in the same year and in the same general location as *P. bulleyana*, a species with which it is extremely closely allied; in fact some taxonomic thought would suggest a single species, *P. bulleyana*. Both taxa were found in 1906 in the Lichiang Mountains of Yunnan, China. *Primula beesiana* was recorded from lightly shaded areas in moist mountain meadows at an elevation of 2600 m (8,500 ft.).

In cultivation, *Primula beesiana* is similar to its allies in requiring a deep, fertile, moist soil in partial shade.

Primula beesiana is also allied to *P. pulverulenta* which it resembles in color of flower and in the distribution of its farina. *Primula beesiana* has leaves that are generally broader toward the apex. To further differentiate *P. beesiana* from *P. pulverulenta*, the former has a yellowish-green eyezone, a yellowish corolla tube and lanceolate calyx lobes. *Primula pulverulenta*, by contrast, has a red or purple corolla tube and triangular calyx lobes.

Primula beesiana has dark or light reddish-purple flowers on scapes to 40 cm (16 in.) and foliage that can equal it when the plant is in fruit.

Smith and Fletcher (1941) report that as early as 1912, a salmon colored hybrid with *P. bulleyana* was recorded and named *P. × 'Edina'*. In 1914, a strain of hybrids were developed at Lisadell and received the name *P. × 'Ashore'*. They were intermediate between *P. beesiana* and *P. bulleyana*. Innumerable hybrids of this strain continue to populate gardens today. Most are very attractive robust plants in shades of salmon to deep orange, and rose to magenta. A comprehensive name for this group is

P. × bullesiana Hort. Seedlings from one such strain gained an Award of Merit from the Royal Horticultural Society in 1916.

In the living state *Primula beesiana* and *P. bulleyana* are assumed to be separable by the color of the calyx tube; (rose-magenta in *P. beesiana* and yellow-orange in *P. bulleyana*) the calyx segments; (slightly more awl-shaped in *P. bulleyana*); and the color of the midrib (red in *P. bulleyana*, lilac or flesh colored in *P. beesiana*).

Primula beesiana var. *leucantha* (Balfour f. et Forrest) Fletcher was collected once by Forrest in southwestern Sichuan, China in 1918. At first it was given specific status as *P. Leucantha* Balfour f. et Forrest, but later comparison with *P. beesiana* resulted in its status as a variety. It is doubtful that this variety continues to be cultivated.

Primula brachystoma W. W. Smith is an exceedingly rare species which was found by Farrer in the year of his death in 1920 on the Burma-China frontier. There he found it growing at an altitude of 2900 meters (9,500 ft.) in a wet grassy area.

Primula brachystoma, (described from a single collection) is allied to two other yellow-flowered and rarely cultivated species, *P. prenantha* and *P. morsheadiana*. It may be quickly differentiated from those species by its pointed leaf tips, a feature uncommon in the section. *Primula brachystoma* is a slender plant with a scape to 20 cm (8 in.).

Primula bulleyana Forrest is closely entwined with *P. beesiana*, the two species were found growing in close proximity by Forrest in 1906, (for a comparison of the two species see *P. beesiana*).

Primula burmanica Balfour f. et Ward earns high praise from many horticulturists for its good proportions, its accommodation to culti-

vation and its deep rich color. To produce its generous and closely-set whorls of purple yellow-eyed flowers, *P. burmanica* requires the standard fare of the other cultivated species of its section.

Smith and Fletcher (1941) suggest that this species is allied to *P. beesiana* from which it differs in its earlier habit of bloom, its lack of farina except on the interior of the calyx, and according to some, its more pleasing color. *Primula burmanica* was discovered by Kingdon Ward on the Burmese frontier growing in moist meadows and forests at the relatively low elevations of 2400 to 2800 m (7,800 to 9,200 ft.). The whorls of reddish-purple flowers of this species are carried on robust scapes to 40 cm (16 in.).

Primula chrysochlora Balfour f. et Ward is a small yellow flowered member of its section with closest affinities to *P. helodoxa* and may be but a form of that species. Bentvelzen (1962) discusses the taxonomy of the latter species in some detail in an article that strongly questions the validity of separating several species including *P. prolifera*, *P. khasiana*, and *P. smithiana*. *Primula chrysochlora* was collected once by Kingdon Ward growing in the marshes of Tengyueh, Yunnan, China prior to 1916.

Primula chungensis Balfour f. et Ward is one of the most easily grown, although not the showiest of the yellow to orange-flowered species of the section. Most frequently it is a slender, modest plant that should be grown in groups to produce an effective display. It is possible to confuse *P. chungensis* with several other yellow-orange species. It is to be distinguished from the completely efarinose *P. aurantiaca* by the densely farinose interior of its calyx and the similarly farinose nodes of the scape. *Primula chungensis* also lacks the

decided dark pigmentation of the scape and midrib so often present in the latter species. In addition, the opened corollas of *P. chungensis* are more yellow than orange, although part of the tube and the reverse of the limb can be dark red or orange. In general *P. chungensis* is a much earlier flowering, delicate species than *P. aurantiaca*, *P. bulleyana* or hybrids of the latter.

Primula chungensis differs from *P. bulleyana* in having a blunt-lobed, cup-like calyx in contrast to the slender elongated sharp lobes of that of the latter. *Primula bulleyana* and its hybrids often have a reddish midrib that is not present in *P. chungensis*.

This species was discovered by Kingdon Ward in 1913. He found it growing in the Chung Valley of Yunnan, China in marshes in the forests at altitudes of 2900 to 3200 m (9,500 to 10,500 ft.). Further exploration extended its range into Bhutan and the frontier of Assam and Sichuan, China.

Primula chungensis was given an Award of Merit by the Royal Horticultural Society in 1933. In 1929, a hybrid was produced with *P. pulverulenta* and named *P. × 'Chungulenta'*. It proved to be intermediate between the species with flowers like those of *P. pulverulenta* that at first opening were deep bright red.

Primula cockburniana Hemsley is often mentioned as short-lived or biennial. In a very well drained but moisture retentive soil this small and brilliantly colored species can be surprisingly durable; although disconcertingly slow to emerge from dormancy. Seedlings as well as mature plants are highly intolerant of careless watering, bad drainage, and impoverished soil. These factors have probably contributed to *P. cockburniana's* reputation for

impermanence. This species is truly worthy of any extra attention that it might require; older plants should be able to be divided; re-establishment in fresh soil can increase their permanency.

Although discovered circa 1893 by Pratt, *Primula cockburniana* was not introduced until 1905 by Wilson collecting for the Veitch nursery firm. On the latter occasion, it was found in marshy alpine meadows near Tatsienlu in western Sichuan, China at elevations of 2900 to 3200 meters (9,500 to 10,500 ft.). It is allied to *P. chungensis* which lacks the fiery orange corolla of *P. cockburniana*. The latter species which carries its brilliant flowers in only one or two whorls on a scape usually about 20 cm (8 in.) tall also has more compact rosettes of smaller leaves, more denticulate at margins and with very distinct petioles.

Primula cockburniana has been very important as a parent of colorful and durable garden hybrids. A discussion of some of these plants may be found under *P. pulverulenta*.

Primula × 'Red Hugh' is a name for a handsome bright vermilion red hybrid of *P. cockburniana* and *P. pulverulenta* raised by Gore-Booth about 1920 at Lissadell. Unfortunately, the name is often wrongly applied to dark-colored strains of *P. japonica*. *Primula* × 'Bonfire' is a similar hybrid of *P. cockburniana* and perhaps *P. pulverulenta*, unfortunately the name has sometimes been misappropriated for use with other hybrids.

Primula cooperi Balfour f. is allied (according to Smith and Fletcher 1941) to *P. serratifolia*, but differs from that species in having a uniformly yellow corolla, a very short corolla tube, and leaves with very long distinct petioles. From another ally, *P. prolifera*; *P. cooperi* might be separated on the basis of its far more

coarsely dentate foliage and again by its extremely short corolla tube. In view of its assumed relationship with *P. prolifera* the discussion by Bentvelzen (1962) concerning the allies of that species should be consulted.

Primula cooperi was collected by Cooper above Toong in Sikkim at an altitude of 3300 m (10,800 ft.). It is highly unlikely that it is or ever has been in cultivation. However, in 1919 the Royal Horticultural Society granted an Award of Merit to an unidentified purple flowered plant exhibited as *P. cooperi*.

Primula helodoxa Balfour f. is a large (to 120 cm (47 in.)) stately plant that has fully earned its name "Glory of the Bog" and efforts should be made to cultivate it successfully. It forms rosettes of persistent foliage.

Primula helodoxa was discovered by Forrest in far western Yunan, China in 1912. It grew in open, windswept meadows, marshes, and in the foothills around Tengyueh in vast numbers at elevations around 2000 m (6,500 ft.). This magnificent yellow-flowered species is allied with *P. smithiana*, a much smaller plant with a shorter corolla tube and narrower corolla limb. Bentvelzen (1962) reduces this species to a synonym of *P. prolifera*.

The Royal Horticultural Society gave this species an Award of Merit in 1916 and a First Class Certificate in 1921. There are several records, some recent, of its having been successfully crossed with *Primula anisodora*.

Primula ianthina Balfour f. et Cave is an attractive rarely cultivated species with violet flowers on scapes to 60 cm (24 in.). It resembles the closely allied *P. beesiana* and *P. pulverulenta* but it is differentiated from them by its sulphur-yellow farina. It is the most westerly distributed species of the section and was first discovered by Cave in the

mountains of Sikkim at elevations of 3200 to 4100 m (10,500 to 13,450 ft.) in 1914. It has been reported that *P. ianthina* has a sensitivity to winter dampness, a factor that may account for its rarity in cultivation.

Primula imperialis Junghuhn is a distinctly frost-tender yellow-flowered species from the mountains of Java where it was collected in 1840 at elevations of 2400 to 3000 m (7,900 to 9,800 ft.). There are other yellow-flowered members of this section that might be grown in preference to this tender species, although hardier hybrids involving *P. imperialis* and *P. helodoxa* have been cited.

It may be of interest to note Bentvelzen's comments (1962) in which he questions the validity of separating *P. imperialis* and its allies from *P. prolifera* as valid species. He states that various Malaysian populations of the latter show considerable minor character variations similar to those that were used by Smith and Fletcher to distinguish several species.

Primula japonica Gray is a familiar species first cultivated in 1871. This uncommon woodland Japanese endemic opens several tiers of reddish-purple, pinkish, or white flowers over a long period in late spring. Many good color strains exist and come reasonably true from seed if grown in isolation. Self-sown seedlings are produced in great quantities in appropriate locations; these should be thinned radically for best development and plants showing streaked or blotched flowers or leaves removed as such may be symptoms of a virus infection.

Primula japonica is somewhat genetically remote from other species of its section and reportedly does not interbreed with them. *Primula burmanica* may be its closest ally from which it may be differentiated in the Japanese plant having a monomorphic corolla.

Several seed strains of *Primula japonica* have been named. Although there may be some confusion in cultivation with forms of *P. pulverulenta* and with hybrids arising from other species, the following have been offered as forms of *P. japonica*: 'Bonfire' (the true strain of that name is a hybrid involving *P. cockburniana*), 'Carminae', 'Fugi-Yama' (white), 'Glowing Embers', 'Miller's Crimson', 'Pink Lady', 'Postford White', 'Rose du Barri', 'Red Hugh' (the latter is correctly a hybrid of *P. cockburniana* and *P. pulverulenta*), 'Valley Red', 'Silva-Taroucana' (again more properly a *P. pulverulenta* hybrid) as well as others. If any such plants should produce farina along the stem or on the exterior surfaces of the floral parts, have long slender calyx lobes, or distinctly heteromorphic flowers; they are other than *P. japonica* and probably are hybrids involving *P. bulleyana*, *P. cockburniana*, and *P. pulverulenta*.

Primula khasiana Balfour f. et W. W. Smith is a rare yellow flowered (frost-tender?) member of the section occurring in the Khasia hills of Assam. It was first collected in 1850 and is allied to *P. prolifera* but differs from that species in that it is completely without farina and is a more foliaceous plant. Bentvelzen (1962) suggests that it is not separable from *P. prolifera*.

Primula mallophylla Balfour f. is a rare small species with a deep yellow-orange corolla and distinguishable from all its allies by a finely hairy scape and complete lack of farina. The species was collected prior to 1916 in damp meadows and streamsides in eastern Sichuan, China.

Primula melanodonta W. W. Smith is one of the smallest members of the section. It was discovered by Kingdon Ward on the Burma-Tibet frontier in

1926. There it grew by streamsides and on muddy alpine slopes at elevations of 3500 to 4000 m (11,500 to 13,100 ft.), near but below the habitat of the allied *P. serratifolia*. It is closely related to the latter species but differs from it (Smith and Fletcher 1941) in its smaller rosettes and proportionately longer scape. It also lacks the conspicuously bi-colored corolla of *P. serratifolia*. *Primula melanodonta* has bright yellow flowers on a scape to 25 cm (10 in.).

Primula microloma Handel-Mazzetti is the only member of the section in which the type is white-flowered. This plant is a rare once-collected species found by Handel-Mazzetti before 1924 in northwestern Yunnan, China growing under rhododendrons in the cold temperate fir forests at elevations of 3700 m (12,100 ft.). It is allied to *P. brachystoma*, *P. morsheadiana*, *P. prenantha*, and *P. polonensis* all of which have yellow flowers.

Primula miyabeana Ito et. Kawakami is an endemic to Taiwan that was found by Price who collected it at an altitude of 2300 m (7,500 ft.) on Mt. Morrison. As with the allied *P. burmanica* and *P. japonica*, the light or dark purple-flowered *P. miyabeana* has farina only on the inside of the calyx, although it differs from the two former species in that the farina is bright yellow rather than white. In addition the calyx lobes are sometimes toothed or fringed. The corolla tube of *P. miyabeana* also differs in that it flares gradually from its base.

Primula morsheadiana Ward is very closely allied to *P. prenantha* and may not be separable from it. This species was discovered by Kingdon Ward in southeastern Tibet in 1924 on steep south-facing alpine slopes at elevations of 3000 to 4000 m (9,800 to 13,100 ft.). This golden-yellow flowered plant is purportedly distinguishable from the allied *P.*

prenantha by having larger, more open-faced flowers.

Primula poissonii Franchet was discovered by Delavay in 1882 near Tali in Yunnan, China where it was found growing at elevations between 2800 to 3000 m (9,200 to 9,850 ft.). Its range has recently been extended into western Sichuan, China. It is closely allied to *P. anisodora*, *P. stenodonta*, and *P. wilsoni*. From *P. anisodora* and *P. wilsoni*; *P. poissonii* is differentiated by its flat, larger, emarginate corolla, its seed capsule which only equals or slightly exceeds the calyx, and its lack of aromatic foliage. Usually *P. poissonii* is a species with deep purplish-crimson corollas; in fact a suspicion lingers that some of the so-called small-flowered, light-colored forms of *P. poissonii* may belong to *P. wilsoni*. This species carries its richly colored flowers on scapes to 45 cm (18 in.) above glaucous compact rosettes of persistent foliage.

In cultivation this species appears to have been successfully crossed with *P. secundiflora* of section *Sikkimensis* to produce *P. × dshungiensis*.

Primula polonensis Ward is another member of an allied group of yellow-flowered species that included *P. prenantha* and *P. morsheadiana*. It was collected once by Kingdon Ward in 1928 at an altitude of 2900 m (9,500 ft.) in Assam. It is a larger, more robust plant than its near allies (to 35 cm (14 in.)) with leaves more finely toothed, and much larger and more rounded corolla. Mention has been made in the literature of its cultivation under glass in large pots which had the bases submerged in a water tank, a system which might be used with other members of the section.

Primula prenantha Balfour f. et W. W. Smith, is a small yellow-flowered species of wide distribution. It occurs over a large range in the

mountains of northern India, Bhutan, Sikkim, Tibet and Nepal. Although usually recognizable throughout most of its range by its small, narrow yellow flowers on scapes to 15 cm (6 in.); a phase occurring in southeastern Tibet exhibits larger more open faced flowers and the species comes to be confusingly close to *P. morsheadiana*. Although extreme forms of the two species are apparently separable, there have been suggestions (Smith and Fletcher 1941) that they are not distinct and might be united.

Primula prolifera Wallich was discovered circa 1820 in the Khasia Mountains of Assam. The species is suggested as being one of the most tractable of the large, yellow-flowered members of the section; it would however, require some form of winter protection for its persistent foliage.

The taxonomic history of *P. prolifera* is closely entwined with that of the allied species *P. helodoxa*, *P. imperialis*, *P. khasiana*, and *P. smithiana*. Bentvelzen (1962) discusses the *P. prolifera* complex in some detail and questions the validity of separating the aforementioned species on the basis of what he considers "vague and merely quantitative" criteria of leaf texture, size of midrib, venation and corolla color. He cites a work by van Steenis in 1930 that shows that in Java each population had its own facies; much similar to the criteria Smith and Fletcher and others used to segregate a number of species.

In the wild, *Primula prolifera* inhabits open, mossy forests, damp sites along brooks and exposed marshy places. Its altitudinal range is 2000 to 3250 m (6,560 to 10,660 ft.) and more in the Himalayas. It may be found (in the broadest sense) is Assam, the Khasia and Chumbi hills, and in Sumatra and Java.

Primula pulverulenta Duthie is a

robust, attractive species with red flowers having a darker or purple eye carried on scapes that can reach 100 cm (39 in.) under ideal conditions. The scape, pedicels, bracts, and calyx are densely covered with white farina. The species was collected by Henry, Pratt, and Wilson independently in 1905 in marshy open or half shaded areas in the mountains of western Sichuan, China.

Smith and Fletcher (1941) relate the history of a number of superior colored strains of this species that have been selected, and of individual plants selected from them. Of these, the well known and greatly admired clear pink 'Bartley Strain' is the most familiar.

With *Primula cockburniana* as a pollen parent, *P. × 'Unique'* was created with *P. pulverulenta*. It is of intermediate appearance and received an Award of Merit from the Royal Horticultural Society in 1908. The resulting plants were then used as pollen parents with *P. cockburniana* again and *P. × 'Excelsior'* resulted in gaining another Award of Merit. *P. × 'Lissadell'* is still cultivated and is the result of a similar cross with *P. cockburniana*; from which two selections were made: *P. × 'Aileen Aroon'*, reddish-orange; and the more frequently cultivated bright vermilion 'Red Hugh' (the latter often appears wrongly listed as a seedling strain of the nearly efarinose *P. japonica*). Another well known strain is *P. × 'Inverlieth'*, a cross representing *P. bulleyana* pollinated from *P. pulverulenta*.

Currently many respected growers offer hybrids of this section under a variety of names. Without doubt *Primula pulverulenta* is involved in the majority of these successive generations of hybrids.

Primula serratifolia Franchet might be taken for a member of section *Sikkimensis* if it were not for its large

rosettes of foliage typical of the section *Proliferae*. This species was discovered by Delavay in 1884 growing in damp mountain meadows in Yunnan, China at elevations of 2800 to 2900 m (9,180 to 9,510 ft.) since the first collections, its range has been extended to northeastern Burma and southeastern Tibet. *Primula serratifolia* is a very distinct and attractive species notable for its bi-colored corollas of deep yellow with lighter margins, carried on scapes to 45 cm (18 in.).

Primula smithiana Craib was first collected by Walsh in southeastern Tibet prior to 1913 and later by others in Bhutan. It grows in damp forests and along streams at altitudes of 2900 to 3500 m (9,500 to 11,500 ft.).

Primula smithiana is considered to be a smaller Himalayan version of the Chinese *P. helodoxa*. This small yellow-flowered species is also allied with *P. prolifera* and *P. imperialis*. Bentvelzen (1962) considers them all to be includable under *P. prolifera*.

Primula stenodonta (Balfour f. MS) W. W. Smith et Fletcher was collected by Delavay in northeastern Yunnan, China prior to 1886. This species has a complex taxonomic history resulting from its close alliance with *P. wilsoni*. It is not considered as a potentially showy garden subject; it carries one or two whorls of reddish-violet flowers on 30 cm (12 in.) scapes. It remains imperfectly known.

Primula sumatrana Merrill is closely allied to the frost-tender *P. imperialis* and is probably equally tender by virtue of its even more tropical distribution. It was discovered by Ripley and Ulmer in 1939 in the mountains of Sumatra at an altitude of 2800 m (9,200 ft.). Yellow-flowered *P. sumatrana* might be described as a very small form of *P. imperialis*. Bentvelzen (1962) suggests that it is part of the *P. prolifera* complex and not deserving of specific status.

Primula wilsoni Dunn was discovered by Henry in the mountains of southern Yunnan, China prior to 1902. It has more recently been found to extend into western Sichuan. Like *P. poissonii* to which it is closely allied it forms evergreen rosettes of aromatic foliage above which are carried pale purple to red flowers on scapes to 90 cm (35 in.). Numerous floral details separate the two species; a calyx lacking red or purple streaks, a much smaller corolla (at most 1.5 cm in diameter in *P. wilsoni*), a concave corolla, a tube two or three times as long as the calyx, and rotund (not obcordate) only faintly crenulate corolla lobes. *Primula wilsoni* is not a noteworthy garden plant.

References

- Bentvelzen, P.A.J.: Primulaceae. In: C. G.G. J. van Steenis, Ed. Flora Malesiana I. 6: 173-192. 1962.
- Bruun, H.G.: Cytological studies in *Primula*.
- McKelvie, A.D.: Germination of primula seed. J. Scott. Rock Gard. Club 16: 261-270. 1979.
- Smith, W.W. and H.R. Fletcher: The genus *Primula*: section *Candelabra* Trans. Bot. Soc. Edinburgh 33: 122-181. 1941.
- Spanowsky, W.: Die Bedeutung der Pollen Morphologie für die Taxonomie der *Primulaceae-Primuloideae*. Feddes Repert. Spec. Nov. Regni Veg. 65: 149-2113. 1962.
- Wendelbo, P.: Studies in primulaceae II. An account of *Primula* subgenus *Sphondylia* with a review of the subdivisions of the genus. Arbok Univ. Bergen Naturvitensk. Rekke No. 11: 1-49. 1961.

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Resource Directory 1983

Editors committee statement of intent. The primary reason for providing a directory of resources is to serve and for the benefit and knowledge of the members of the American Primrose Society. It was only after a considerable amount of discussion that the basic policies governing the selection for these sources were derived: (1) Resources listed in the directory need not be limited to association with the American Primrose Society, but be of direct and prime interest to primula growers; (2) the quality of the product or source must be maintained for continuous listing with policing accomplished by members of the APS; and (3) listing will be limited to strictly primula grower interest.

It is presently anticipated that the directory of resources will be updated and published in the quarterly each year in the winter issue or number one of each volume. The editors hope that members of the Society will freely share their own 'special' resource throughout the year. If, at the time a member comes across an interesting item, he will right then, simply drop a post card or note in the mail to the editors committee; then this knowledge can be shared with members throughout the world.

The editors committee is expecting to add considerably to this directory each year as members are encouraged to request information on specific resources. This directory should be considered a listing of resources shared by members of the American Primrose, *Primula* and *Auricula* Society for the continued preservation of the *Primula* and its various species.

Dates to Remember for 1983

March 6th to 13th: Philadelphia Flower Show, Civic Center, Philadelphia.

March 12th to 20th: Massachusetts Horticultural Society, 1983 New England Spring Garden and Flower Show; Bayside Exposition Center, Boston.

April 9th and 10th: National Show, American Primrose, *Primula* and *Auricula* Society - hosted by the Valley-Hi Chapter; Beaverton Mall, 3205 S.W. Cedar Hills Blvd., Beaverton Oregon. Show Co-Chairmen: Ernest Gates and Orval Agee.

April 14th, 15th, and 16th: Eastside Primrose Society, Primrose Show; Totem Lake Mall, Kirkland, Washington.

April 16th and 17th: Oregon Primrose Society, Primrose Show; Milwaukie Community Center, 10666 S.E. 42nd Ave., Milwaukie, Oregon.

April 16th and 17th: Tacoma Primrose Society, Primrose Show; Villa Plaza Branch, 1st. Interstate Bank, Lakewood Plaza Shopping Mall, Tacoma, Washington.

continued

April 23rd: Berry Botanic Garden Plant Sale; Miller Hall, Western Forestry Center, Portland, Oregon.

April 23rd and 24th: Washington State Chapter of the APS, Primrose Show; Pavilion Shopping Center (Southcenter), Seattle, Washington.

May 7th and 8th: Lewis County Primrose Society, Primrose Show; Lewis County Mall, Chehalis/Centralia, Washington.

June 10th, 11th, and 12th: Hardy Plant Society; Study Weekend at Edmonds Community College, Edmonds, Washington.

Societies

American Primrose, Primula and Auricula Society

President: Herbert Dickson, 2568 Jackson Highway, Chehalis, Washington 98532; phone (206) 748-7627. Annual picnic second Saturday in July (July 9, 1983); board meetings announced by President. Slide collection available for group meetings. National APS Show for 1983 to be hosted by Valley-Hi Chapter, Beaverton, Oregon; April 9-10.

Chapters and Affiliations

Doretta Klaber Chapter:

President: Claire Müller, 2001 Ridley Creek Rd., Media, Pennsylvania 19063; phone (215) 566-1995.

The Doretta Klaber Chapter offers Plant Sales, dinners, speakers, and garden tours. For further information contact: Ms. Dee Peck, 8813 Patton Rd., Wyndmoor, Philadelphia, Pennsylvania 19118; phone (215) 233-1076.

Members of this Chapter will be participating in the Philadelphia Show, March 6 - 13, 1983.

July 2nd: Olympic Peninsula Study Group, Summer Picnic; for information contact: Anita Stevens, 300 Dungeness Meadows, Sequim, WA 98382, phone (206) 683-7602.

July 9th: American Primrose Society, Annual Picnic; Chehalis Rare Plant Nursery, 2568 Jackson Highway, Chehalis, Washington. All members and friends welcome.

October 1st: Berry Botanic Garden Plant Sale; Miller Hall, Western Forestry Center, Portland, Oregon.

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Eastern Chapter of the APS

President: Mr. G. K. Fenderson, Grout Hill, South Ackworth, New Hampshire 03607; phone (603) 835-6439.

The Eastern Chapter usually has two meetings a year; a spring show with plant sale and a fall (October) seedling sale. The meetings are held in various locations in the North Eastern States.

Eastside Primrose Society:

President: Mr. Russell Atkinson, 135161 310th Ave. S.E., Sultan, Washington 98294; phone (206) 795-1556.

Meetings are held monthly on the first Monday, 7:30 pm at the University Federal Savings Bank, Bridle Trails Shopping Area Kirkland; there is usually a plant exchange, study of a primrose Section, and special speaker. The Primula Show will be at the Totem Lake Mall, Kirkland, April 14, 15, and 16, 1983.

Lewis County Primrose Society:

President: Mrs. Oliver Turner, P.O. Box 506, Rochester, Washington 98579; phone (206) 273-5129.

Meetings are held in members homes

on the second Tuesday of each month at 11:00 AM; after the business and programs, a tour is usually taken in the afternoon. This year the Lewis County Primrose Society will be holding a Primrose Show on May 7 and 8 at the Lewis County Mall.

Olympic Peninsula Study Group:

Coordinator: Anita Stevens, 300 Dungeness Meadows, Sequim, Washington 98382; phone (206) 683-7602.

Meetings are held on the 2nd and 4th Mondays during the Spring months, at 1:00 PM in members homes and gardens. The group will have a picnic on the 2nd of July 1983 and a seed exchange in October.

Oregon Primrose Society:

President: Mrs. William Tate (Etha), 10722 SE 40th Ave., Milwaukie, Oregon 97222; phone (503) 654-3361.

Meetings are held on the 3rd Friday of each month, 8:00 PM at the Milwaukie Community Club. The Primrose Show will be on April 16-17, 1983; also at the Milwaukie Community Club, 10666 S.E. 42nd Ave., Milwaukie, Oregon.

Tacoma Primrose Society:

President: Katharine I. Brown, 2931 Lemons Beach Rd., Tacoma, Washington 98466; phone (206) 564-9414.

Meetings are held on the first Tuesday, 7:45 PM of each month at the Tenzler Branch, Pierce County Library, Gravelly Lake Drive at

Wildaire, Tacoma, Washington. A plant exchange can usually be expected at the monthly meetings. The Primrose Show will be on April 16-17, 1983 at the Villa Plaza Branch, 1st Interstate Bank.

Valley-Hi Chapter of the APS:

President: Thelma Genheimer, 7100 S.W. 209th Ave., Beaverton, Oregon 97007; phone (503) 649-3537

Meetings are held on the first Thursday of the month at 1:00 PM; Community Room, Far West Federal Savings, Raleigh Hills Branch, 4770 S.W. 76th Ave., Portland, Oregon. This year the Valley-Hi Chapter will host the APS National Show on April 9 and 10, at the Beaverton Mall, 3205 S.W. Cedar Hills Blvd., Beaverton, Oregon.

Washington State Chapter of the APS:

President: Mrs. Larry Bailey (Linda), 1570 9th Ave. North, Edmonds, Washington 98020; phone (206) 774-7528.

Meetings are on the 2nd Friday of each month, 7:30 PM, Kent Commons Building; 1525 - 4th Ave. North, Kent, Washington. A plant exchange and guest speaker can usually be expected at the meetings. The Washington State Primrose Show will be held on April 23rd and 24th, 1983 at the Pavilion Shopping Center (near the Southcenter Mall), Seattle, Washington (the changed location of the show from previous years should be noted).

Horticulture Societies of Common Interest

Alpine Garden Club of B.C.:

c/o Thea Service Foster, 566 Esquimalt Ave.; West Vancouver, B.C. V7T 1J4, Canada

Monthly Bulletin, Seed and Plant Exchange.

Alpine Garden Society:

c/o E. M. Upward, Lye End Link, St. Johns, Woking, Surrey GU21 15W, England

Quarterly Bulletin, Annual Seed Exchange.

American Rock Garden Society:
c/o Mr. Norman Singer, Secretary,
Norfolk Road, S. Sandisfield,
Massachusetts 01255.

Quarterly Bulletin, Seed Exchange
and Slide Library.

**American Rock Garden Society -
Columbia-Willamette Chapter:**
c/o Vi Sobolik, President, 2120 Pio-
neer Rd., Dallas, Oregon 97338.

Monthly meetings.

**American Rock Garden Society -
New England Chapter:**

c/o Mrs. Robert Alberts, Chairman,
Box 35, Amherst, New Hampshire
03031.

Conducts Plant Sales, Classes and
Exchanges.

Hardy Plant Society

c/o Mr. Marvin Black, 124 N. 181st,
Seattle, Washington 98133.

Newsletter, Spring Study Weekend
(June 10, 11 & 12, 1983)-Edmonds
Community College, Plant Exchange.

**Indoor Light Gardening Society of
America, Inc.**

c/o New York Horticultural Society,
128 West 58th St., New York,
NY 10019

Publications: *Light Garden*; cultural
guides.

**National Auricula and Primula
Society-Midland Section:**

c/o Hon. Secretary, 55 Elizabeth

Road, Moseley, Birmingham,
England B13 8QH.

Yearbook, Shows March and April
(usually last Saturdays).

**National Auricula and Primula
Society-Northern Section:**

c/o D. G. Hadfield, 146 Queens
Road, Cheadle, Cheshire SK8 5HY,
England

Yearbook, Shows first Saturdays in
April and May.

**National Auricula and Primula
Society-Southern Section:**

c/o Hon. Secretary Mr. Lawrence E.
Wigley, 67 Warnham Court Road,
Carshalton Beeches, Surrey,
England.

Yearbook, Shows usually the latter
Saturdays of March and April, Plant
Sales, colour slide Competition.

Scottish Rock Garden Club:

c/o Mrs. Elizabeth Law, Kippielaw
Farm, By Haddington, East Lothian
EH41 5PY, Scotland.

Bi-annual Journal, Seed List, Publica-
tions.

**Vancouver Island Rock and Alpine
Garden Society:**

c/o Secretary, P.O. Box 6507, Station
C, Victoria, B.C. V8P 5M4 Canada.

Show in April usually the Friday and
Saturday following Easter. Meeting
4th Tuesday of month for Lectures,
Parlour Shows, Plant Sales, etc.

H. Lawrence Ferguson, Box 5129,
Ocean Park Station, Santa Monica,
CA 90405

Ivelet-Books, Ltd., Elizabeth & Alan
Ahern, 18, Fairlawn Drive, Redhill,
RH1 6JP, Surrey, England

John Johnson, RD 2, North Ben-
nington, VT 05257

Kashong Publications, Box 90, Bel-
lona, NY 14415, ('The Seedlist

Handbook' is available from Kashong
Publications)

D. & E. Lloyd, 'Heather Lea', 4 Hill-
crest Ave., Chertsey, Surrey, KT16
9RD, England

Pomona Book Exchange, Highway
52, Rockton, Ontario LOR 1X0,
Canada

Seeds

Societies:

Alpine Garden Club of British Colum-
bia - c/o Thea Foster, 566 Esquimalt
Ave., West Vancouver, B.C. V7T
IJ4, Canada

Alpine Garden Society - c/o E.M. Up-
ward, Esq., Lye End Link, St.
John's, Woking, Surrey, GU21
15W England

American Primrose Society - c/o Ross
Willingham, Chairman, Seed Ex-
change, 2248 S. 134th, Seattle,
Washington 98168

American Rock Garden Society - c/o
Kenneth Vogel, Director of Seed
Exchange, 19795 Excelsior Blvd.,
Excelsior, Minnesota 55331

Scottish Rock Garden Club - c/o Miss
J. Halley, 16 Abercrombie Street,
Barnhill, Dundee, Scotland

Commercial and other sources:

Aberchaldier Alpine Gardens, Gorth-
leck, Inverness-shire, U.K.

Alpine Research, 630 S.E. Rene,
Gresham, Oregon 97030

Barnhaven, Brigsteer, Kendal, Cum-
bria, LA8 8AU England

W. Atlee Burpee Seed Co., 300 Park
Avenue, Warminster, PA 18974

John Chambers, 15, Westleigh Road,
Barton Seagrave, Kettering, North-
ants NN15 5AJ, U.K.

Chiltern Seeds, Bortree Stile, Ulver-
ston, Cumbria LA12 7PB England

C. A. Cruickshank Ltd., 1015 Mount
Pleasant Rd., Toronto, Ont., M4P
2MI, Canada

Rudge Books, Swanspool, Loudwater,
Hertfordshire, England

Wheldon & Wesley Ltd., Lytton
Lodge, Codicote, Hitchin, Herts.
SG4 8TE England

Elisabeth Woodburn, Booknoll Farm,
Hopewell, NJ 08525

Jack Drake, Inshriach Alpine Plant
Nursery, Aviemore, Inverness-shire,
Scotland PH22 1QS

Mr. Gordon Douglas, 67 Church
Road, Great Bookham, Surrey,
KT23 3EG England

Far North Gardens, 16785 Harrison,
Livonia, Michigan 48154

L. S. A. Goodwin and Son, Goodwins
Rd., Bagdad Sth 7407, Tasmania,
Australia

Jonathan Green & Sons, Inc., Box 9,
Farmingdale, N.J. 07727

Major V. F. Howell, Fire Thorn, 6
Oxshott Way, Cobham, Surrey,
KT11 2RT England

J. L. Hudson, Seedman, P.O. Box
1058, Redwood City, California
94064

Klaus R. Jelitto, Horandstiege 28,
D 2000 Hamburg 56, Germany

P. Kohli & Co., Park Road, Srinagar,
Kashmir, India 190009

Mrs. A. Kroner, rue des Vernes, 16,
CH 1217 Meyrin, Switzerland

George W. Park Seed Co., Green-
wood, South Carolina 29647

Plants of the Southwest, 1570 Pacheco
Street, Sante Fe, New Mexico 87501;
(unlisted source for *P. paryii* seed)

Seeds by Rosetta, 6214 So. 287th.,
Kent, Washington 98032

Spring Hill Farm, P.O. Box 42, Gig
Harbor, Washington 98335

continued

Horticultural Book Dealers

The Alpine Garden Society's Publica-
tions; c/o D.K. Haselgrove, 278/280
Hoe Street, Walthamstow, London
E17 9PL, England

Ashwell Books, Ashwell House, Ash-
well, Baldock, Hertfordshire SG7
5NL, England

Beth L. Bibby Books, 1225 Sardine
Creek Road, Gold Hill, Oregon
97525

Stokes Seed Inc., 737 Main Street,
P.O. Box 548, Buffalo, New York
14240

Thompson & Morgan Inc., P.O. Box
100, Farmingdale, New Jersey
07727

Plants

Plants, Commercial Growers:

Before visiting any of the sources for plants, the editor's committee strongly recommends you make prior appointments.

Alpenflora Gardens, 17985 - 40th Ave., Surrey (Cloverdale), B.C., V3S 4N8 Canada

Alpenglow Gardens, 13328 King George Hwy., North Surrey, B.C. Canada

Bartoos Gardens (Rosetta and Allan Jones), 6214 So. 287th., Kent, Washington 98032; phone (206) 852-0330

Bluestone Perennials Inc., 7211 Middle Road, Madison, Ohio 44057; (216) 428-1327; (mail orders)

Chehalis Rare Plant Nursery (Herb and Dorothy Dickson), 2568 Jackson Hwy., Chehalis, Washington 98532; phone (206) 748-7627

Cricklewood Nursery (Dan and Evelyn Douglas), 11907 Nevers Road, Snohomish, Washington 98290; phone (206) 568-2829

Daystar, Litchfield-Hallowell Road, RFD 2, Litchfield, Maine 04350, (mail orders); phone (207) 724-3369

Far North Gardens, 16785 Harrison, Livonia, Michigan 48154; phone (313) 422-0747

Grand Ridge Nursery (Steve Doonan, Phil and Kitty Pearson), 27801 S.E. High Point Way, Issaquah, Washington 98027; phone (206) 392-1896; 222-7226

Darlene Heller (Wayside), 1711 B. County Line Rd., Stanwood, Washington 98292; phone (206) 445-3732

Lamb Nurseries, E. 101 Sharp, Spokane, Washington 99202; phone (509) 328-7956

International Growers Exchange, Inc., 17142 Lahser Road, Detroit, Michigan 48219; phone (313) 538-6675 (mail orders)

Kazuo Mori Alpines, Trinity Garden, 5-8, Matsushita, Nishinomiya, Hyogo, Japan, P.C. 662

Nature's Garden (Fred Held), Route 1, Box 488, Beaverton, Oregon 97007; (mail orders)

Oliver Nurseries, Inc., 1159 Bronson Road, Fairfield, Connecticut 06430; phone (203) 259-5609

The Plant Farm (Robert Putnam), 11811 Northeast 73rd, Kirkland, Washington 98033; phone (206) 822-1124

Primrose Acres (Beth Tait), 14015 - 84th Avenue East, Bothell, Washington 98011; (206) 823-8904

Siskiyou Rare Plant Nursery, 2825 Cummings Road, Medford, Oregon 97501, (mail orders); phone (503) 772-6846

Primrose Lane Nursery (Vickey Sauer), 13631 - 196th S.E., Renton, Washington 98055; phone (206) 235-1277

Spring Hill Farm, (Ruth Huston), P.O. Box 42, Gig Harbor, Washington 98335

Alda Stich, Center Montville, Freedom, Maine 04941; phone (207) 342-5796

Stonecrop Nurseries (Sara Faust-manager), Cold Springs, N.Y. 10516; phone (914) 223-3419

Plant Exchanges:

American Primrose Society's exchange with the National Auricula and Primula Society (Southern) of England. Write to Larry A. Bailey, 1570 9th Ave. North, Edmonds, Washington 98020 for details.

Gardening Supplies

This section is not intended to replace the friendly local hardware store or nursery, but to provide the APS members with an expanded knowledge on sources for the 'special' item not easily found elsewhere. Members are requested to continue to share their resources.

Gardening Tools

Walter F. Nicke, Box 667G, Hudson, N.Y. 12534; (mail order-supplies and tools of a wide range and selection).

Smith and Hawken Tool Company, 68 Homer, Palo Alto, California 94301; (mail order-British gardening tools of excellent quality; one of the few US sources for the 'border fork'.)

Greenhouse Manufacturers:

Inquiries for names and addresses of local distributors and installers should be able to be obtained by a note to the manufacturer.

Aluminum Greenhouses Inc., 14605 Lorain Ave., Cleveland, Ohio 44111; phone (216) 251-6100

Four Seasons Solar Products Corp., 425 Smith St., Farmingdale, New York 11735; phone (516) 694-4400

Lord & Burnham, Division of Burnham corporation, P.O. Box 347, Irvington, New York 10533; phone (914) 591-8800

National Greenhouse Company, P.O. Box 100, Pana, Illinois 62557; phone (217) 562-3919

Sturdi-Built Manufacturing Co., 11304 S.W. Boones Ferry Road, Portland, Oregon 97219; phone (503) 244-4100

Sunglo Solar Greenhouses, 4441 26th Ave. W., Seattle, Washington 98199; phone (206) 284-8900

Editor's Note: Most Primula Shows by the American Primrose Society chapters have sale tables for Primula species as well as for the various types of Primula Show plants.

Turner Greenhouses, Highway 117 South, Goldsboro, North Carolina 27530; phone (919) 734-8345

Vegetable Factory, Inc., 100 Court Street, Copiague, L.I., New York 11726; phone (516) 842-9300

Automatic Vent Openers

Superior Autovents, 17422 La Mesa Lane, Huntington Beach, California 92647; phone (714) 848-0412

Bramen Co., Inc., P.O. Box 70, Salem, Massachusetts 01970; phone (617) 745-7765

Dalen Products Inc., 11110 Gilbert Drive, Knoxville, Tennessee 37922

Heat Motors Inc., 635 W. Grandview Ave., Sierra Madre, California 91024; phone (213) 355-6919

Green House Supplies

Charley's Greenhouse Supply, 12815 N.E. 124th St., Kirkland, Washington 98033; phone (206) 823-1616

Indoor Gardening Supplies, P.O. Box 40567, Detroit, Michigan 48240; phone (313) 427-6160

Information requested by the editor's committee on sources for: soil sterilizers; seed envelopes; clay and plastic pots; charcoal dust/powder; watering & irrigation devices; soil sieves; soil additives; heating cables; timers; pot washers, etc., etc.

American Primrose Society Seed Exchange

Director: Ross E. Willingham, 2248 So. 134th, Seattle, WA 98168

Open to all members in good standing. No money will be refunded on account of high cost of mailing. Exchange will be closed May 1 and no orders will be handled after that date.

Numbers shown in parenthesis indicate amount of seed per packet. Price of seed packet is 20 cents. Asterisk indicates a triple size packet available for 50 cents.

A minimum charge of \$2.50 covers the cost of 10 packages of seed plus all postage and handling. A self addressed envelope will be appreciated. Overseas members should remit \$2.75 due to additional cost of mailing.

Make all remittance to Director: members in USA and Canada may remit by personal check, bank draft or postal money order (U.S. funds please). Overseas members should remit by international money order or bank draft in U.S. funds.

AURICULA:

- | | |
|-----------------------------------|---------|
| *1. Garden mixed | B-A(50) |
| *2. Yellow garden | E-A(20) |
| *3. Mini hybrids | A(20) |
| *4. Garden bright colors selected | A(20) |
| *5. Garden blue | A-F(25) |
| 6. Czec. native (wild) | J(6) |
| *7. Garden light colors | K(50) |
| *8. Garden hair color | K(50) |
| *9. Garden dark colors | K(50) |
| *10. Semi-double R.W.B. strain | G(8) |
| *11. Monacensis (Widmir) | M(5) |
| *12. Polinuri | M(6) |
| 13. Venusta | J(5) |
| *14. Hirsuta (species) | F-I(40) |
| *15. Pubescens | I(35) |
| *16. Glaucescens (longobarda) | F(5) |

- | | |
|------------------------------------|-------|
| 17. Clusiana Austria native (wild) | J(10) |
| 18. Mixed alpines | A(30) |
| *19. Show Alpine dark blue | C(5) |
| *20. Show Alpine bright pink | C(6) |
| *21. Show Alpine dark red | C(5) |
| *22. Show Self yellow | C(5) |
| *23. Show Self black | C(5) |
| *24. Show Edged green black ground | C(5) |
| *25. Show Edged white black ground | C(5) |
| *26. Show Edged grey black ground | C(5) |
| 27. Parakeet dark wine semi-dble. | D(5) |
| 28. Austria wild native | F(15) |

VULGARIS (ACAULIS)

- | | |
|-------------------------|-----------|
| *29. Mixed colors | G-H-I(10) |
| *30. Yellow | H-I(6) |
| *31. Gold orange | I(5) |
| *32. Blue | I(8) |
| 33. Pink and rose mixed | L(6) |
| *34. Rose | O-I-H(15) |
| *35. White | H(6) |

PROLIFERAE (CANDELABRA)

- | | |
|------------------------------------|---------|
| 36. Bullesiana violet | M(10) |
| 37. Bullesiana orange | M(10) |
| 38. Burmanica | M(15) |
| 39. Asthore hybrids | M(10) |
| 40. Japonica astropurpurea | M(10) |
| *41. Japonica cherry red | O(25) |
| *42. Japonica Czec. | F(30) |
| *43. Japonica Postford White | F(40) |
| *44. Japonica pink dbl. h.p. | N(35) |
| *45. Japonica Apomatic dark purple | N(30) |
| *46. Inschriach hybrids | P(30) |
| *47. Aurantiaca | E(30) |
| *48. Pulverulenta pink h.p. | Q(40) |
| *49. Chungensis | F(40) |
| *50. Cockburniana | B-R(35) |
| *51. Mixed colors | A(50) |
| *52. Bulleyana | M(30) |

- | | |
|-------------------------------------|---------|
| *53. Bullesiana | M(25) |
| *54. Japonica red | Q-M(30) |
| *62. Japonica species | F-P(25) |
| *63. Japonica rose | F-P(20) |
| *64. Helodoxa | F-Q(30) |
| *65. Cockburniana orange and yellow | B(35) |
| *66. Pulverulenta Germany | R(30) |

DENTICULATA

- | | |
|------------------------|---------|
| *55. Mixed colors | F(30) |
| *56. Alba | I-F(40) |
| 57. Mauve | T(20) |
| *58. Rose tones | I(50) |
| *59. Lavender shades | S(35) |
| *60. Rubin red | I(50) |
| *61. Cashmeriana lilac | I(50) |

FARINOSA

- | | |
|----------------------------------|-----------|
| *67. Halleri | E-U-F(40) |
| *68. Modesta | T-E(25) |
| *69. Modesta alba | T(20) |
| *70. Rosea grandiflora | E-T(35) |
| 71. Rosea select deep pink forms | E(15) |
| *72. Scotica | U-W(10) |
| *73. Frondosa | T-F(40) |
| 74. Farinosa | V(10) |

FLORIBUNDAE

- | | |
|-------------------------------|----------------|
| *75. Florindae | AA-F-M-V-X(60) |
| *76. Yellow and copper shades | M-V(20) |
| *77. Florindae red (rot) | M(40) |

VERNALES (JULIANAS)

- | | |
|--------------------------|------|
| 78. Blue and yellow h.p. | S(5) |
| *79. Magenta | S(5) |
| 80. Red and garnet | S(6) |
| *81. Rock Garden | Y(8) |

CORTUSOIDES

- | | |
|------------------------------------|-------------|
| *82. Species | I(20) |
| *83. Polyneura | H-B-E-Q(40) |
| *84. Polyneura selected dark forms | E(20) |
| *85. Sieboldii | E-O(10) |
| *86. Sieboldii B.H. strain | T(15) |
| *87. Saxatilis | I(20) |

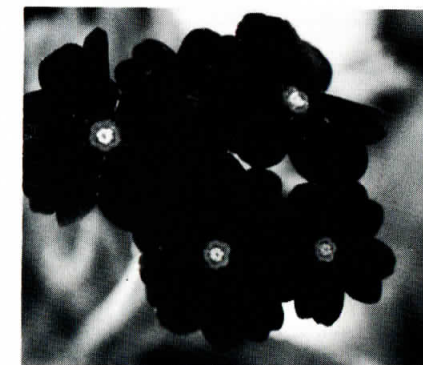
POLYANTHUS

- | | |
|-------------------------------|-------|
| *88. Bev's double crosses | Y(5) |
| 89. Cowichan Sparkling Velvet | Y(12) |
| *90. Jack-in-green | Y(5) |
| *91. Mixed hand pollinated | R(12) |
| *92. Giant super deluxe | Y(12) |

- | | |
|---|--------|
| *93. Gold and Silver Laced 17th Century | Y(20) |
| *94. Rose and blue mixed | I(5) |
| *95. Giant super mix. V&R X Dbl. | Y(12) |
| 96. Agee's Pink Memorial | Y(5) |
| 97. Hose-in-Hose | Y(5) |
| *98. Coerulea (blue) | I(10) |
| *99. Bev's giant doubles | Y(6) |
| *100. Gold and red mixed | B(15) |
| *101. Gold | I(6) |
| *102. Gold Laced open pollination | S(20) |
| *103. White | B-I(8) |
| *104. Mixed colors & Cowichan D | (15) |
| *105. Mixed colors (Whittemore) | F(15) |

ALL OTHERS

- | | |
|------------------------------------|---------|
| *106. Elatior (Hill) | M(15) |
| 107. Rusbyi | E(5) |
| 108. Mistassinica | F(10) |
| 109. Viali | H(40) |
| *110. Vulgaris (Germany) | I(15) |
| *111. Veris old fashion | R(8) |
| *112. Sinopurpurea | I(40) |
| *113. Heucherifolia | R-Z(8) |
| 114. Kewensis | Y-Z(12) |
| *115. Secundiflora | M-I(40) |
| *116. Nutans | E(20) |
| *117. Capitata mooreana | B(30) |
| *118. Veris Hybs. 3rd generation | T(30) |
| *119. Veris T.M. strain mixed | Y(30) |
| *120. Uralensis | W(15) |
| *121. Mixed various kinds Pot Luck | (20) |
| *122. Oxlip | B(10) |



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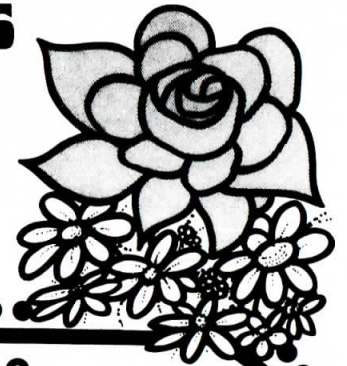
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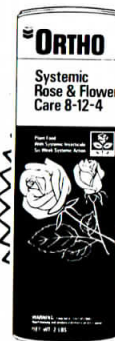


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