Dear Fellow Members,

The newly elected APS officers and directors got off to a good start by holding their first board meeting April 5, 1987, following the election at the annual banquet and general meeting of the night before. The members at large voted on having the American Primrose Society 50th Anniversary in April, 1992. The Board has named Richard Critz Chairman for this 50th Anniversary Event. He has begun gathering information and support; formed a 'steering committee' for planning and execution; and is now working on obtaining financial aid for this monumental task. Any suggestions you might have for our Anniversary, please address to Richard. He is looking into Bernard Smith's recommendation for having a commemorative postal stamp issued for this event. Richard will keep us all informed of ongoing progress and of wants and needs through messages in the Primroses Quarterly. This is one of the most important endeavors the APS has been involved in for a number of years. We need every member's support.

Another ongoing project we need constant support with is the APS Seed Exchange. Most of you will be happy to know the seed exchange is being revamped. I would like to hear from members with ideas on how you would like to see the seed exchange modified; such things as, types of seed; seeds per packet; type of envelope used; etc. I would especially like to hear from anyone who has worked on other seed exchange committees. While the APS does not wish to pattern itself after other existing organizations, we would like to incorporate any of your ideas into working plans feasible for our own organization.

I know most of you would like to tell me seed orders need to be sent out immediately after being received and that the seed list needs better proof-reading. These two items are being remedied.

One thing I cannot change is the amount of seed donations. In recent years, the decrease in donations of primula species and good hand-pollinated hybrids has forced us to buy many seeds. Even at wholesale prices the cost is high. This is a primary reason for the small number of seeds per packet. Another change to be dealt with. Quite frankly, I do not enjoy buying five seeds at a time and I'm sure this is an ongoing problem for many of you too.

On a better note, the APS judging system is also being reorganized. Our new Judges Chairman, Al Rapp, will be presenting his ideas at the next Board meeting so his recommendations can be acted on and put into use at the 1988 Primrose Shows. Al is also working on the possibility of holding more judging symposiums in the near future, both on the West and East coasts. More will be written about this at a later date.

For those of you who know me, you know that in the past my correspondence has been haphazard or sometimes non-existent. However, I now have a desk and a filing cabinet to help me become more organized. I will try to answer all letters in a reasonable length of time.

Thank you for your patience, encouragement and support.

Sincerely,

Irene N. Buckles

American Primrose Society
1987 Western Primrose Shows
by Irene Buckles,
Seattle, WA

Washington State Chapter of Seattle, WA and Valley-Hi Chapter of Beaverton, OR had the first two shows of the season, both on March 28th. Since they were one-day affairs, I was only able to attend one, so I chose the closest one—Washington State Chapter. This year, as last, the show was held at the Center for Urban Horticulture. It is an excellent setting for a show. The place has a touch of class, but it carries a rent price to match.

It was an earlier show than usual, but so was the spring this year so it worked out fine. Lots of single and double aeaculis were shown, mostly by Rosetta Jones. She really has a wide range of colors in her hybrid doubles now. One was a red and white unusual looking bi-color. We should probably all get some seed from her and try our own luck. In addition to her doubles, Joe Dupre had a floriferous yellow double that was in the running for a Best In Division (P. saxatilis). It carried a rent price to match.

There weren't many outstanding polyanths. Even my white miniature, 'Terri K.' was not at its best this year. There were some velvet-red cowichens shown by Baileys' and a black velvet cowichen brought in by Darlene Heller that added an extra glow to the section. Peter Atkinson has been doing some fine experimenting and hybridizing. His two garden auriculas x P. marginata crosses were excellent examples of his work. Anyone who has ever worked with marginatas knows it isn't the easiest plant to hybridize. In addition to these, his award winning P. veris macrocalyx x garryarde was outstanding and certainly deserved the trophy it won. I hope Peter continues his fine hybridizing and perhaps will be a recipient of the Peter Klein Hybridizing Award in the future.

The acaulis-polyanthus were better. There were more hose-in-hose on display in this class than usual, thanks to Peter Atkinson. Cy Happy's 'Guinevere's Kid' really should have won some sort of award, but sometimes even special plants are overlooked.

The Washington State Show

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<thead>
<tr>
<th>BEST IN DIVISION</th>
<th>PLANT/COLOR</th>
<th>GROWER</th>
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<tbody>
<tr>
<td>V hybridizing</td>
<td>P. veris macrocalyx x garryarde</td>
<td>Peter Atkinson</td>
</tr>
<tr>
<td>VI garden auricula double auricula bright rose-magenta JAMES WATSON TROPHY burgandy C.C. CHAMBERS TROPHY</td>
<td>Rosetta Jones</td>
<td></td>
</tr>
<tr>
<td>VII European species P. marginata</td>
<td>Brian Skidmore</td>
<td></td>
</tr>
<tr>
<td>VIII Asian species P. saxatilis</td>
<td>Brian Skidmore</td>
<td></td>
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<tr>
<td>not hardy species P. obconica</td>
<td>Rosetta Jones</td>
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<tr>
<td>IX seedling double polyanthus</td>
<td>Peter Atkinson</td>
<td></td>
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<tr>
<td>X gold lace dark ground dark ground</td>
<td>Irene Buckles Baileys' Peter Atkinson</td>
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<tr>
<td>XI oddity P. ellisae</td>
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<tr>
<td>XII best in junior auriculas in ceramic rabbit</td>
<td>Edith Bailey</td>
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<tr>
<td>XIII best in novice Bardfield oxslip</td>
<td>Martha Harrison Thea Oakley Joe Dahlborn Baileys' Thea Oakley Baileys'</td>
<td></td>
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<tr>
<td>XV Primulaceae Soldanella</td>
<td></td>
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</tr>
<tr>
<td>XVI class 1 P. denticulata/fyy/dried kelp garden w/P. marginata and minima Rhodohypoxis baueri</td>
<td>SWEEPSTAKES - ROSETTA JONES - MARION HANNAH TROPHY</td>
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</tbody>
</table>
a trooper and sold a couple of hundreds of dollars worth of quilt raffle tickets, too. All in all both the show and sale were a success.

The next show in line was the National Show held the following week, April 4-5, in Milwaukie, Oregon. The overall look of this show was quite different than last weeks show. The space was smaller but the effect was pleasing and the plants were fine examples. Outstanding companion plants: erythronium; Lewisia cotyledon, all shades of pink, apricot and orange; pulsatilla; pleione; and Gentiana verna and Arracaceae pyrenaica from the Berry Garden.

The oddity division also showed a fragrant acaulis-poly Gallygaskin from the Berry Garden.

In the next division were rarities. Those shown were: P. ruprechtii from Flip Fenili; and from Ann and Jay Lunn were P. elatior, P. muculatus and a very nice P. scandinovica.

Having two growers displays entered in a show is rather a rarity in itself. Most members don't want to be bothered putting six look-alike primroses in a flat, but Ann Lunn's gold lace were lovely, while my display of julie 'Early Girl' had everyone trying to buy them.

Herb Dickson dominated the garden auricula section again. He must have entered every color and leaf shape imaginable. Other worthy gardens were entered by Frieda Dingle and Oral Agee along with the Lunn's 'The General' (I traded a couple of julies for a piec of this auricula to add to my small collection). Rosetta Jones entered some good semi-doubles but like the week before this show was also short on double garden auriculas. Still shy on exhibition plants here, too, it did seem fitting that two fine yellow show sets 'Mary Zach' were bench as selfs 'Mary Zach' were bench as also short on double garden auriculas. A couple of julies for a piec of this auricula but like the week before this show was also shy on double garden auriculas.

Here again, P. denticulata made a big splash of color with a nice pink shade from Flip Fenili, both a good red and a white with a perfect ball of flowers from the Lunn's and another perfect round ball of lavender from Viola Purple. It was a bit early for P. sieboldii, as only two were on display. Etha Tate's P. kisoana alba was in fine form and Herb Dickson outdid himself with three P. petiolaris species. Seedlings were bench in their own separate division at this show. It made sort of a mini-show within the show set up this way. Rosetta Jones had a good selection of her new double acaulis seedlings on display and a red P. denticulata. While Helen Moehnke showed cowichens and P. veris in their first spring bloom.

The non-hardy section was reliably small, but it was good to see P. verticillata from the Berry Garden again. Although this plant really couldn't compare to their showing of P. verticillata in 1983. There was a good collection of named julies: 'Little Gem', 'Kay', 'Early Girl', 'Kitty', 'Old Port', 'Jay-Jay', 'Dorothy', 'Yellow Dawn' and an unnamed bright pink from Addaline Robinson.

Four nice semi-double acaulis were shown, while most of the ones classified as doubles should have been placed in the semi-double class. Doubles always seem hard to place and to judge. The rules don't seem to be quite clear enough. There was a pale pink double acaulis from the Berry Garden that showed great promise for the future as a winner, but not at this show. There simply weren't enough flowers open. Both Rosetta Jones and myself helped fill a table with single acaulis of all colors, shapes and forms.

Polyanths were outstanding at this show. Herb Dickson entered a bright crimson-orange mini that really caught your eye. Hope he is going to propagate it for sale. Helen Moehnke's yellow with recurred petals and cowich-en-type dark foliage was breathtaking. It was good to see 'Marie Krouse', a double poly, on the show table once again.

The Milwaukie show is always made more interesting by Dorothy MacFarlane's floor display she works so hard to put in every year. I always look forward to seeing her little pond with the realistic looking trout swimming in it. She is very talented. She also made the centerpiece for the head table at the banquet and the corsage for the guest of honor, Etha Tate.

The banquet had a good turnout of members. Herb Dickson was his usual generous self and donated all the garden auriculas setting at each place as a take-home remembrance of 1987. David Palmer, of the Berry Garden, gave a

1987 National Primrose Show

BEST IN DIVISION

<table>
<thead>
<tr>
<th>PLANT DESCRIPTION</th>
<th>GROWER</th>
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<tbody>
<tr>
<td>clear yellow, strong stemmed</td>
<td>Lunn's</td>
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<tr>
<td>dark red ground</td>
<td>Irene Buckles</td>
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<tr>
<td>creamy white</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>'Early Girl'</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>double yellow acaulis</td>
<td>Rosetta Jones</td>
</tr>
<tr>
<td>double hose</td>
<td>Flip Fenili</td>
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<tr>
<td>perfect hose</td>
<td>Herb Dickson</td>
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<tr>
<td>rosy-mauve Julie</td>
<td>Rosetta Jones</td>
</tr>
<tr>
<td>WESLEY BOTTOM TROPHY</td>
<td>Irene Buckles</td>
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<tr>
<td>blue-violet with perfect foliage</td>
<td>Rosetta Jones</td>
</tr>
<tr>
<td>'Frosty', lavender/green mixture</td>
<td>Helen Moehnke</td>
</tr>
<tr>
<td>ELLEN PAGE HAYDEN TROPHY</td>
<td>Lunn's</td>
</tr>
<tr>
<td>super double yellow acaulis</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>lemon-yellow</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>IVANEL AGEE TROPHY</td>
<td>Rosetta Jones</td>
</tr>
<tr>
<td>P. marginata - a perfect formed rosette</td>
<td>Berry Garden</td>
</tr>
<tr>
<td>RAE SELLING BERRY TROPHY</td>
<td>Rosetta Jones</td>
</tr>
<tr>
<td>P. elatior hybrid</td>
<td>Berry Garden</td>
</tr>
<tr>
<td>P. obconica</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>P. mistissina</td>
<td>Thelma Genheimer</td>
</tr>
<tr>
<td>six 'Early Girl'</td>
<td>William Morris</td>
</tr>
<tr>
<td>Lewisia cotyledon, salmon-pink</td>
<td>Viola Purple</td>
</tr>
<tr>
<td>6&quot; pot of P. kisoana, pink form</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>small basket full of denticulata</td>
<td>Irene Buckles</td>
</tr>
<tr>
<td>creamy-white acaulis</td>
<td>SWEEPSTAKES - IRENE BUCKLES</td>
</tr>
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</table>
thoroughly enjoyable slide program and kept his composure, in spite of a slide projector that seemed to have a devious mind of its own.

Vice-President, Terri Koch, filled in for the APS President who was unable to attend due to poor health. She finished all business in short order and then watched the fun while Flip Fenilli auctioned off an APS Dictionary to the highest bidder for $16.00.

An added attraction to the second day of the show was a guided tour of the Berry Garden to all who wanted to attend. Also, the drawing for the quilt took place on Sunday. Just for the record: the quilt was won by Linda Hals of Tacoma, WA. The prize of two shows; Eastside Chapter of Kirkland, WA and Tacoma Chapter of Tacoma, WA. Although I managed to enter a few plants in the Eastside Show I didn't stay long enough to write a description of the show. I spent all my time at the Tacoma show instead.

One of the most impressive parts of this show was the sales area. Never in recent years have been so many primroses and companion plants offered for sale at one primrose show. The Tacoma Mall is a very busy place and the quantity of plants sold was tremendous.

Three floor displays helped create a more professional looking show. Rich and Norma Lupp of Mt. Tahoma Nursery, Graham, WA., put in a floor display, as well as the Rhododendron Species Foundation of Federal Way, WA and the Pacific Northwest Rhododendron Society.

There weren't many polys or even acaulis-polys. Even the cowichens weren't up to par. But there was a nice garyarde and 'Guinivere's Kid' showed up again. The number of jules had diminished by this time, too. In fact most of the ones entered were mine. 'Old Port' looked its best at this show. Baileys' said it will be available in next spring's catalog. Steve Whitcher entered a double pin-kish-mauve double Julie. Julie doubles aren't often seen at the shows.

There were garden auriculas galore - over seventy - a good share of them belonging to Herb Dickson. One of his nicer ones was a bright cherry colored one with a white eye atop a perfect rosette of leaves. A blue-grey semi-double from Steve Whitcher was respectable as well as a 6" pot full of red-velvet gardens from Verna McClerey. Double auriculas were better represented here, 'Welch's Brown' from Baileys' and a golden brown from both Cy Happy and Baileys' were welcome additions.

Lots of nice acaulis. Some of the more outstanding singles were a yellow-orange from Darlene Heller; a lemon-yellow from Cy Happy and my own creamy-white winner from last week's show. Rosetta Jones, of course, was still displaying her hybrid double acaulis in all colors, shades and bi-colors.

Baileys' entries were at their best. Their P. margarita 'Linda Pope' and P. glutinosa were beautiful. And finally, a good collection of exhibition plants: 'Choister', a yellow self; two fancics, 'Spring Meadow' and 'Macbeth Stripe'; and alpines 'Wal ton', 'Argus', UK Blue (1) and a 80D Alpine (22) seedling. His blue alpine seedling, winning Best Seedling Exhibition, has won a blue ribbon for the third time. Bailey has now named this one 'Midnight Magic' and it probably will be another addition to his catalog.

What few primula species were shown were of good quality. P. sieboldii were at their showiest in all shades and petal forms imaginable. Some of the other species were a varied collection of P. veris hybrids; a number of plants from the farinosae section, including, fron-

dosa, farinosa, involucrata and yar-gongensis; and P. reidii, P. gracilipes, P. toessa, and P. rotundifolia from Herb Dickson. The real jewel of the show, tho', was Herb's P. aureata. Most of us had never seen it before except in books. It was well worth coming to the show just to see that gem of a primrose.
Anomalous or Teratological Flowers

Ruth Duthie,
Oxford, England

Bernard M. Smith's interesting article in *Primroses* (the Fall number of 1986) about 'Anamolous Primroses' together with the printing of Parkinson's chapter on 'Primroses and Cowslips', set me thinking about the interest there was in abnormal forms of plants; for certainly it was not only Parkinson who described them in the seventeenth century, nor were they confined to the genus *Primula* though it certainly was liable to throw a variety of unusual forms. Both Parkinson's *Paradisus* and John Gerard's *Herball* of 1597, together with its improved edition by Thomas Johnson of 1633, have illustrations of oddities in other plants; for instance the 'hen and chickens' daisy, which develops a cluster of small flowers from the lower side of the first one, and very delightful it can look. The same kind of multiplication could occur in the calendula which Gerard said was 'called of the vulgar sort of woman Jacke-an-apes on horse-backe'. I have never seen this kind of marigold but the daisy form is to be found in a number of gardens. Parkinson did not call it 'hen and chickens' but a 'childing' or a 'Jack-an-Apes on horse-back'.

Another oddity which must have been common since it was illustrated in so many flower books, was the proliferous ranunculus. In this (*R. asiaticus*) from the centre of the first-formed flower springs a second one, as the illustration shows. Not only are there very many illustrations of this in books but I know of one carved on a fine marble mantle-piece, dating from about 1770, in an Oxfordshire house and there is a small panel of stained glass showing such a ranunculus in a window of the Bodleian Library, Oxford.

Still another common abnormal plant is the rose plantain (*Plantago major*); the normal form of this plant grows in grass land and would not be welcome in a garden, however the 'rose' forms, though it sets seed, does not spread rapidly and is allowed to stay for the sake of its unusual appearance. A short time ago I saw a coloured version of the vast 2-volume *Horstus Eystettensis* of 1613 exhibited to show the page with a strange crown imperial (*Fritillaria imperialis*) with hundreds of the bell-shaped flowers supported by a great broad stalk; obviously this was an example of a process called fasciation when a number of stems remain attached, making a kind of Siamese twin. It was curious rather than beautiful. I think the reports in former days of auriculas having 130 pips and a broad flat stalk referred to similar phenomena. Many of these anomalous forms are still to be found. I have seen a rose plantain growing on a canal bank, far from any cultivated area. I have, too, growing in my garden an old rose 'Cardinal Richlieu' which in damp weather will have a whole group of baby roses developing from the first-formed flower; here some of the carpels develop directly into new small flowers, rather like the proliferous ranunculus only here a group, rather than a single, flower is formed. Since I am interested in such peculiar forms I am quite pleased to see them but I can well believe many persons would not regard them as objects of beauty. Seedling primroses and polyanthuses sometimes produce
flowers with unusual features; I had one that grew up between the brick path and the tiled edge of the flower bed and produced flowers with an enlarged calyx; what is now called a ‘Jack-in-the-green’. I had been given a plant of this kind which had died but this one must have been its offspring. I believe however some of these abnormalities arise without any direct antecedents but of an established kind – hose in hose, double-flowered and such like, as a result of a mutation.

It should be noted that neither Parkinson nor any other early writer used the term ‘Jack-in-the-green’ for a plant with enlarged calyces like that shown as No. 12 of his illustration and which he called ‘the foolish Cowlisph’ or ‘Jacke an Apes on horse backe’ yet the latter term both he and Gerard used for the ‘hen and chickens’ calendula and daisy, which certainly were botanically quite a different form of abnormality . . .

The terms may have been used rather casually but there is no doubt that such teratological plants were welcomed in the early seventeenth century: I think this is related to the lack of variety of garden plants in those early days. Though new ones had been coming from east and west since the middle of the sixteenth century, they would have been unobtainable by most people: these were the days when for the first time plants were being grown for their beauty and interest rather than for their use. Thus those who wanted variety would have collected from the wild any plant showing unusual features, such as double flowers, those with unusual colours or with variegations of leaf or flower or again with the kind of abnormality we have been describing. Once a wide variety of fine garden plants was available and there were the newly-formed nurseries to provide them, those with the odder features would have ceased to be admired though the double, the attractively coloured or patterned ones would have retained their value. Neither in flower books of the eighteenth century nor in the very numerous florists’ magazines of the nineteenth century can I recall ever seeing any illustrations of these teratological plants. It is only in recent times with our nostalgia for things past and our concern for conservation that interest in them has revived. Now gardeners delight in acquiring hose-in-hose primroses, hen and chickens daisies or rose plantains.
Plant roots are quite sensitive to high temperatures. Soil temperatures above 95°F can reduce or stop root growth. At about 110°F root tips begin to die.

The root zone temperatures can easily build up to these levels when black or dark pots are exposed to summer sun. Additionally exposure to dessicating winds exacerbates the problem by reducing soil moisture through increased plant transpiration and surface evaporation.

Use white or light colored pots, light reflecting foil or insulating containers such as wood. Water often with a weak fertilizer solution. Flush soil with fresh water occasionally to eliminate accumulating salts.

In the days before precise temperature and humidity controls were possible seedsmen developed the “less than 100” strategy to maintain seed viability. “Less than 100” meant the total of air temperature in degrees Fahrenheit plus the percentage of relative humidity totaled less than 100. An example: if the storage temperature is 70°F relative humidity must be less than 30%.

Freshly harvested primrose seed pods can cure out of direct sunlight in a cool shed or garage. After seed have dried sufficiently for handling do some gross cleaning. After seed are removed get rid of pods, placenta, stems, leaves, etc. Use a magnifying glass to check for very tiny insects such as springtails and the larvae of grainary or cupboard beetles and moths.

After seed have dried and final cleaning is done store in a labeled envelope, place in an air tight glass container (old peanut butter jar) and keep in the refrigerator. Send any surplus to the APS Seed Exchange chairman.

NONCHEMICAL PESTICIDES EFFECTIVE FOR MANY USES

A while back, a Maury S. of Anacortes asked me about sources of nonchemical pesticides and other methods of controlling insects and diseases.

The principal natural pesticides used for generations are pyrethrin, rotenone, nicotine, nyania, sabadilla, hellebore, copper salts, sulfur and petroleum oils. They are still effective for many uses today and many are widely available wherever garden supplies are sold. Look for local stocks before going mail order.

Some mail-order sources for these and other insect- and disease-control supplies are: Territorial Seed Co., P.O. Box 27, Lorane, Ore., 97451; Melinger's Inc., 2380 PB Range Rd., North Lima, Ohio, 44452; Natural Gardening Research Center, Highway 48, P.O. Box 149, Sunman, Ind., 47041; Gardener's Supply, 128 Intervale Road, Burlington, VT., 05401; and Necessary Trading Co., Box 305, New Castle, Va., 24127 (catalog $2).

New products are about to enter the supply pipeline. The neem tree of the Indian subcontinent has insecticidal properties and is being investigated. A broad spectrum insecticide derived from the American pawpaw tree has been patented by a university research scientist.

Almost 100 strains of the bacterial insecticide bacillus thuringiensis are being investigated as controls for a wide variety of insects. The most commonly available formulations are for use on caterpillars. Others that control spider mites, lygus bugs and some beetles should be on the shelf soon.

In recent columns I have written about investigations into the use of citrus peel oil as an insecticide. For example, d-limonine is the insecticide in a flea pet shampoo.

All South Supply, Box 500S, Jacksonville, Fla., 32207, sells a product containing a citrus peel oil called Dirt Squad.

Reuter Laboratories, Box 346, Haymarket, Va. 22069, makes aphid-mite attack. It is a combination of insecticidal soaps and citrus aromatics. This one is on local shelves.

Another Reuter Labs product on local shelves is White Grub Attack. White grubs are the larvae of about 200 species of June beetles. They are mostly a problem for lawns. The insecticide is the same bacterial disease that affects the Japanese beetle and also may be effective on root weevil in the grub stage, although little work has been done along these lines.

Research into the insecticidal properties of the soil fungus streptomycyes avermitilis shows promise against insects, mites and nematodes. The Rigo Co., P.O. Box 189, Buckner, Ky., 40010, produces AFFIRM to control fire ants from this fungus. Perhaps it is effective for other ants as well.

Beneficial nematodes can be used to control some soil-borne worms, grubs, and borers. A source is nematec, Box 758, San Leandro, Calif. 94577.

Predators such as ladybugs, lacewings, trichogramma wasps and praying mantids can be effective in controlling some insects. When their food (insects) is in short supply they go elsewhere. Unless you are willing to keep an insect source handy nearby for them at all times your money is probably better spent elsewhere.

I have not seen it but the May 1987 issue of the new magazine American Country ($3.50) is available at newsstands or at $5 from Mother Earth News, P.O. Box 70, Hendersonville, N.C., 28793. The magazine is devoted to garden pest control and contains pictures and information on life cycles with suggested controls.

A gentleman in Kentucky has folks from all over send him their favorite home remedies for controlling insects and diseases. He compiles, tries, revises and produces an eight page list of effective alternatives. For a copy send $2 plus a long, self-addressed envelope with two 22-cent stamps:

Joe Armstrong
Rt. 1, Box 121
Bardstown, KY 40004
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The Florist Auricula
Larry Bailey, Edmonds, Washington

Talk delivered before the ARCS Eastern Study Weekend on January 26, 1986.

Questions on the Exhibition Auriculas have been directed to me in increasing numbers these past couple of years, especially from this Coast. When experts in the field of botany ask me questions on florist plants, I know there is a need for discussion and education.

What I hope to do here is to provide a good general knowledge of the florist primula: The history of the Show Auricula; its types; the point systems on judging; culture in an alpine house; how to prepare the plants for a primula show; the naming of the plants, and a little about the differences in judging between the English and the American Primula Societies.

To achieve many of the rewards in life (and horticulture is no different), we must understand what rewards we are after. John Macwatt gave a key when he related a comment by James Douglas: "No better opportunity could be afforded to anyone who keenly desires to exercise patience than by attempting to raise Show Auriculas." The hobby of growing florist primulas is certainly just the ticket for those who are looking for a slower pace of life.

This brings me to a delightful story I read some years ago. The article was written by one of the legendary growers of yesteryear - Dan Bamford from Middleton, Lancashire. In this article he was reminiscing about visiting old well-known gardeners of his time; a time when "the old auricula growers of an age which knew neither automobiles, radio, television, cinemas and what have you were florists - pure and unadulterated. Their ambition was to produce something better this year than last; if they failed, they started again... That is how they spent their leisure; there were no other forms of amusement."

Strange as it may sound, the story was talking about one of the very old gooseberry growers he visited; and "as the auricula and gooseberry were very often grown by the same grower", it will give you an impression of the perseverance and patience of the old florists of the North Country, whose like we shall not see again.

Mr. Bamford was returning home with a business friend when it occurred they were not many miles from a town where an elderly gooseberry grower resided. His friend instructed the chauffeur to drive to old Jack's cottage. After the customary "cup o' tay" they took a tour of the garden where Dan Bamford had visited as a small boy over sixty years before. Something seemed to snap internally, and he was once again in the long-gone age of boyhood. The world of changing fashion they had left a short time ago seemed to be no more. There were the same type of bushes he remembered so well when he was a boy. None were over 12 inches high; the branches radiated horizontally; some were very old and resembled the dwarfed Japanese trees trained in the best Bonsai type. The berries were hanging on them like small Victorian plums. He looked round to see the reaction on his friend, but the man stood there as though mesmerized - all he could do was gasp.

Now Dan's friend owned a large business and was rather proud of his successes in life, but he was no match for this tough old Lancashire gardener. His first and only round was lost when he asked, "Can my gardener grow gooseberries like these?" The old boy paused for a short time, looked up, and with a twinkle in his eye, said, "Ay, if he knows how."

To know why and how is my purpose in what follows.

Before plunging into the Show Auricula and its history, let me give you a quick definition of "Florist." During the Elizabethan era, any grower who showed his specialized flowers was called a florist. This is the definition used here.

HISTORY
The history of the Florist Primula has been the subject of a lot of discussion. No one that I know of really knows the origin of the Show Auricula. Speculation has been made on the parent species and how they developed into the three major classifications of the exhibition plants we are familiar with today.

(1) A couple of things are fairly certain: the species Primula auricula (a natural yellow form) is a good candidate for the family tree; (2) as well as Primula hirsuta (rubra), both of which are found in the alpine regions of central Europe. But
many of the different species in the Section Auricula have the same chromosome count. It becomes very difficult to pinpoint the parent, and if, in fact, natural or unnatural mutations occurred. Other candidates for parentage include (3) Primulas viscosa, (4) glaucescens, and (5) minima. What is known, is that the characteristics of the exhibition plants today do not occur in any natural environment known to botanists.

One of the most reliable sources for the botanical history of the auricula is in the records of the Primula Conference of the Royal Horticultural Society in April 1886. This Conference indicated: the first publications mentioning the auricula as a garden plant was during the mid and latter half of the sixteenth century, when the plant was known and grown in Austrian gardens of noble families. Most likely it had been grown in humble gardens much earlier.

Also during the sixteenth century traditions, the auriculas were first taken into England by refugees from the continent. England is where most of the present day auricula and polyanthus derive. According to Sir Biffen (an authority on primula history), the refugees “settled to a great extent in Lancashire, Yorkshire and the neighbourhood of London which, for years to come, were the chief centers of auricula cultivation.”

By the end of the century the plant was well established in England, and in 1597 the first English description of it was published in the Gerarde’s Herball. It was then known to botanists as Auricula ursi (or “Bear’s Ears”), while another name in common use was the “Mountain Cowslip.”

A later publication, Parkinson's Herball (Theatrum Botanicum) is 1694 expands and introduces the striped auricula. His description includes the remark that the flower colour would change wholly into either colour of the stripe.

Records are scanty on the development of auriculas during the first half of the eighteenth century, although a number of books on gardening were published. This is unfortunate, for at this time there appeared an auricula with a green flower border, white center and a black ground—a sensation! Here were flowers with either a green edge, or green edge heavy with meal—a flower having no counterpart in the horticultural world.

By 1757 the “Edged Auricula” was listed by nurserymen, indicating that the new break must have been somewhat earlier. Even at this early stage of the Edged Auricula the plants required to be grown under glass to protect the fragile meal on leaves and flowers. The exacting competition became fierce and standards developed for the plant made the Edged Auricula an Exhibitor’s plant with no equal.

The early years of the nineteenth century saw the beginning of a new era of horticulture. “This was the era of the florist’s flower in which men set themselves the task of producing symmetry, an ordered beauty, and refinement in flowers previously grown for the sake of their own natural charm.” Their efforts were directed not only to the improvement of the Auricula, but to the tulip, ranunculas, primrose (jack-in-the-green), polyanthus (gallygaskins), carnation, pinks, etc.

The Show Auricula was extremely popular not only in Great Britain but all over the European continent. Holland, France, Germany were some of the major areas where these auriculas achieved widespread popularity, and elaborate stages were constructed to show the plants to their best advantage.

The growing of the Show Auricula was not limited to the well-to-do but was an intense hobby for many in the working class; most notable were the cottage silk weavers of Lancashire and the miners of Yorkshire.

Here each year they would gather the best of their plants (usually two out of a collection of a couple hundred) and hold a small show in the local village’s public house. The awards were modest, a copper kettle being the most appreciated. Competition was keen. However, after the judging, the small group would finish up with a mug of ale and discuss the merits of their plants.

Toward the end of the nineteenth century all this amazing popularity subsided, fashion moved to other hobbies and by 1870 the number of growers quickly dwindled to a dedicated few.

It was at this moment that the name “Auricula” first became synonymous with Show Auriculas. In 1876 James Douglas was instrumental in helping to organize a society for “... gentlemen interested in the advancement of Floriculture.” A forerunner of the National Auricula and Primula Society—Southern Section. Within a few years after organizing, the Society held its first show in the spectacular Crystal Palace in London.

Three English societies kept alive the interest in the show auricula: the National Auricula and Primula Society, the Northern Section, and Midland Section and the Southern Section. Since the late nineteenth century the growth and membership in these societies fluctuated greatly due to the World Wars. During the war years, all energy was directed towards the war effort, and most of the older, legendary plants were lost. It has only been in the last few decades that a revival of the Show Auricula has taken place in England. Reintroduction of fancies and striped auriculas by growers like Allan Hawkes, has sparked and kindled new interest.

In the United States little is known of those few growers who cultivated Show Auriculas before the founding of the American Primrose Society. Auricula and Primula Society in 1941. After the Second World War, interest in the Show Auricula was largely promoted within the Pacific Northwest where a subsociety of auricula growers was briefly organized within the American Primrose Society.

It was during this period in the late 1950’s and early 1960 that so much of the work on the double primrose, gold laced polyanthus and the double auriculas took place in the United States.

As with the case of most wars, the Viet Nam conflict saw interest in horticultural hobbies wane as concern for sons, daughters and friends dominated. Popularity of the Show Auricula has not recovered from the effects of the Viet Nam War, but there are signs of renewed interest starting to develop across the country for this gentlefolks peacetime pastime. Let up hope that this new interest will not be interrupted by other conflicts.

**TYPES OF EXHIBITION AURICULA**

The nomenclature of Exhibition Auricula can be confusing.

In the Exhibition classes there are two major headings: Show Auricula and Alpine Auricula.

The Show Auricula has farina (also called meal, paste or flour) on the center of the pip surrounding the tube; this meal can also be present on the leaves of the flower.
of the plant and petal edges of the flowers.

An Alpine Auricula (a name only remotely connected to the specie auriculas found in the alpine regions), has no meal on flowers or leaves.

Going deeper, there are two basic types of Show Auriculas with meal: In one the flower has a white paste eye and only one color on its petals. This is called the Self Show Auricula. The second also has a white eye, but with a colored ground (usually black), and green petal edges actually incorporating leaf tissue. This is called an Edged Show Auricula.

The Self Show Auricula, the one with the single colored petals, usually come in yellow, red, blue and almost black.

The Edged Show Auricula (with leaf-tissue petals) is broken down still further:

The Green-edge has green petal edges, quite free of meal, on a black ground.

The Grey-edge has the green petal edges overlaid with a light dusting of meal.

The White-edge is similar to the grey-edge, but with a heavier dusting of meal - so heavy that no green shows through at all.

It should be noted the amount of meal on the leaves is not a criteria for classifying Show Auriculas.

There is another classification of the Edged Auricula called Fancy. Fancies include all Edged Auricula with a ground color other than black (usually yellow or red but sometimes purple or brown).

Alpine auricula (sometimes referred to as Alpine Show Auricula) will be disqualified from exhibition if it has meal on either petals or leaves.

The distinguishing factor in the Alpine Auricula is the shading of the petal color from dark at the center to light at the edge. It has only been in this past century that the Alpine Auricula has been classified as an Exhibition or Show flower at all - previously it was considered a garden plant. The colors usually come in gorgeous shades of red, blue, brown or gold. The Alpine Auricula is often broken down into two classifications: gold centered and light centered.

It should be noted that in recent years two other classifications of auriculas are making their way onto the exhibition tables: the Striped and Double Auriculas.

Confusing, yes. And to be quite frank about it, I do not think anyone really knows how some of the names were derived. But taking a quick review, there are two major classes of the Exhibition Auricula: the Alpine Auricula and the Show Auricula. The Show Auriculas are further classified into Self Show Auricula (with the solid color petals) and the Edged Show Auriculas.

POINT SYSTEMS

A point system for judging show auricula has been slowly evolving over the past generations. One of the first authorities to establish the "Rules for Judging" was the Royal Horticulture Society of England. From the Royal Horticultural Society's simple standards have come the slightly more encompassing standards used today. I say standards, because most primula societies have generated their own set of rules, and continue to do so.

There are some general areas of agreement that seem to have a universal appeal:

1. A healthy plant
2. A plant of good proportions
3. A flower of symmetrical or asymmetrical appearance without recognizable flaws
4. Clear and distinct colors.

Florist plants are no different. The distinction between a florist plant and a typical garden plant is, the characteristics of beauty are trying to be emphasized and perfected.

When showing an exhibition primula three basic rules have to be followed: 1) no pin eyes are allowed; 2) at least 5 pips must be opened on a named plant and
3 on a seedling; and 3) the plants are to be groomed, possess a single umbel, and be in clean pots. Any plant not abiding by these rules would be disqualified from being shown.

In exhibiting the Edged and Self Auricula, the emphasis is placed on the flower itself, not on the plant. The following pointing system is one promoted in the 1960s by the National Auricula and Primula Society - Northern Section, authored by R. H. Briggs. (Other societies' pointing systems are very similar).

**SELF SHOW AURICULA STANDARDS**
The standards and points for the Self Show Auricula are the same as for the Edged Auricula except:

- Ground Colour: Bright clear colour. Must be devoid of meal and farina, unshaded, and twice the width of the paste.
- Pip: Round and flat, composed of 6 or 7 petals, neither notched nor pointed.

**EDGED SHOW AURICULAS STANDARDS**

**FLOWER**
- Tube: rich yellow, circular, outer edge level with expanded pip
- Anthers: dense, curving inwards to cover the stigma
- Paste: smooth and dense, white, free from cracks, the meal on the foliage of the grey-edged enough to give a grey appearance, on white-edged to completely mask the green, green-edged free from meal
- Ground Colour: circular where it joins the centre, feathering a little into the edge colour and as near black as possible
- Pip: round and flat and no notches in the petal; 6 or 7 petals in each pip (if 6 they must be broad enough to fill in a circular outline), colour zones of equal width

**PLANT**
- Stem and Footstall: stem strong enough to carry the truss well above the foliage and rigid enough to allow each pip to display itself
- Size, substance and general refinement: good overall proportions

**POINTS POSSIBLE**

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**ALPINE SHOW AURICULA STANDARDS**
In judging the Alpine Show Auricula, a little more emphasis is placed on the over all appearance of the plant, giving 60 possible points to the flower, and 40 to the plant (umbel symmetry 15), a strong stalk (15) and a well balanced plant (10) to equal 100 points. Differences in the standards between the Edged/Self Auricula and the Alpine are:

- Center: Round, clear colour (yellow or white) cut sharply where it joins the body/ground colour.
- Colour: Rich brilliant luster, unclouded. Deep where it joins the center, and paler tint at the edge of the petals.

During the judging of a plant in a show, one cannot expect a judge to keep a written record of each plant. Nor would the judge have time to mentally keep track of the points. But they rely on their own experience in growing to make their selections.

Many growers would swear that the judges, when judging their own plants, have a tendency to throw the rules out the window. It is only when plants are in very close competition and judges cannot agree on top winners, that the need to point a plant arise. The only other time a plant will be pointed is when it is being named by the American Primrose Society.

There is a major difference between the method of judging a primula plant in England and in the United States. English shows use the "Standard Judging System." Each classification of entry has only one first award, one second and one third.

In the American Primrose Society the show is judged on the "Merit System." Each plant is judged on its individual merit for a blue, red or white ribbon. The premier awards and trophies are then selected out of the blue ribbon plants.

**NAMING A SHOW AURICULA**
There is also a difference between the way a Show Auricula is named in England and in the United States. In England, any seedling that has won an award is usually named by the grower. (Any Show Auricula is classified as a seedling before naming, regardless of how old it is.)

In the American system, before a seedling can be named, it must have been awarded a blue ribbon for three years, and to achieve a score of over 90 when judged by three official judges of the APS. This method for naming a plant is one reason why so few plants are named in the United States.

In the past seven years I am aware of only two plants being named by the American Primrose Society: A yellow Self named "Mary Zack" grown by Orval Agee, and an Alpine named "Tait", nominated by myself.
If Show primulas are difficult to grow well, they are extremely easy to start from seed. Before I get too far into explaining just how easy it is, let me say that exhibition primulas do not come true to seed. Without a selective breeding program, a grower can hardly expect one plant in over a thousand to be of show quality — and a much smaller percentage to produce an award-winning plant.

A few words about storing seed. If seed is put in small envelopes, placed in ziploc bags, and stored in a refrigerator at around 40°F., it will remain viable for many, many years. Do not throw away seed stored in this manner. Plant it!

I think every grower has his own method of starting seed, and all major seedsmen with primula seed (Barnhaven, Goodwin, Chiltern, Thompson & Morgan, etc.) have excellent instructions for sowing primulas.

Two basic concepts are usually proposed depending upon the space or facility limitations.

The first is to sow the seed in a typical starting tray, set the tray outside and let nature take over with its freezing, thawing, etc. Many growers will press the seed into a soil/peat mix and place about \( \frac{1}{4} \) of pumice or coarse sand on top to hold the seeds in place, and wait. Some growers place a cloth over the trays to keep the seed from spashing out. The cloth is weighted down by pebbles. Germination for the "natural way" takes somewhere between 2 and 8 weeks, and one can expect about a 75% to 80% germination.

The second method (and one that I use) is to start Primula seed in a controlled environment. I use this method on all except those seed that require direct sun for germination, like the \( P. sapphirina \). I press the seed into Redi-Earth, sprinkle about \( \frac{1}{8} \) to \( \frac{1}{4} \) of Redi-Earth over the seed, spray with a heavy mist until the tray is very damp, place a sheet of glass over the tray and set it on the lower shelf of a heated greenhouse. Daytime temperature is kept between 50 and 60°F. One should expect about 95% germination within two weeks.

I have not found freezing the seed, scoring or any other method of jump-starting seeds very beneficial.

After pricking out the seedlings (when the first true leaves appear) I place the trays of ungerminated seed outdoors where I leave them for 3 to 4 years!

When pricking out new seedlings, a word of caution. There is a time when the heavier, thicker permanent roots are just beginning to form and the initial fine hair-like root system is just about depleted. To transplant at this time is very dangerous. The problem develops because the food supply is cut off when the fine root system is damaged and the permanent roots are temporarily checked from growing.

If a person finds himself in this situation of having waited too long to transplant (I do it all the time), it is much better to wait until the permanent root system is established and able to supply the necessary food for the plant.

I would like to note that I do find intermediate transplanting very beneficial to keep the young seedlings growing at a rapid rate. If kept growing at a good clip, oftentimes primroses will flower within the first year and auriculas will bloom within the second year. Otherwise a person will have to wait a third year to see the results of his labor.

Another point to remember — Show Auriculas are grown for pot culture and should be grown on in pots; they may not grow well in the ground. I have found that many plants which grow well in the garden, do not do well when grown in pots; and vice versa. It is indeed heartbreaking to see a potential award winning seedling grown in the garden flounder in a pot because its root system cannot adjust to restricted growth.

Seedling Green Edge - Best in show, 1969

Gray-Edge Seedling by Rae Berry
OFFSET AND DIVISIONS
To obtain a plant with true show qualities from seed is difficult. Because of the unknown parentage of the Show Auricula, a hybridizer can expect just about anything to show up when it blooms. Many are deformed or monstrosities, lacking any of the point qualities.

Because the flowers do not come true from seed, about the only way to start a collection of Show Auricula is to take offsets from named plants.

The best time to divide (take offsets) and repot is in late Winter or early Spring. This allows the maximum time in the growing cycle before the summer or winter dormant periods. Many publications indicate that the best time to repot is right after the plant blooms. I have not found this to be the case. A late winter repotting will not check the bloom cycle; if anything, the fresh soil allows the plant and flowers to become more vibrant.

It should be noted that transplanting can be done from late Winter to early Fall. Care should be taken to avoid transplanting in the late fall when early freezes can damage a plant before it becomes established. I am always getting caught!

Early summer transplants might find the root systems damaged by a hot mid-summer drought period.

A few words on size and type of pots. When starting from seed, I try to transplant three times before maturity. 1) From the seedling tray into the pony pack; 2) from the pony pack into 2½" plastic pots; and 3) from the 2½" pots into 4½" plastic pots.

I try to repot my named plants each year. This give me the opportunity to examine each plant, especially the root systems. After a couple of years of examining auricula root systems, a grower can get a pretty good idea of how well the plant grew that year—if it needs more enrichment in the soil, and the diseases and pests that affected it.

If the root system looks sickly, the plant is not healthy. When examining the roots, if the ends are brown and decayed, it is a sign you had better start doing something about the growing conditions. These signs of damage can point to insects in the soil (most likely the problem), poor soil, or a fungus.

A grower can expect a small amount of dead tissue on the tips of the roots on the older root systems while the newer roots are forming. I mention this problem with the roots only because many of the auriculas, grown under glass, I have received from other growers show poor root structures.

I also repot each year to take the offsets, and to start preparing the plants for possible showing. Transplanting each year is not required if the plant has adequate nourishment.

Clay or Plastic pots? So much has been said about the merits of plastic versus clay pots, I will not rehash the discussion. When I first got started growing auriculas I put them all into clay pots and had excellent results; but to tell the truth, I found it a chore in summer to keep the thirsty pots watered; and I started having nightmares about washing and scrubbing all those clay pots.

I have found plastic pots adequate, but they need a little more watching to avoid over-watering. Plants so potted also need a little more shade in the summer months. Clay pots will keep a plant cooler in summer by evaporation through the clay.

ALPINE HOUSE CULTURE
As with most alpine plants, culture in a greenhouse is not difficult if:
1. Treatment of insects is accomplished as soon as an infestation occurs;
2. A person is very careful about watering;
3. The proper amount of shade is used;
4. And there is good ventilation at all times.

Almost all problems of growing Show Auriculas can be traced to insect or bugs. Some of the worst damage can result from the sciarid gnats or maggot. This is a very minute transparent worm that riddles the crown, allowing rot to take hold and forcing multiple crowning. A person can notice the small gnats (there are about three varieties) hovering about the plants and on the soil. The gnats love peat, but will survive in just about any soil. A strong systemic insecticide has been found to be most useful. I use temik. I should add, I use temik very, very carefully.

The other bugs that cause problems are cutworms, green worms, and root aphids. I have found temik most helpful with all insects, but only use it for the sciarid maggot and root aphids. For cutworms, green worms, etc. there are many products on the local garden shop shelves to help.

Watering. A nuisance about auriculas is that they vary in their demands for water. Some cultivars require water constantly, while other cultivars seem never to need it. This is why in most of the old culture information, they expound upon hand watering of each plant. Rule: water only when the plants need watering.

During the Spring an Fall growing seasons, the soil should be kept moist, never allowed to dry out. Drying of the roots at this stage will check growth of plant and flowers. In Summer and Winter months, the soil can be somewhat dryer.

During the summer months, ventilation becomes a problem, and if adequate ventilation is not available in the alpine house, the plants should be moved outdoors, under some deciduous tree or partly shady area.

Shading is far more important than first thought by most growers. To get the large leaves and large umbels, a balance of shading and watering is required. More shade, hold back some on water; less shade, little more watering.

Auriculas can be grown in full sun in many regions of the country, if given the proper water and soil conditions. The plants have a tendency to appear yellow, small-leaved and have dwarfed umbels if these needs are not properly met.

I quickly learned that plants on the floor under the bench in the alpine house did much better than those on the benches under glass shading (whitewash). Now, I put a shading cloth over the plants in the alpine house. This allows me to have shading on the upper plants while the lower plants have the opportunity to get some sun through the clear side panels.

Ventilation is simple—give as much as you can in the summer months and almost as much during the winter months. Only during very deep freezes with windy conditions do I close the louvers on the alpine house to protect the plants from wind/freezer burns.

A quick word about tidying up in the alpine house. I have not found the dried leaves around the plant detrimental to the growth or health of the plant. I suppose they could harbor insects and rot; but I have not found it so. The main reason I pull off the dead leaves is for appearance sake. And I usually do it right before a guest shows up.

IN THE GARDEN
Alpine Auriculas grown in the garden require very similar conditions as those
in the alpine house.

1. Watch for bugs. For some reason the sciarid gnat is not such a problem in garden soil conditions, but the strawberry root weevil is. Root weevil can be controlled with diazinon if the grubs are still working.

2. Watering. Here again, in shady areas the plants do not require so much water; but in the sun, apply a little more during the growing seasons.

3. Partial shading is desirable in the summer, but the plants can be grown in full sun or very shady areas too. Soil conditions and drainage are more important.

Auriculas can grow very well in the rock garden and other areas of the garden. The soil should be well drained, rich in humus, and have a somewhat neutral pH reading. Extreme care should be taken about over-fertilizing. A little goes a long ways with auriculas; a little manure is re-

ally all it takes. I work it into the soil when dividing about every three years and spread a little around the plant "when I get to it."

I try to divide about every three years, but must admit I do have some very large beautiful clumps that have been "untouched" in the ground for over six years.

If any primula appears to be suffering in its present location - sometimes just moving it a few feet into a different bed can make all the difference.

Winter protection? Yes, if required on other alpine plants in your garden. Snow cover is wonderful, especially if the area is subjected to dry freezing winds. A leaf mulch, if removed in the very early spring, can be of some help.

Let me finish by saying I see no reason why auriculas cannot be grown on the East Coast, and any other areas of the country if a balance of shade, ventilation and water is achieved.
The Auricula Month by Month
by C. G. Haysom, England

(37 years ago, 1953 to be exact, the following brief material was published in this Quarterly. Haysom, one of the most successful growers of Show auriculas in the world, lived in Totten, Southampton, England, and wrote frequently for these pages — Ed's note)

There are but few secrets worth knowing in the cultivation of the Auricula. They are four in number: (1) A sweet wholesome compost must be used. (2) The utmost cleanliness must be maintained. (3) Plenty of fresh air and no coddling. (4) Careful attention should be paid to watering. The plants must never get dusty, nor ever sodden; both are great evils. The happy medium is what is required.

July: This month no active growth will be perceptible, still the plants will be working underground and must be encouraged. As in June, there should be no excess in watering, only just enough to keep the roots on the move.

August: The second season of growth will now begin, and should be encouraged as much as possible to secure fine heads of bloom in the Spring, and for this, good Autumn growth is essential and plants kept free from green-fly.

September: In this month the plants will need all the air possible, and exposure on all favourable occasions. This will help to secure a good sturdy, healthy growth, and to enable the plants to pass safely through the Winter. Too much attention cannot possibly be given to watering and cleanliness. It is attention to these apparently trifling matters that enables some growers to outdistance others.

October: Plants that have been standing in the open in shaded summer quarters should now be placed in the cold house or frame for the winter and they should be given the benefit of all the autumn sunshine possible before they go to rest. As soon as the plants show signs of this, the watering should gradually be decreased.

November and December: These are two critical months for the Auriculas, but with care and attention they will pull safely through. Abundance of fresh air must be allowed, and the plants kept as dry as possible overhead. No water must lodge in the heart of the plant, and the soil must be kept sweet. If the soil should become sour from damp, mischief will follow. Very little watering will be necessary, still, if the weather be open, a little will sometimes be necessary to prevent the plants from becoming dust-dry, which is at all times a source of great evil.

January: During this month the Auriculas will be preparing for active work for the three following months, and will require little attention beyond seeing that the soil never gets too dry. In open weather abundance of air must be admitted and the plants kept clean by the removal of all decayed leaves.

February: This is an active month. If the weather remains open the plants may be given more water than they should have received since October. All offsets large enough for removal should be taken off whether they have rooted or not. Those without roots will soon become rooted if placed round the sides of pots, and those with roots attached must be planted into 2-inch pots, and for these a little extra leaf mould or Sorbex is a useful addition to the compost. The surface of the soil around the old plants will need to be stirred, and a little fresh soil added where necessary. The old-fashioned way of removing about 1 inch or so of soil, and adding a very rich compost, is a complete waste of time.

March: During this month more water may be given, care being taken that the soil does not become sodden. On some varieties the bloom will begin to show and watch should be kept for green-fly, and as at all times when this pest appears, fumigation should be given at once. Always maintain a free circulation of air, only closing the house or frame in the event of frost which may damage the earliest blooms. Covering with paper at night will do much to protect them from frost.

April: This is the month that determines whether the previous eleven months' work has been sound or faulty. With the advent of this month stray blooms will begin to appear, and by the third week the plants should be well in bloom. Careful attention must be paid to watering, for it will be fatal to the bloom should any plant become too dry. As they come into bloom the early morning sun is beneficial; but in the middle of the day, when the sun is bright, they should be protected. When the plants are well in bloom hot sun must never reach them or the bloom will soon spoil. Abundance of air must be given and the plants kept as cool as possible. If required for exhibition some of the blooming stems may require support, and the pips will want arranging in some cases to show the truss off to the best advantage.

May: As the plants go out of flower, re-potting can be commenced. The compost should consist of 2 parts of good fibrous loam, 1 part well decayed leaf-mould or Sorbex and 1 part coarse sand. To a barrow load of this compost add a 5-inch potful of steamed bone flour and some finely crushed charcoal. When obtainable some well rotted cow manure can be used. After shaking out the plant from the old soil, examine the root stock and if this is found to be decayed, cut it back till it appears quite sound and dress the cut with powdered charcoal and lime. Should any root aphid be present, wash the roots in a nicotine insecticide. Potting should be done with perfectly clean pots using 3 or 4-inch pots according to the size of the plant and under-pot rather than over-pot. All offsets not taken off in February should now be taken and dibbled in round the edge of small pots. After the plants have been re-potted, if possible stand them out in the open in a cool place shaded from hot sun such as under a north wall and cover the plants in the event of heavy rain. If no outside position is available, the plants should be kept shaded and as cool as possible in the house or frame. Watering should be done very carefully until the plants have become established.

June: This month should see all repotting finished. Just sufficient water to keep the plants from flagging is all that is necessary so long as they are kept clean and cool.
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Auricula Brings Velvet, Perfume to Garden
By Florence Bellis

Dug in frantic haste and pushed into eagerly waiting hands; carefully placed with the few treasures the Huguenots planned to carry with them across the channel to England — this is the history of the Auricula's entry into the British Isles. The flight of the Huguenots from the Continent was in the latter part of the 16th century when the fascinating beauty of the Auricula and its hybrids was still new.

For Auriculas were first cultivated about 1570 in the Viennese gardens of Emperor Maximilian. A passion for gardening had seized upon the noble ladies, and the peasantry was kept busy running up, down and over the Alps searching out beautiful alpines. In this manner Primulas Auricula, Pubescens, Longiflora, Clusians and Minima were dug, basketed and delivered to the garden-loving aristocracy.

Caught up in this horticultural fever, the emperor invited Clusias, the most famous botanist of the day, to Vienna, conferring the honorary title of court.
But this was just the groundwork on which to build. For men have devoted entire lifetimes to the improvement and perfecting of Auriculas. When one, considers the texture, smoothness, perfection of paste (eye), roundness, size and exquisite coloring of the Auriculas in cultivation today, one wonders what room remains for further development.

Yet James Douglas, in England, who is probably the most outstanding breeder of Auriculas of the generation, is breeding more beautiful ones as each year goes by.

There are four classifications of Auriculas: the original yellow Auriculas; the Alpine Auricula of many colors developed through cross-breeding; the Florists' or Show Auricula, a highly perfected Alpine type, and the Border Auriculas, which might be said to include all those not filing themselves under the other three groups.

To begin with, the genuine Auricula made a natural cross with P. Hirsuta, a lovely but promiscuous alpine primrose that will bear anyone's children.

Hirsuta's large, bright pink or mauve blooms stud over the toothed and hairy leaves in a very charming way, and this cross with the genuine Auricula produced P. Pubescens, another hairy primrose with longer scape and a wide range of colors. Pubescens then crossed with each other and recrossed back to one or both parents and back once more with the original yellow Auricula to produce the garden Auricula of many colors with the texture of silk chenille.

Douglas seedling - Alpine

The points of a perfect Alpine are a well-formed flat bloom; tube filled with anthers; center yellow, cream or white and devoid of farina, and the outer portion of the bloom a zone of some dark color shaded to a paler tint.

Show Type Exacting

The points of the show type are, of course, more exacting.

The bloom must be round, smooth on the edge and perfectly flat. The tube yellow or lemon, round, filled with anthers, hiding the stigma from sight.

The past, or eye, should be perfectly circular, smooth and a dense pure white without crack or blemish. Ground color forms a perfect circle next to the eye, and the edge of the blossom should be another equally perfect circle of green, gray, white or an unshaded self-color. The stem should be strong and sufficiently long to bear the truss well above the foliage.

Form is not of such paramount importance in the Border Auriculas. Instead, robust-growing plants with great trusses of large and brilliant blooms that may be either ruffled or flat is the object, the idea being an effective mass of color in the border.

Auriculas are as easily grown as our well-known English primroses if one or two of their wants are catered to. They grow well in morning sun and afternoon shade in well-drained, wholesome, rich soil with plenty of moisture during the dry season. They like irrigation rather than overhead watering and are very unhappy under dripping trees or shrubs in the winter time.

Drainage Vital

The matter of drainage is a vital one in the life of an Auricula. Work in a little gravel or oyster shell if you are in doubt about your soil and then put an ample layer of the same on top of the ground around the crown as this is their sensitive spot. If allowed to sit in winter puddles, they will surely rot and vanish to bloom no more.

Bonemeal worked in the soil when planted and barnyard fertilizer around the plants in the fall and forked in lightly in the spring is a safe way to feed.

The English have adopted the Auricula wholeheartedly and their Auricula shows are fairylands of color, form and fragrance.

The names of some of the old varieties were given centuries ago and Misstris Bugg's Purple, Tradescant's Leathercoat, Grime's Privateer and Popplewell's Conqueror were some of the quaint tags pinned on them.

The species has called forth a more than just share of names, but whether known as the Swedish primrose, Swiss primrose, Tawny Bear's Ears or Mountain Cowslip, the Auricula by any name would smell as sweet.
A Newly Described Primula from Northwestern Alaska

by G.K. Fenderson, South Acworth, N.H.

Abstract: Primula anvilenis (Primulaceae: Farinosae) is described as a new species endemic to the Seward Peninsula of Western Alaska. It is distinguished by its delicate stature, efarinose denticulate leaves, and umbels of small white flowers subtended by plane bracts. It grows in snowbeds and damp calcareous slopes along rivers. Although first collected in the early part of this century, it has been confused with several other taxa, including P. borealis Duby, P. parviflora Duby, P. tenuis Small, P. chamissonis& Busch, P. stricta Hornem, and P. mistassinica Michx.

In a recent issue of Systematic Botany (Vol. 12, 1987) Sylvi Kelso of The University of Alaska Museum and Department of Biology, Fisheries, and Wildlife at Fairbanks, Alaska described a primula from Alaska that she felt had not been given correct status by previous authors who had dealt with the Primula flora of the area.

Ms. Kelso has segregated this attractive small plant from its near ally P. borealis Duby on the basis of its white corolla (usually violet in its ally), the smaller size of its corolla, the tube that only equals or slightly exceeds the calyx, and the bracts that are flat (plane) rather than pouches (saccate) or swollen (gibbous) at the base.

The plant is recorded as locally abundant in the Nome area and seems to be restricted to soils derived from calcareous substrata and by topography (occupying the low hills, rather than the steep rugged mountain sides).

In her treatment of the primulas of the Bering Strait area Ms. Kelso notes that her taxon has been variously misidentified with P. tenuis Small and P. stricta Hornem, the former she considers as a "local ecotype of" P. borealis; the latter (P. stricta) is a quite unrelated plant with a distribution between the Northwest Territories and Greenland. Its recorded occurrence in northwestern North America have been misidentifications, as with Hulten (1968).

| Table 1. Characteristics of Primula anvilenis, P. mistassinica, and P. borealis (sect. Farinosae). Data from Kelso (unpubl.) and Vogelmann (1956). |
|---------------------------------|-----------------|-----------------|
| Characteristics                | P. anvilenis    | P. mistassinica | P. borealis   |
| Corolla color                  | White           | Violet, rarely white | Violet, rarely white |
| Corolla width                  | 3-5 mm          | 8-10 mm         | 10+ mm        |
| Flowers/umbel (mean)           | 1-5(2)          | 1-6(3)          | 2-9(5)        |
| Pedicels                       | 2-4 x length of bracts, pendant | Slightly exceeding bracts, upright | Saccate |
| Base of involucral bracts      | Flat            | Flat            | Present       |
| Farina                         | Absent          | Absent          | 2n = 36       |
| Chromosome number              | 2n = 18         | 2n = 18         | 2n = 36       |
| Habitat                        | Wet calcareous slopes | Cold calcareous bogs | Estuarine marshes |
| Range                          | Seward Peninsula, NW Alaska | Newfoundland to Northwest Territories, rare in Yukon and Alaska | MacKenzie River, south through Bering Sea region |

Primula Sieboldii
by Carl Starker,
Jennings Lodge, OR
(Reprinted from 1968 Winter Quarterly)

Primula Sieboldii, a native of Japan, is a much neglected and almost forgotten species. Fifty years ago it was a much sought after plant. The gardener will find it a delight, as well as an easy plant to grow. Why it is not more popular is a puzzle, for its wants are small and the show it puts forth at blooming time is truly delightful. In hot weather the foliage disappears, but may return with the fall rains. The leaves are erect, hairy and irregularly dentated. The flower scape may reach a foot, but is usually somewhat shorter and will produce from three or four to eight or ten blooms. The corolla tube is narrow and the limb divides into five segments, each of which again divides into two lobes which forms a five-pointed star somewhat like the corolla of an alpine phlox.

This lovely species was first introduced into England in 1865 and has produced a wide variety of forms and colors. The named varieties are many and differ in features of corolla, frilling of petal margins and color shades which range from pure white through pink, rose and lavender. It is perfectly hardy in New England where it has been grown with much success. Growth usually ceases early and by the middle of July the plant is dormant. In the Northwest it starts growth in March and is in good bloom by late April.

After flowering, the buried rhizomes make active growth and the increase is considerable. Little seed is produced, but rhizome division is an easy means of propagation. Hand crossing is not difficult and lovely color forms can be produced.

My first Sieboldii came from K. Christiansen, bulb specialist and grower in Victoria, B.C. From these plants purchased about 1930 I later produced many hybrids and at one Primrose Show in Portland won a silver cup for a pan of eight different colored fringed petal Southern Cross.

Dora was an exquisite lavender blue with rounded petals of real charm, and Dorette was a seedling of Dora but deeper toned.

Amos Perry in England listed quite a few named sorts around 1928-1935. I got from him the lavender Southern Cross and another called Little Rosebud, which from the catalogue description sounded most alluring; however, it was not better than some of my seedlings. It has a heavy texture and rounded petals, attractive buds and blooms in a deep rose tone. It is a prolific bloomer and a good propagator. I think my favorite is the delicate white and lavender fringed petal Southern Cross.

Primula Sieboldii, laced white
The Board has asked that we announce the availability to members and friends of the last edition of the "Pictorial Dictionary of the Genus Primula" in a Xerox copy machine edition. It is emphasized that this is a copy, NOT a new or printed edition, not a reprint – so you can expect the photographs (which were not top quality in the first place) to be less than perfect. Still, we have had so many requests for this wonderful little book that it is being made available in this form. Send your check for $7.50 for each copy you desire to our Treasurer, Brian Skidmore, and when 50 or more orders have arrived the copies will be made and yours dispatched to you in the mail.

**The APS Photo Show**

The Photo Show closed on June 15 as scheduled with a disappointingly small number of entries. A number of classes received no entries at all, others only one or two. Judging will take place in the latter part of July with winners to be announced in the Fall issue. If you got in entries at all it is very likely you will be receiving some sort of prize. Anyway, watch for results next issue. The quality of the pictures we did receive was very good.

**Information**

**Doretta Klaber Study**

In 1986 the Doretta Klaber Chapter sponsored a series of six (it turned out to be only 5) meetings to study primula culture, and try to solve some of the serious problems of growing our favorite plants in this area. An enthusiastic group to 12 or 15 registered for the study, which, at its very first meeting plunged into a series of seed planting methods, some of which were quite novel (like growing on a brick, or Marge Edgrens paper-towel-in-a-baggie method). At each meeting a new potential problem area was discussed; prickling out, hybridizing, summer care, overwintering, etc. Enthusiastic discussion and participation marked every session, and some important conclusions were reached. First of all, it was ascertained that the following were not unique or particular problems with us here in the East: seed germination, prickling out, transplanting, or dividing. Two areas did present themselves as serious problems: summer care, and over-wintering.

**Over Wintering.**

This is the really tough one. Winters here are cold with little or no snow cover and frequently drying winds. The biggest problem seems to be heaving when the frost comes out of the ground in spring. This is especially true of plants set out the previous fall or summer which have not become sufficiently root-anchored to stay right side up when the moment of truth comes. The following is recommended. Construct a nursery bed for your primula seedlings (other things do marvelously in this bed, too) by raking a generally shady place a thick (about 18") layer of leaves and treading them well down so they will not blow about. If blowing is a problem spread a thin layer of compost over them - just enough to keep them in place - or in beds specially prepared for mugs. Primulas do not care for these conditions and will respond to them by languishing and actually dying unless they receive the following care. Plant in partly shady situations, with perhaps 3 or 4 hours (no more) of sun in the forenoon and protection for the rest of the day. Planting should be in a fairly rich and well-drained soil. In and among rhododendrons seems to be a good place, or in beds specially prepared for them. Frequent, (sometimes even daily) light watering, especially when it is hot and even if it is muggy will keep the plants crisp and growing well into fall.

**Summer care.**

The summer climate of the Delaware Valley is apt to be very hot and the humidity so high as to create conditions we call "mugs." Primulas do not care for these conditions and will respond to them by languishing and actually dying unless they receive the following care. Plant in partly shady situations, with perhaps 3 or 4 hours (no more) of sun in the forenoon and protection for the rest of the day. Planting should be in a fairly rich and well-drained soil. In and among rhododendrons seems to be a good place, or in beds specially prepared for them. Frequent, (sometimes even daily) light watering, especially when it is hot and even if it is muggy will keep the plants crisp and growing well into fall.

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and perky transplant in rows into the nursery bed. You may continue to plant here all summer, up to September 15. Water frequently and well but provide no other care. The plants simply stay in this bed all winter, where they grow enormous root balls that simply do not upend when the spring thaw comes. Come spring, dig carefully and transplant into permanent locations. By fall these big plants will be established enough to make it on their own next winter.

Book Review


Review by Kazuo Hava, Nagona, Japan

For the past one and a half decades several books on P. sieboldii have been published here in Japan as the cultivation of P. sieboldii revived and became popular again. Among them it is safe to say that this book will be counted as one of the best and most monumental works in this field.

It is said that there are approximately 500 to 600 named varieties of P. sieboldii which have been continuously cultivated since the early 18th century. However, it has long been a matter of dispute whether there are a lot of varieties with different names whose flowers look the same or have much similarity to each other. This was caused by the fact that in the 19th century there were many groups of P. sieboldii lovers, groups so closed and exclusive that each group sometimes gave its own name to the same variety. Besides, the differences among varieties are very delicate and subtle, and in some cases can only be distinguished one from the other by the length of the pistils, or some other such obscurity.

In order to solve the problems, Nihon Sakurashoh-kai, the largest society for P. sieboldii lovers in Japan, has been making efforts to re-arrange and categorize the variety names. So far 261 varieties have been registered and authorized by the society; based on elements like the color of corolla, type and form of corolla, length of pistil, shape of leaf, shape of rhizome, etc. This book illustrates 206 of those varieties, approximately two thirds of the total, with superb color photos. Mr. Tsuneo Torii, president of Nihon Sakurashoh-kai, categorizes the varieties into 4 groups; namely, Gigantic Flowers, Large Flowers, Medium Flowers and Small Flowers. He describes the characteristics of each variety, when it was raised, and brief references to similar varieties. The superb and beautiful color pictures in the book characterize each variety very clearly. It is just a matter of regret that purple and lavender did not appear well and look rather reddish in the pictures. An English name is given for each variety, raising question as to correctness of transliteration from the Japanese names, but this is a trifling matter.

This book also features some wild forms of P. sieboldii from several places in Japan, and several major primula species native to Japan (with Latin names). In the final pages, the classification of flower forms, the history of culture and cultivation of P. sieboldii, the traditional style of cultivation are illustrated very comprehensively and in detail, though unfortunately for English readers, all in the Japanese language.

Although Auricula and Sieboldii belong to the same genus, the beauty of each is quite different, because they have been raised and cultivated to a different aesthetic standard and value. I feel that Western gardening people do not yet have enough understanding of the Japanese aesthetic values to appreciate traditional Japanese cultivated flowers like P. sieboldii. We too have a long tradition of gardening and plant culture. You should be able to touch the aesthetic pulse of the Japanese by looking at this superb color picture book of P. sieboldii. And I hope this book will contribute, even a little, to the establishment of a new hobby in Primula culture in the future, since P. sieboldii of Japan is the only primula species in the world (except those of Europe) that has reached such a high level of primula development.

So many members asked for Gladys Krohn's recipe for the bread she furnished at the WSPC Show, we decided to print it in the quarterly:

**REFRIGERATOR CHEESE BREAD**

- 7-8 cups of flour
- 2 pkgs. dry yeast
- 1/4 c. sugar
- 1 Tbsp. salt
- 2 c. water
- 1 c. milk
- 3 c. shredded cheddar cheese (12 oz.)
- Butter, melted

Thoroughly mix 3 c. flour, sugar, salt & yeast. Combine water and milk; heat to 120-130 degrees. Gradually add to dry ingredients and beat 2 minutes at med. speed. (If you prefer, you may dissolve yeast in liquid before adding to flour.) Add 1 c. flour and beat at high speed for 2 minutes. Stir in cheese and enough additional flour to make a soft dough. Knead 5-10 min. until dough is smooth. Cover with towel - let rest 20 minutes. Punch down. Divide into half. Roll out each piece into a 14" by 9" rectangle. Beginning on short side, roll up tightly. Pinch seam to seal. Seal ends of loaves. Place in 2 buttered 9" by 5" by 3" pans. Brush with melted butter and cover loosely with plastic wrap. Refrigerate 2 to 24 hours. Remove from frig and let rise till top of bread is level with top of pans. (Recipe says 10 minutes but this usually isn't long enough) Bake at 375° for 35-40 minutes. Remove from pans and cool on rack.

Tropisms

There are plant movements known as tropisms. These are better understood than leaf movements as they have been known and studied for a long time. Everyone who has ever grown a plant on a windowsill has observed phototropism. This is the leaning of a plant toward the source of light.

To define a tropism would be to say they are plant responses to environmental influences. The response is movement in the direction of the particular influence. Our windowsill plant responds to the light outside and leans toward that light.

Roots grow downward. This movement is in response to the earth's gravitational pull and is called geotropism.

There is another common plant movement which is the response to touch called thigmotropism. An example would be the twining of vine tendrils around anything they touch. Another example is the sensitive plant and the closing traps of the Venus fly trap - even the leaf folding at night which gives the Marantas their common name of prayer plant.

Other movements include responses to water, hydrotropism; response to chemicals, chemotropism; and a response to temperature, thermotropism. These aren't easily seen and therefore are less noted by the non-botanist.

An understanding of these plant movements should help us to be better growers.
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"Primula sieboldii E. Moren", a book about P. sieboldii by Mr. T. Torii, full of magnificent, superb and clear photos throughout; illustrating 205 varieties, both old and new, of P. sieboldii together with some major wild Primulas native to Japan, featuring lots of varieties raised from 18th century to date, its history, character and cultivation. English names attached to color plates, 285mm x 215mm, 151pp., hardcover. Japanese ¥6,700 or US$42 incl. p/p. Checks and money orders should be made payable to ALBIFLORA, Inc. We are the ONLY ONE in Japan who offer you any books and magazines related to gardening and plants of Japan. Enclose 2 Int'l Reply Coupons per inquiry. ALBIFLORA, Inc., P.O. Box 24, Gyotoku, Ichikawa, Chiba, 272-01 JAPAN.
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