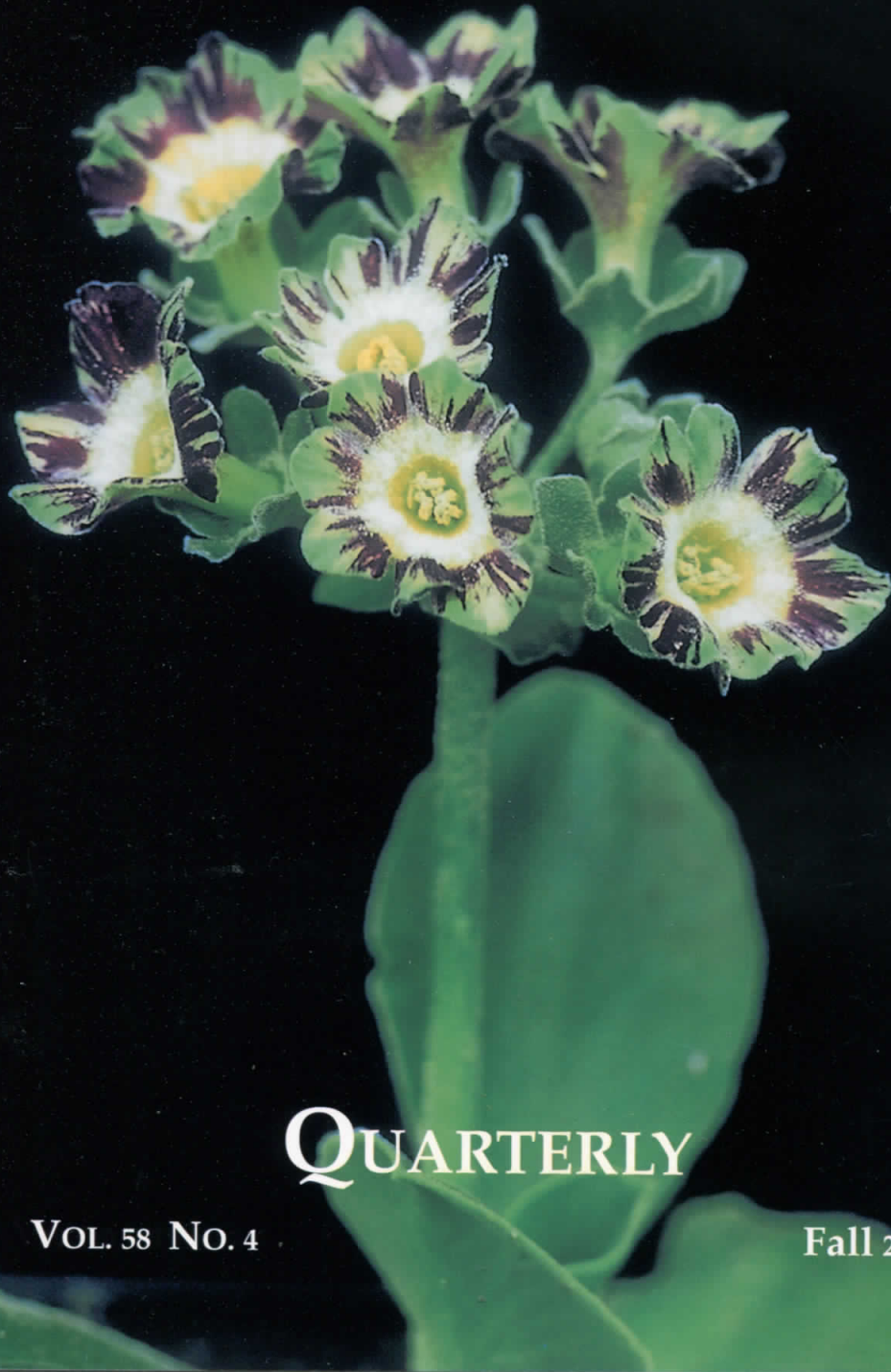


Primroses



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COVER PHOTO:

Al Rapp's Striped Auricula
 Photo by Cy Happy

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President's Message

Greetings from Alaska,

It's been a busy summer up here with more rain than we would like but the Primulas have thrived and are being divided and replanted now. I am enjoying rebloom on some polyanthus, auriculas, and marginatas and *P. capitata* is still blooming. Slugs, porcupines and bears have also been active this summer but luckily only the first one is a threat to my Primulas.

Tomorrow, September 13 I leave for China on the Alaska Rock Garden Society Expedition. It should be quite an adventure and I've watched the weather maps showing the monsoons continuing longer than usual. I should feel right at home in the rain. Since this is my first trip out of the country, there will be lots of new experiences to share with our Team and pictures to be taken for future slide shows. Hopefully we'll find some good Primula seeds and lots of others too. Speaking of seeds, I hope you are all sending your seeds to Ruby for the Seed Exchange this winter!

If you have no seeds to send to Ruby, then you could be writing articles with photos of course to send to Candy for the Quarterly. She is catching up on our issues and needs all our help to make the Quarterly a magazine to enjoy.

The National Show at the Alaska Garden Conference this past May was truly a great gathering of beautiful Primulas and lots of people saw plants they never knew could be grown in Alaska. Now there are a bunch of Primula growers who can no longer call themselves novices as they won blue ribbons for their plants. Dr. Roger Eichman and Marie Skonberg became full qualified Judges under Rosetta Jones expert supervision. Marie also gave a terrific workshop with beautiful slides of her efforts in growing Primulas at Ouzinkie on Spruce Island. Our plant sale table saw people lined up 2-3 deep to buy plants or books so they could learn more about our favorite genus. We signed up new members and resigned some old ones. We all enjoyed the other programs and workshops during the Garden Conference.

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The Striped Auricula

By Allan Hawkes

Around three hundred years ago in Britain, there arose great fervour for striped flowers of all kinds - striped roses, striped auriculas, rare because in those days the mechanics of pollination were not fully understood and only the odd occasional auricula plant, by some fluke of chance, bore the highly desirable striping. Such auriculas were sold for high prices and evidently gave considerable prestige to their owners.

We know exactly what these striped auriculas looked like as the famous artist Georg Ehret, who lived in England for some years, produced around 1744 meticulous water-colours of four famous varieties: 'Duke of Montague', 'Duke of Cumberland', 'Empress of Russia', and 'Glory of Chilton'. This latter one is by far the most interesting, more of that later. The original water-colours are in the Victoria and Albert Museum in London.

Later in this eighteenth century, during the closing years of the reign of King George the Second (who was the last King to lead personally his soldiers into battle) the fascination for striped flowers began to wane, probably partly a change of fashion but the influx of amazing flowers from newly discovered countries may well have hastened the departure of the old and familiar and they were all soon forgotten.

Two centuries elapsed before there was any effort to re-create these aristocratic striped auriculas, which were,

of course, of the 'Show' type with a dense centre of white meal (the 'paste') to the pips and with precision markings throughout. In his book 'The Auricula', published in 1951, the author Rowland Biffen (later Sir Rowland) showed a photograph of a striped auricula he had eventually managed to produce in his experiments. Admittedly, this auricula was by our standards, a poor thing, being pin-eyed, but Sir Rowland was purely a botanist and the niceties of pin and thrum were, to him unimportant. Shortly afterwards, he died and his plants were lost.

Thirty-odd years ago, another attempt was made to resurrect these fascinating Stripes, using as pollinator a gift seedling which allegedly had shown signs of striping. Even so, for some years the seedlings from its pollen, when inter-crossed, showed little sign of striping and, when they did, it was accompanied by horrible shape and paste and all too frequently by pin-eyes. Pollen from one or two other show auriculas was introduced and slowly things began to improve and the Stripes began to be exhibited, of necessity in the Classes for Fancies as there was then no separate Class for Stripes.

This exhibiting brought one great bonus in that a few other growers were attracted and several of them started their own breeding program for Stripes, Allan Guest, Derek Parsons and Adrian Orchard were in the van, although others joined in later. Mention must be made that Ray Downard, using pollen from the old Fancy, 'Rajah' on a pin-eyed Stripe of unknown provenance which came his way, produced the very good Stripe 'Arundell'. This brings us up almost to the present. Modern Stripe seed produces a quite high proportion of

striped plants, although obviously not all will be worth keeping.

There are now separate Classes for Stripes at all the Shows and they are well supported - at the Show at Saltford in 1999, the Class for single Stripes had 49 entries. This has encouraged others to raise seedlings in this quest for perfection. Most of the early faults have now been eliminated in present day varieties. They all have the very desirable small, neat tube and usually a smooth and well defined paste. The old bugbear of ragged edges to the petals is fast disappearing.

These modern Stripes are showing a wide range of colours, almost every combination that can be imagined, some occurring in no other type of auricula. There is one target we are all aiming for, though. 'Glory of Chilton', mentioned earlier, had bright yellow petals striped with black. Nobody has yet managed this colouring, although yellow with brown striping has arrived.

I am certain we shall succeed in creating another 'Glory' and then there is another entrancing vision before us..... the Painted Ladies, mysterious things, mentioned almost with awe in old writings, so rare that few people had even seen them, precisely striped in several colours and then overlaid with a thin veil of white meal. That will be the day!

Raising Modern Striped Auriculas

This is the story of a programme aimed at raising striped auriculas. It starts in 1989 in the U.K. with a packet of 'Mixed Stripes' seed from Allan Hawkes and is brought up to date in the year 2000 with the existence of 140 named striped auriculas. The programme is continuing.

The earliest history of striped auriculas goes back to the beginning of the 17th Century when 'stripes' were one of the first groups of auriculas to be collected. They were of poor quality judged against today's show standards but were improved over the next 150 years until they reached a peak with plants such as 'The Glory of Chilton'. This was captured in a painting by Georg Ehret in 1744 and shows a strong plant with numerous pips, black, striped with glowing gold, a small tube and dazzling white paste. The flowers are funnel shaped but the striping is spectacular having sharply differentiated colour boundaries and smooth petal edges. The striping is random and not of even width and to my mind is similar in type to the striping seen on camellias and old fashioned roses. Much effort has been put into reproducing similar 'stripes' for today's show benches but although hundreds of striped seedlings are evaluated each year we have yet to see one of the same type and quality as 'Glory of Chilton'.

There is no doubt that at least two types of striping occurs in show auriculas. The type shown by Glory of Chilton is produced by two layers of coloured cells on the petals, a lower layer of yellow pigment cells covered with a top layer of cells containing soluble hirsutin, in this case coloured almost black by the acidity of the sap and the high concentration of hirsutin. This layer has incomplete radial strips with the yellow pigment layer showing through these giving an effect of yellow stripes on a black petal. Modern 'stripes' are not striped due to this effect but by the mixture of two (or more) types of petal tissue arranged alternately and radially on the flower. These tissue types may well grow at different rates giving modern striped auriculas the typical 'nibbled' petal edge. In some instances one of these tissues will be identical to leaf tissue and if this is covered with farina the effect of grey or white striping is seen. Since farina inhibits the growth of leaf tissue auriculas with white striping often show the most extreme form of the 'nibbling' at the petal edge. Having said this, careful selection of the seedlings used in striped breeding programmes has produced modern auriculas with minimal unevenness at the petal circumference, small tubes, good central pastes and striping covering the complete range of show auricula colours – red, blue, brown, yellow, green, grey, purple, pink. This striping is not as well differentiated at the stripe interfaces as in Glory of Chilton but is still complete (reaches from paste to petal edge), can be well contrasted and is most eye-catching.

Having reached a peak of development with the Glory of Chilton in the mid 18th Century the striped auricula rapidly went out of fashion and by

1770 had essentially disappeared from public shows. This decline coincided with the appearance of the edged auriculas (green, grey and white) and these 'edges' became supreme in the show auricula world and remains so today.

After over 200 years of oblivion attempts were made to re-introduce the Striped Auricula. First mention of this would appear to be in Professor Rowland Biffens book 'The Auricula' (1949) and in the mid 1960's Allan Hawkes, a well known raiser of alpine auriculas and 'doubles', decided to start off a programme to raise 'stripes'. His initial crosses used edged auriculas that had shown some tendency to striping i.e. the body colour flared out to the petal edge to form primitive striping. This effect was unstable and both 'edges' and 'fancies' would show primitive striping reverting to normal 'edged' format at next flowering. Only after several years of crossing and recrossing such unpromising material did seedlings appear that could be described as 'striped'. Inclusion of the fancy 'Conservative' in the programme brought considerable improvement. A seedling from a 'Rajah' cross called 'Arundell' raised by Ray Downard also improved the percentage and quality of striped seedlings.

It was around this stage of Allan's project that I received my packet of 'Mixed Stripes' seed. This yielded about 20 seedlings, only a few of them striped. The best were crossed together and also selfed. The selection process continued with each years seedlings. I introduced no other types of auriculas e.g. 'selfs' or 'edges', to improve the form of the 'stripes'. Each year showed a gradual improvement but no plant was produced that could optimistically be put on a show bench

until five years after the programme started when in 1994 one plant with small cupped flowers but with very good striping appeared (Clown Prince). Year six gave six more plants of good quality, year seven gave five good 'stripes', year eight gave a generous eighteen winners, year nine gave an even better twenty-five beauties and year ten (1999) a staggering eighty-five good quality striped auriculas. This latter bounty came from something in excess of 2,000 seedlings, my busiest year. The success rate in this year was just over 4% i.e. 85 show 'stripes' from 2000+ seedlings. To this date my programme had raised a total of 8000 seedlings (average about 800/year) and had yielded a total of 140 good show 'stripes', a success rate of 1.75%. In other words about 98 seedlings out of every 100 raised over the 10 years were rejected. This does not mean that all of the rejects were destroyed as useless. Throughout the programme, particularly in the first seven years, good quality 'stripes' were scarce and the selection process also chose poor quality 'selfs', 'edges' and 'fancies' generated by the inbreeding programme, to be used as parents for the next generation. Each of these non-striped seedlings could be assumed to carry the recessive genetic material responsible for striping and in most cases the F1 offspring contained sufficient striped auriculas to show that this was so. In the first few years the percentage of very poor quality striped seedlings would be about 10% but the inbreeding allowed the recessive characteristics to accumulate until at year 10 about 60-70% of the seedling were striped. This is the main reason for the sudden increase in selected show 'stripes' of good quality in years 9 and 10 (1998, 1999). Inbreeding was not only

responsible for the positive effect of producing show quality striped auriculas but was also the cause of some negative traits. For example, as the project progressed it became increasingly difficult to get the crosses to produce viable seed. Initially about 80% of the crosses 'took' but currently only about 50% of crosses produce viable seed. Also the percentage of weak seedlings with subsequent early demise has increased although this is more difficult to quantify. Since there is no point in raising unhealthy plants or plants with a weak constitution, the seedling are grown under generally unprotected and even harsh conditions. Briefly, crosses are done from mid-March to mid-April. No later crosses are attempted. As many crosses as possible are attempted, usually over 100 each year. This is because it is almost impossible to predict what sort of offspring the parents will produce – striped parents produce a wide range of auricula types from 'selfs' to 'borders'. Some crosses prove to be '24 carat' crosses producing a good percentage of quality 'stripes' but I cannot predict which parents will achieve this, hence the blunderbuss approach.

Seed is harvested towards the end of June, ripe or not! Green seed is viable if sown immediately once it is out of the pod. It will not store but I also sow even ripe seed within 24 hours of harvesting. Germination starts about 3 weeks after sowing and is allowed to continue until the end of August i.e. about 8-9 weeks after sowing. Usually anything that is going to germinate in the first flush has done so by this time although a second flush of germination will occur the following spring. In order to simplify management of the programme only the first flush of seedlings is pricked out and the seed pans then discarded.

This, in effect, samples the total seed yield and allows the maximum number of crosses to be evaluated and the 'jackpot' crosses to be identified. In my experience this is the way good 'stripes' occur, in batches from specific crosses, not as isolated individuals randomly throughout the total seed harvest.

Seedlings are germinated in peat-based compost but pricked out when very small into trays of 60 compartments using their final growing compost of John Innes soil-based compost 2 parts, Peat-based compost 1 part, Vermiculite 1 part. This is passed through a quarter-inch sieve and is used for potting on and re-potting as necessary using plastic pots. After pricking out the seedlings are next potted on into 2 1/2 inch pots in which they will flower in the second spring or before. Any plants not flowering in the second spring are rejected. Growing is done entirely in cold frames that are protected from rain but are left open for all other weather conditions including low temperatures in winter. The small pots will freeze and thaw several times during a frosty winter. The survivors, currently about 80%, will be tough and healthy.

Seedlings are easier to grow than adult, older auriculas. They *want* to grow and seedling vigour definitely exists. They still need to be grown *well*; watered and fed properly, sprayed with fungicide and insecticide at the correct times and generally be well managed. The object is to achieve flowering by about 20-21 months after sowing. The flowers must be typical since they will be judged for quality on first flowering. Some other plants will be reserved for subsequent crosses since it is rarely the best quality show 'stripes' that prove to be the best parents. The vast

majority of seedlings will be rejected on their first flowering.

Striped auriculas have proved to be good show plants. Without any deliberate attempts to improve the paste or the form of the flowers, these improvements have happened spontaneously as the striping has improved. It would seem that inbreeding over a number of generations (at least 6 or 7) not only improves the property being sought, in this case, striping, but also allows other positive properties desirable in the show bench auricula to emerge. Obviously Allan Hawkes 'mixed stripe' seed of 1989 contained all the necessary good show properties in its genetic mix and a prolonged inbreeding programme has allowed recombination of these show characteristics so that quality striped auriculas could be identified and selected.

Striped auriculas are no different from other show auriculas in terms of their culture. Since they originated from show edged auriculas, 'fancies' and 'selfs' this is not surprising. Foliage may have varying amounts of farina, some having almost white leaves whilst others may be farina-free and bright green. They flower generally in the earlier part of the show season but in a large collection individuals will flower from early March to early May in the Southern parts of the U.K. They generally have neater and smaller tubes than the edged auriculas and in flower size are similar to the 'selfs'. They are excellent performers on the show bench and usually upstage the more traditional show auriculas not only because of their novelty but also because of the range of colours and patterns to be seen side by side in the same class. Many give excellent flat flowers that will last well so that the

same plant can be used at shows two weeks apart, cool weather helping in this respect. Today, in the United Kingdom, most Primula and Auricula Shows will have a class for Striped Auriculas. This class at the Saltford Auricula Show in 1999 had an entry of fifty plants and this year striped auriculas won Premier awards although in competition with show auriculas. This situation would have been difficult to imagine ten years ago.

In the early years of their reintroduction 'stripes' gained a reputation for being very variable; some years the strips could disappear! As more and more 'stripes' have been introduced so a more rational and informed comment is possible. As with all types of show auriculas some 'stripes' are variable year on year. The majority however, in my experience, are stable and although some will deteriorate just as many will improve as they mature. Striping will sometimes be present only as flecks of bright colour at the first flowering but in subsequent years will develop into full length stripes. Much also depends on good culture and management of the adult plants, particularly in respect of the 'nibbing' of the petal edges. I believe culture minimises this fault. It is noticeable that healthy, well-grown plants show the best flower outlines.

With respect to judging standards the Northern Section of the National Auricula and Primula Society adopted the following standard for Striped Auriculas on 7th February 1998. "General Standards as for show auriculas. The stripes may be of meal and/or colour. The striping should be radial, clearly defined and evenly spread, the stripes should not coalesce to form a body-colour as in the

edged forms." With typical generosity the following comment is also added "At present time striped auriculas do not have the same form as other show auriculas and some latitude is required in interpreting standards within their classes". At the present moment no striped auricula exists having a perfectly smooth petal circumference.

Finally on a lighter note I hope you will allow me a few comments on naming new striped auriculas. I have had the joyous but brow-furrowing task of naming 140 striped auriculas. Traditionally new show auriculas were not named until they had proven themselves on the show bench and had been awarded a 'ticket'. Frankly in the unusual circumstances reported here it was impossible to follow this tradition and I have given all striped auriculas selected in this project names from the start. In the past three years about 30-40 have also won awards on the show bench in the U.K. so perhaps I have only marginally jumped the gun in these instances.

How do you choose names for striped auriculas? Well - the first good one is named after the wife - naturally. Hence 'Catherine Wheel' a brown with bright gold strips, one of the 'improving with age' types - thank goodness! Next comes other members of the family. All the cats in the street have auriculas named after them 'Tabby Stripes', 'Striped Mittens', 'Slinky Stripes' and 'Thomas of Monmouth' (my home town). This latter could be mistaken for, perhaps, one of the noble men who fought with Henry the Fifth at Agincourt but is, in fact, a Maine Coon ginger tom who sleeps on top of my cold frames (specially strengthened). Next we come to names indicative of 'stripes' e.g. 'Brass Bands', 'Bees Knees',

'Deckchair' (desperation showing!), 'Agate Bands', etc.

Eventually exhaustion sets in and you have to revert to that old dodge of naming from a list (for example Winners of the Derby or famous Film Stars). Since I am a Frank Sinatra fan and since he has recorded well over 400 songs from the American Songbook I decided to name many of my plants after his Capitol and Reprise recordings. Hence, 'Angel Eyes' (purple and white stripes), 'Bewitched' (smoky purple and yellow), 'Blue Skies' (blue and white), 'High Hopes' (pale brown, yellow and green), 'Imagination' (yellow and red), 'Mood Indigo' (purple and white), 'Stardust' (purple and pale green), and so on.

Finally we come to the jokey names – those that are excruciatingly funny when you first think of them but are met with a blank stare by your friends. A blue and white stripe was just asking to be called 'Starsand' (*Stars and Stripes* – get it?)

It would seem then that the Striped Auricula has finally arrived. Although I have described only my own project I know that several other growers have used Allan Hawkes seed to develop their own projects. Allan Guest of the Northern Section has had much show success with 'Mrs. Davies', one of the first really classy stripes to be developed and Ray Downard of the Southern Section introduced 'Arundell' which has been widely used in crosses and may well influence the development of Striped Alpine Auriculas.

The future looks bright providing enthusiasts continue to push back the frontiers with new, better seedlings. Striped 'doubles' already exist but in small numbers and these are only rarely seen on the show benches.

Randall Dee and Ken Whorton have some stunning striped double seedlings in the pipeline. More people are needed to continue this difficult task. 'Painted Ladies', famous in Georgian times, also disappeared when striped auriculas fell out of favour. These could easily be reintroduced using 'stripes' and perhaps 'fancies' as parents. It only needs sufficient seedlings to be grown and slightly different selection parameters to be used and these beauties could be on the show bench within a few years.

Derek Parsons
Monmouth, Wales
June 29, 2000



Photo by Derek Parsons *Stardust*

Thoughts On Growing Show Auriculas

Can the show Auriculas that are grown and exhibited in the U.K. be grown successfully in Canada, Alaska and other parts of the U.S.? The general consensus would appear to be no, they are not hardy enough. This is what we hear, and yet the show Auriculas I know and grow are as tough as old boots over here where I call home in Ossett, West Yorkshire in the U.K.

I get a lot of information from my APS twin and other members of the APS through the e. groups that's the Primula group on-line, [Internet], regarding what you grow over there or would like to be able to grow and I keep hearing the words "Auriculas are not hardy enough to grow here". We grow them under glass over here, a term we use which simply means in a greenhouse, cold frame or other structure with a glass covering and to succeed with them, you need to grow them under glass, be it in a greenhouse or a simple structure of a home made cold frame, not as you may think to protect them from the cold, but to keep them almost dry through the winter which is their dormant resting period. Admittedly these structures do also stop the wind chill factor and keep them slightly warmer than would be the case of trying to grow

them out in the open which also helps.

Far more Auriculas are lost over here through the summer than are lost through the winter. They hate the sun and hot conditions, they also hate being wet through the winter so the compost we grow them in is vitally important to keep them just damp, ALMOST dust dry through the winter. We have periods of freezing cold and frost over here that see them frozen solid in their pots for days if not weeks. There are no Auricula growers that I know over here who use heat in their frames or greenhouses through the winter. Providing the plants are not set in saturated wet peaty compost they come to little harm and though they may look unwell when frozen like this they soon look fine again once warmer weather comes along to thaw them out. They freeze and thaw many times through a normal winter here.

There are as many different mixes of compost over here as there are growers and each grower will tell you theirs is the best formula for growing them in, [though some won't tell you what that formula is]. I believe the truth is that as long as the compost is loam based, with plenty of sharp grit you won't go too far wrong. We are very fortunate over here in that we can go to a garden centre or Nursery and buy John Innes Compost. This is a compost formula specially designed by the John Innes Institute of Agriculture and is a good loam base with sand and minerals and plant food incorporated. It comes in Seed compost, which contains little or no food, and numbers 1, 2 and 3, number 3 containing the most food; growers over here generally use 2 or 3 and add their own ingredients to it, to fine-tune it as they say. I believe there are very few growers over here that use peat based composts with any degree

of success and I don't know how they manage it. My own experience tells me that Auriculas do ok in it for the first year, the problems seem to arise at repotting time when the plant has been in the pot for 12 months. The roots formed in peat based compost in my experience are mainly very fine feeder roots which are very easily damaged, there are little or no main roots. There is also a tendency for the offsets to Faciate, that is fuse together with the main carrot [thick main root] making the taking of offsets difficult if not impossible without doing a lot of damage to the main plant and its offsets. So a loam based compost with a little leaf mould or peat added and lots of sharp fine grit is a good start, a lot of growers here say they use the standard mix which is 1 part by bulk Loam or loam based compost added to 1 part peat and 1 part grit, it's a good mix to start with and you can add or take out as you gain experience, personally I would add only a half part peat and an extra half part grit, as I said we all have our own mixes. It sounds like a lot of grit but it really gets the roots working and they are seen visible poking through the bottom of the pot, then you know all is well. 3 inch pots are the general size for Auriculas, large plants may need a three and a half inch and occasionally a four inch and offsets can be started in one or one and a half inch pots. Putting them in pots that are too big generally kills them though four or five small offsets will root and establish well round the edge of a three and a half or four inch pot and can then be moved with as little disturbance as possible in to their own pot when they have started to put out new roots.

It is important to keep a good circulation of air flowing over and around the plants all year round, damp stag-

nant air in winter will cause rot and botrytis. Vents, windows and fans, can all be used to achieve this flow of air, the doors of my greenhouses have mesh covers on to let in air and keep out nasty's, [Bugs, etc.]. The windows are never closed unless to prevent driving rain or snow getting in, and they are re-opened as soon as it is safe to do so. Any water administered through the winter, [we have had some very warm sunny days through the winter here in the past few years] is done carefully so that water is not left on foliage and very small amounts given only if absolutely necessary. Careless watering through the winter will cause heavy losses, that is a fact! It is best to water early morning if possible, that allows the full day for the plants to take up the drop of water you have given. Many administer water by standing the plant in its pot in a shallow tray of water for a minute or so then holding it up so any surplus water runs out of the pot back into the tray. This way avoids getting water on foliage and neck rot of the carrot which can happen with watering in to the top of the pot at this time of year. It is said that if the compost is open enough [enough grit added] it is almost impossible to over water as the surplus water just runs back out of the pot, I think this is true to some extent but beware.

I have a layer of sharp sand covering my greenhouse benches that the pots are on, probably a half inch deep. In the summer this is watered along with the plants and this helps to keep them cooler and helps to cut down on watering. In winter it is kept just damp, this means the plants get a small amount of water if required through capillary action and the leaves also take up small amounts from the air which generally carries

more moisture through the winter months so actual watering is seldom needed. Through the worst of the winter the bench sand is often allowed to dry out if prolonged periods of freezing, fog and wet are forecast.

To sum up I believe that our Show Auriculas can be grown in Canada and Alaska and the colder parts of America. No it isn't easy and you have to be vigilant! If you live in Miami forget it [try growing Orchids], Auriculas would hate that type of climate for sure.

They need to be grown under glass, use a good well drained loam based compost with plenty of sharp grit added, don't over pot them, keep them on the dry side through the winter, keep a good supply of air moving over them even if its cold air, check them regularly, every day if possible, problems can often be overcome if caught early enough to do something about them.

I hope one or two of you over there will have a go at growing show Auriculas following these few basic simple methods. Any problems not mentioned that you may encounter can also be overcome I am sure, I wish success to all who try and will be happy to try and answer any questions on this subject and help anyone is any way I can to grow Show Auriculas in the USA, Canada, and any other country with cold and freezing climates that are thought too severe for show Auriculas. Please have a go and let us all know how it went in future journals. It will only take one person to achieve reasonable success and I believe that will encourage others to try until they are also able to see Show Auriculas safely through the winter, I am convinced it can be done and come spring time you will be well rewarded for your efforts

with the most amazing plants you ever saw.

Good growing,
Terry Mitchell



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Al Rapp's semi-double striped Auricula

Photo by Cy Happy



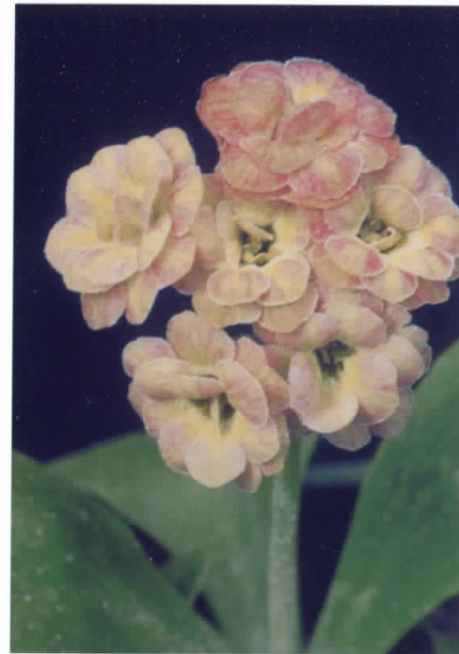
Clarkés Stripe

Photo by Cy Happy



'Test Tiger'

Photo by Allan Hawkes



Pale Stripes Balcom Strain
Photo by Cy Happy



Striped double Auricula
Photo by Cy Happy



Grey edged show Auriculas

Photo by Cy Happy

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Auriculas by Terry Mitchell



Striped Auricula Photo by Thea Oakley



Photo by Derek Parsons

Catherine wheel



Cornmeal Show Auricula

Photo by Cy Happy



Irish blue garden Auricula
Photo by Cy Happy



Photo by Derek Parsons

Purple Haze

Hybridizing 101

The following article was edited from several primrose e-group e-mail exchanges in the month of August between Angela Bradford of Barnhaven Primroses and myself. Perhaps if there is interest we can keep the dialog going over the next few years as I attempt my hand at hybridizing Auricula; as I have been bitten with the "bug" very badly indeed. I certainly don't mind sharing my failures, as that is how we learn; if Angela and others are willing to share their knowledge

-Robert Tonkin

Robert, I am delighted to hear that you are going to try your hand at breeding new plants. There is no particular mystique about this, but remember the four basic rules:

Objectives; Have a clear idea of what you are trying to achieve before you start. If you just start at random to see what you will get you are doomed to failure. **Patience;** It does take time, probably at least five generations before you get the results you want. **Ruthlessness;** To obtain good results, you have to throw an awful lot of plants away! If you don't think it's any good, no one else will either. Be vigilant for unwanted effects - weak stems, over-long pedicels, over-size foliage which may well turn up along with the characteristics you do want. On the other hand, if your first cross does not come up with good results, do not throw them away immediately. Genes can often skip a generation (think of children who resemble their grandparents more closely than their parents). Cross again in the hope that

the good genes will separate out the second time around. **Labels;** Label EVERYTHING! Devise a shorthand system that makes sense to you so that you can easily remember it. Since I assume you are starting out with named plants, devise a code to identify each one, so that you don't have to write the full name out each time. Find a labeling pen you can rely on. Most are waterproof, but many fade in sunlight, so you need one that is light-proof as well.

A few thoughts to keep in mind as you proceed. Keep only what you have room for. Keep the best of each cross. Use the less than perfect plants to carry on your breeding program. By this I mean each batch of seed you sow will produce some good plants and some less good. Divide your new seedlings into two groups: "The best" and "The rest". Pollinate your best plants together (or back cross with good plants from previous generations). Use the pollen from your best plants on "the rest", but don't use the pollen from these crosses in the future on your "best". One of the reasons for labeling and keeping meticulous records is so that you know the parentage of each group of seedlings. Be vigilant. If you notice that a particular fault keeps turning up, then stop using those parents (and get rid of the whole line if necessary). Note: pin-eyed flowers are not a fault in a breeding program. Cherish and use them.

Let's assume you are after that perfect sky blue self you mentioned. You will start with the best two blues you can find. They should probably come from different sources so they have very different lines of descent. As I have said before, out-crossing mixes the genes up and leads to new re-combinations. So, not only will many of the offspring be less than perfect, most

of them won't be blue! Lets call your two parent plants Plant A and Plant B and take it through the first three years.

YEAR 1

Pollinate Plant A and Plant B together and harvest seed from them. We will label the resulting seed SeedAB1. Sow half of SeedAB1 and dry store the remainder.

YEAR 2

In February sow the remainder of the dry stored SeedAB1. Later in the year, with any luck, you should have some flowering PlantsAB1 and some seedling PlantsAB1. Divide my flowering AB1's into two classes and label them accordingly, such as AB1class1 and AB1class2. Discard the remaining flowering AB1 Plants. In April, cross Plant A and Plant B together again. In addition, use any pollen from Plant A and Plant B on the flowering Plants AB1class1 first, followed by class2, if pollen is sufficient. What has not been pollinated with original Plant A & B pollen should be cross-pollinated, being sure to cross class1 with class1 and class2 with class2. Do not be restrained to pollinate the pins of these flowering plants. In the fall of Year2 harvest seed, which we will call SeedAB2. Again sow half the SeedAB2 and dry store the remainder.

Year 3

In February sow the remainder of the dry stored seed AB2. Later in the year, with any luck, you should have flowering Plants A, B, AB1, and AB2 and some seedling Plants AB2. Divide my flowering AB2's again into two classes, as before, and label them accordingly. Discard the remaining plants. Remember to be ruthless in this endeavor. Again cross the original

Plant A and Plant B with each other. The whole lineage process starts anew with these new seeds, only the year on the labels change. Use pollen from Plant A and Plant B to pollinate flowering AB1 pins followed by flowering AB2 pins. Seeds from these crosses become seedAB3. Use pollen from the AB2 pins to pollinate the AB2 thrums. Seeds become seedAB3 too. However, it is very important to clearly label where the pollen came from on all AB2 plants. It could be from the original Plant A or B, or it could be pollen from another AB2 plant. KEEP RECORDS!

Also in April gather up any sports from my original Plant A and Plant B and back-cross. By this I mean when you divided your original A and B plants in year 1, you will of course have gotten identical plants from each one. You can use the pollen from all these plants on to your new seedlings. But it is also a good idea to carry on crossing A with B and vice versa. But once you have 2 or three plants of each, mark one of them separately and use pollen from the pins of your new seedlings on to this plant. So there will, for example, be two future versions of Plant A, one carrying pollen from Plant B, and one carrying pollen from the pins from its own offspring.

I hope this has sorted a few things out. As a friend's child said once, "the trouble with asking Angela a question is that you get more answer than you wanted!"

Good luck anyway

Angela Bradford



Dodecatheon at Mt. Rainier
Photo by Cy Happy



Soldonella Photo by Cy Happy



Trientiles latifolia star flower Primulaceae

Photo by Cy Happy



Cyclamen hederifolium
Primulaceae
Photo by Cy Happy



Lysimachia nummularia
Creeping Jenny
Primulaceae
Photo by Cy Happy



Douglasia laevigata
in Olympics
Photo by Cy Happy

Prim and Proper Primrose Pronunciation

This contribution to the series of articles on the pronunciation of the specific epithets in the genus *Primula* will concentrate on some of the rules for placement of the accent in such words. The placement of the accent is the most serious problem in botanical terminology, and the rules mentioned randomly in previous articles can assist the reader greatly in determining the proper site of the accent. As we proceed through the rules, we shall introduce a few new specific epithets subject to the given rule and shall mention previously discussed epithets that fall into the same category.

Rule #1: If the penultimate (the one before the last) syllable is long in the original Latin or Latinized word, it always receives the accent. Length occurs in two situations:

1.1) The penultimate syllable is long if it ends in a consonant, i.e., there are at least two adjacent consonants at the juncture between the penultimate syllable and the final syllable.

Example: *P. celsiaefórmis* This specific epithet is a compound word consisting of two parts. The first part is the feminine genitive singular of *celsius*, the comparative form of Latin *celsus* "upraised, high", and the second part is the genitive singular adjecti-

ve formed from the Latin forma "form, shape". The compound adjective means "of a higher or taller form or shape". This word must refer to the stems of this plant which are tall and robust. The main point here is that the accent falls on *-fórmis* because the penultimate syllable ends in a consonant *-for-* and is therefore long. The subgenus is the already familiar *Augánthus* "bright flower". This name is another case of a long penultimate syllable ending in a consonant. The section is *Malvacea*, the feminine form of *malvaceus* "mallow-like". The ending here is the Latin *-aceus* "of or pertaining to" consisting of three short vowels. Since the penultimate vowel *-e-* is short, the accent falls on the antepenultimate syllable. Even though the *-a-* is short in Latin, it is pronounced long in botanical Latin in position before two final adjacent vowels. See the discussion below under Rule 2.2.

Words already discussed and similar in form to *celsiaefórmis* with a long penultimate syllable ending in a consonant are: *bomiénsis*, *Carolinélla*, *chionántha*, *concínna*, *ioéssa*, *Sikkiménsis*.

1.2) If the vowel in the penultimate syllable is long in the original Latin or Greek, it receives the accent. Length here must be checked in reference books or dictionaries. The task is not so difficult because many of the endings, especially those of adjectives, are used again and again.

Example: *P. cerína* *Cerina* is the feminine form of the Latin adjective *cerínus* "waxy". It is formed from the word *cera* "wax" by means of the adjectival ending *-ínus*. The long *-í-* in the penultimate syllable naturally attracts the accent. This term is probably applied here because the leaves are without farina and their undersides are glaucous. The subgenus is the

well-known *Aleurítia*, and we have already met the section, *Crystallóphlomis* "like some crystalline plant".

Other words already encountered with original long vowels in the penultimate syllable are the following: *bracteòsa*, *boreàlis*, *boveàna*, *breviscàpa*, *comàta*, *Cortusioides*, *Denticulàta*, *deòrum*, *Petiolàres*, *praeflòrens*.

Rule #2 If the penultimate syllable is short, the accent automatically rests on the antepenultimate syllable. This situation must also be checked out in references and dictionaries.

Example: *P. barbicalyx* Here is a compound noun. The first part, *barbi-*, is a combining form from Latin *barba* "beard". The second part is Greek *kalyx* "calyx, cup". Ostensibly this name was applied because the calyx is hairy at the base, and its teeth are fringed with hairs. Even though the *-a-* in *calyx* is short and the accent appears by rule on the preceding syllable, I am certain that there is strong tendency for gardeners to pronounce the word *barbicalyx* and that usage may cause this pronunciation to supercede the pronunciation *barbicalyx*. The subgenus *Augánthus* has already been mentioned under *P. celsiaefórmis*. The section *Obconicolísteri* requires some explanation. It is made up of two parts: *obconicus* "shaped like an inverted cone" and *Lister* "a celebrated English naturalist 1638-1711". The section name seems to have been created from the specific epithets of two of the most prominent members of this group: *P. obcónica* and *P. lísteri*. *Lísteri* "of Lister" is the genitive form of *Lister*. The term *obcónica* is used here because the capsule of these plants is widest at the flattened top.

Other specific epithets already discussed and accented on the antepenultimate syllable are the following: *álgi-*

da, *alpícola*, *apóclita*, *Aurícula*, *bryóphila*, *cándicans*, *conchóloba*, *Oreóphlomis*, *Prolíferae*.

2.1) There is a subvariety of Rule #2 that bears mention here. It concerns cases where the antepenultimate and the penultimate syllables consist of two adjacent vowels. Even though the antepenultimate vowel may be short in Latin, it is pronounced long in botanical terminology. E.g. *aurantiaca*, *lutéola*.

2.2) Another subvariety of Rule #2 that deserves special mention involves cases where the penultimate syllable and the final syllable contain adjacent vowels. In cases like this the antepenultimate syllable is long if it contains the vowels *a, e, o, u* but short if it contains *i* or *y*.

Example: *P. caldària* Here is another feminine adjectival form from the Latin *caldarius* "pertaining to warm water". In this particular case the antepenultimate syllable was originally long. The plant received its name because it grows near the hot springs in the Mekong-Salween divide. The subgenus is again *Aleurítia*, but the section is *Soulièi*, named for Jean André Soulie, a French missionary and plant collector in western China.

We are already familiar with the following species names that fall into the same category: *Aleurítia*, *alliònnii*, *calthifòlia*, *Davidii*, *Dryadifòlia*, *elísiae*, *Párryi*, *Sphondýlia*. Note that the *-a-* in *Párryi* is short because of the following two consonants.

Prepared by
Lew Micklesen

Cyclamen

Cyclamen are native to the Mediterranean and Western Asia where twenty species are known. It is a small genus but the species offer a great variety in the form and color of the flowers as well as the shapes and patterns of the leaves. Some are hardy enough to grow in our gardens, others do well in sheltered areas or conservatories. Not only are the flowers, which have been compared to "shooting stars," attractive, but the leaves are highly ornamental and carpet the ground for many months. During autumn, winter and spring there are always cyclamen to be seen in flower. Leaves may coil downward bringing the mature fruit to the ground. Seeds that form are sugar coated and are almost exclusively distributed by ants.

Christopher Grey-Wilson went on plant collecting expeditions and described one scene along the coast line of the Black Sea: Picture a leafy slope in early February and you can see the yellow catkins of hazel, lenten roses, pink primroses, snowdrops, and Cyclamen coum. Hardy types of cyclamen can be used here in rock gardens, naturalized in clumps under trees, as carpets under camelias, rhododendrons, and large noninvasive ferns, or in combination with small bulbs. They don't mind being planted in competition with tree and shrub roots, but they can be crowded out by leafy herbaceous plants.

Cyclamen are available by plants, tubers, or seed. It is recommended to buy plants and then to remove all potting soil from the roots and repot so there will not be a chance of bringing home vine weevil, eggs, or larvae. If purchasing tubers, look for the source of origin. Labels that state "cultivat-

ed" or "Holland" will indicate that the plants were not harvested in the wild. The tubers may be dry, and it will be difficult to tell which way is up. They could be placed in moist peat moss, and when growth begins planted in the correct direction. In the garden set plants 6-10 inches apart.

Cyclamen will grow in a wide range of soils, from a sandy loam to a leafy clay. Hortus III recommends 2 parts leaf mould, 1 part sand, and 1 part loam. For good drainage add grit. Cyclamen prefer a neutral to alkaline soil, or it can be slightly acid.

Cyclamen are not heavy feeders, most disliking excessive feeding. Many colonies survive for years without being fed. A bit of bonemeal or compost could be used.

In the wild, cyclamen are not found in sun-baked habitats but in cooler, moister glades of woodland, on valley floors, and ravines. A good spot would be in dappled shade as provided by deciduous shrubs. The roots from near-by shrubs help mop up excessive moisture, a condition cyclamen really don't like.

Hortus III lists these cyclamen as being the hardiest species: Cyclamen coum, C. purpurascens, and C. hederifolium. The least hardy are Cyclamen africanum, C. persicum, C. cyprium, and C. Rohlfsianum, C. coum and C.



Cyclamen neapolitanum alba
Photo by Cy Happy

hederifolium can take -4°F. or even prolonged freezing. In Grey-Wilson's test there is a picture of C. coum blooming in the snow.

If the author of the text Cyclamen could choose only one species of Cyclamen, he would choose Cyclamen hederifolium. Attributes of this species are it's dependable, easy to grow, floriferous (One plant can have as many as 100 flowers in a 5-6 week period.), it's adaptable, self-seeds in profusion, and is long-lived (130 years!). Tubers can become enormous. In the wild it is found in a very wide area: SE France, Switzerland, Yugoslavia, Greece, Bulgaria, Turkey, and many Mediterranean islands. Cyclamen are documented in ancient literature: Gerard's famous The Herbal. Flower color is rose-pink to white. there is a big variation in leaf size, shape, and patterning. The plants look good planted in drifts.

Cyclamen coum is native to Turkey and the Caucasian Mountains. It is rather short-lived but self-seeds freely. It is a good plant to grow in pots. Leaves appear in the Autumn, and plants bloom around Christmas, continuing until April. Many seedlings will flower in the second season. Flower color is pink, red, or white, and there is a variation of leaf shapes and color.

Cyclamen are relatively trouble free. About the only thing I have noticed is some slug damage. A lot of trouble is avoided if we practice good management: cleaning up the garden! there are fewer problems if the plants are grown out of doors rather than under glass.

Pests:

Aphids

Comments:

Outdoors, young leaves and flowers affected
Plants rarely killed

May be a problem when grown under

	glass Fern aphid and mottled arum aphid a problem
Birds	Scratching about harms plants Pheasants eat flower buds
Cats	You know what cats do!
Mites	Red spider mites common under glass Also, broad or cyclamen mites Outside, no problem as plants die down in the summer No chemical control available for amateur gardeners. - Practice good hygiene
Mice and Voles	Attracted by ripening fruit and sugary coated seeds
Nematodes	Practice good hygiene Cyclamen persicum especially affected Plants should be destroyed
Fungus gnats, scale insect, springtail	Problem when growing under glass
Squirrels	Use netting to protect plants and ripening fruits

Thrips	Leaves and flowers punctured rarely a problem
Vine weevil	<u>Most serious pest</u> It is 3-4 inches long, dull greyish-black, and has a rough parallel-lined abdomen. It chews leaves and flowers. White grub is 2/3 length of weevil. It eats root stock and into tuber.
weevil cont-	Control: Clean up debris where weevils can hide. Collect weevils in the evening.

Diseases:

Bacterial rot affects tubers when it's too hot and moist. Destroy plants.

Botrytis is the commonest fungal infection. Rarely a problem outdoors.

Fusarium is a problem in commercial production. Destroy plants.

Powery mildew occurs during warm, dry weather. Fungicides recommended are Benomyl and sulphur.

Cucumber mosaic virus is transmitted by aphids. There will be a mottling or streaking of the foliage, and the plants should be destroyed. Usually cyclamen are not prone to viral diseases.

Mosses and liverworts:

These can form dense cover over the plants and choke seedlings. Use a surface dressing of sharp grit. Moss killer won't harm cyclamen.

Presented:

Report prepared by,
Trudy Wargo
February 18, 2000

References used for Report on Cyclamen:

Hortus III, Sunset Western Garden Book, and Cyclamen by Christopher Grey-Wilson

continued from page 3

Saturday evening, Rosemary Hagevig hosted a nice pre-Banquet social hour in beautiful downtown Douglas. During the Banquet we raised some money for APS with a stimulating auction of plants donated by April Boettger and Rick Lupp as well as some of the prizewinners from the show donated by their proud growers. We honored John O'Brien Sr. with the Dorothy Dickson award and recognized Caroline Jenson also for both their efforts in promoting Primulas in Alaska and their service to the APS. Rita Jo Shoultz of Fritz Creek Gardens in Homer then gave a fine program including Primulas of course through the seasons at her display gardens. After garden touring on Sunday with our Eastern visitors, I was ready to become a hermit for a few days to recover my voice and brain from the world of Primulas!

But we, the Juneau Group, soon to be a chapter, decided we would do this again, it was a lot of fun. I have to thank all the people here in Juneau as well as out of town members and visitors who helped make the show so successful.

The Juneau group will begin a new series of meetings and programs this fall and I hope some of you will also be gathering as the days get shorter to show pictures of your successes this past summer, borrow slides from the APS Slide Library, start a new group or revitalize an old group and dream about new plants you'll grow next year.

ED

Omphalogramma vincaeflorum = Primula vincaeflora

by Cy Happy

Forty-five years ago I requested and received a few *Omphalogramma* seeds from the

Scottish Rock Garden Club. They germinated, and several plants flowered the following year.

My garden then was on a lake shore. It faced west and featured high shade. The soil was beach gravel mixed with old oak leaf mold. My goal was to grow and photograph interesting plants with my new *Exakta*. (I'm still at it.)

Omphalogramma vincaeflorum is covered with short hairs. The leaves look like dusty green velvet. The flowers are deep indigo blue, one to a stem, and up to two inches across. They resemble giant violets as the upper two lobes point backward.

The foot-tall plants are natives of Yunnan and southeast Tibet, where they grow in wet alpine pastures and light woods at 7,000 to 12,000 feet. They demand perfect drainage, wet rich soil during the growing season and not too much winter wet. They need protection from slugs!

The root is a short rhizome topped with a large resting bud. If it likes its treatment, it will be vigorous and last for years.

For references you will find information on page 45 of Halda's The Genus Primula (1992) listed as *Primula vincaeflora*. In Reginald Farrer's The English Rock Garden, Vol. II, p. 194 (1919) it is again listed as

Primula vincaeflora.

The Royal Horticultural Society Dictionary of Gardening (1951) lists it as *Omphalogramma vincaeflorum*. It is not in Fenderson's A Synoptic Guide to the Genus Primula (1986). The plant was not considered to be a primula when Fenderson wrote his book. (Fenderson created a most remarkably correct book—a proofreader's nightmare. He says there are three mistakes. I have yet to find one.)

Primulaceae

There are 28 Primulaceae- of these only six or eight are well known. We have written about several of these in this issue. There are several more that we are less familiar with here. If any of you members are growing some of the others would you please let the editor know?

Correction

In the Summer issue a picture was identified incorrectly. I do not know what it was but it was not Jay Jay.

ED

North American Androsaces

By Rick Lupp

Northwestern America is home to a number of first rate members of the androsace clan with one representative from Section Chamaejasme and all of the remainder from Section Douglasia. The following is a brief overview of the methods which have proven successful for me in growing this group in the mild maritime climate of western Washington State as well as some brief background information on the plants in the wild.

Here in Graham, Washington, in the lower foothills of Mt. Rainier, we average about 60 inches (150cm) of precipitation a year with most of this falling as rain during the period October to June with a mostly dry summer. During the past 19 years, we have been as low as -12°F (-24°C) once and -10°F (-23°C) twice with an average winter low in the range of 5° - 10°F (-15° to -12°C). We rarely have snow cover during these exceptionally cold periods.

All of our androsace grown under cover are grown in small, open ended hoopouses which remain open at all times except during extreme cold weather below 15°F (-9°C) which happens about three weeks a year on average. All are grown in plastic pots in the same lean potting mix which consists of the following : 9 parts coarse sand, 5 parts peat, and 4 parts pumice. Pumice is also used as the top dressing and to provide extra bottom

drainage. All are given an encapsulated slow-release fertilizer with minors (trace elements) once a year and repotted yearly. 50% shade is provided during the heat of summer.

All plants grown in the open are grown in raised sand beds filled to a depth of approximately 30 inches (75cm) with very coarse sand. These beds are fitted with rock work to provide crevices and shading. Once again the plants receive a light application of encapsulated slow-release fertilizers with minors (trace elements) once a year in late winter or early spring.

Androsace lehmanniana is found over a wide range in interior Alaska and North eastern Asia. My only experience is with the Alaskan forms which vary widely within their range. Most plants are heavily pubescent with ciliate margins and bear white blooms with yellow eyes on stems which vary from two to four inches (5-10cm). The occasional glabrous form is found as well. Although I have never seen them, pink and purple blooms have been reported! Most forms make rosettes to about half an inch (12mm) and form mats or mounds in excess of 12 inches (30cm) across. I also grow a tiny form from the area of Nome which forms tiny mounds of rosettes only 1/8" (3mm) in diameter and bears proportionately smaller blooms on shorter stems.

Androsace lehmanniana makes an excellent and easy-going plant for the alpine house where it slowly increased in size and makes a dependable bloom every spring. The plant also does well in the open when grown in full sun although it does not bloom as well in the open as under cover and we have twice lost plants to birds which tear apart the cushions in their search for insects (this is also a major problem for us when trying to

grow many other cushion forming androsaces in the open.).

Androsace montana (*Douglasia montana*) is a great favorite of mine with its dense mounds of foliage which are completely covered with lustrous blooms in shades of pink to almost white on very short stems in early spring. The plant is short lived in the open for us where it does best in a crevice with part sun where it blooms well but seldom lasts beyond its second winter. Grown under cover, this plant is no problem at all and will make a display of bloom year after year when repotted on regular basis.

Androsace nivalis (*Douglasia nivalis*) is a lovely plant with long needled, gray foliage and the richest coloured blooms in the genus ranging from almost red to magenta-purple. While most floras state that this plant is a native of the Rocky Mountains, the centre of distribution is in the Wenatchee Mts. of Washington with outlying populations in N.E, Washington and the Canadian Rockies. In nature the plant is usually found growing in dry south or west facing serpentine scree although the occasional plant is found growing as a chasmophyte. *A. nivalis* usually blooms once and dies for us in the open, likely due to our heavy winter rainfall. It receives about 15-20 inches (38-50cm) of annual rainfall in nature. Grown under cover, it makes a floriferous, long lived plant with no special care. We grew one plant on to an 18 inch (45cm) mat over a period of five years in a large, covered trough where it covered itself with hundreds of blooms.

We have what appear to be several bumblebee hybrids between *A. nivalis* and *A. montana* which form tight mounds of grey-green needles and bear blooms intermediate between the

two parents. *A. nivalis* has been the seed parent of all these hybrids. None have been tried in the open as yet, however they present no difficulties under cover.

A. idahoensis (*Douglasia idahoensis*) is a rather rare native of Idaho where it is usually found growing in east facing scree of sparse meadows which never get totally dry. It is similar in general appearance to *A. nivalis* except that the foliage is dark green and the blooms are in shades of pink. This plant does very well for us in the open given a northwestern exposure where it does not get too hot during the summer. Easy under cover as long as it does not dry out. Our local aphids love this plant more than any other androsace, so watch out for them!

I made some intentional crosses of this plant to *A. nivalis* a couple of years ago and now have one seedling that has the same grey foliage as *A. nivalis* with *A. idahoensis* as the seed parent. The plant has not bloomed yet.

A. constancei (*D. gormanii*), *A. americana* (*D. arctica*) and *A. ochotensis* (*D. ochotensis*) Alaska is home to three marvellous androsace which so far have provided me with no blooms but plenty of frustration. These three are all very similar plants which form dense domes or mounds much the same as *A. montana* and cover themselves with soft to rich pink blooms on very short stems in late spring in Alaska. I now grow all three under cover here in Graham including approximately thirty plants of *A. constancei* and have yet to produce any bloom on any of the plants. Plants of *A. constancei* grown in the open seem to do well except that I have been unable to keep the slugs from destroying them in rather short order. I have tried many different regimes with these plants to no avail.

Seed of *A. constancei* that I have col-

lected in the past and distributed through the Androsace Group has gone out to many different growers around the world. At this time, none has reported success in blooming the plant. I would be most interested in hearing from anyone who has bloomed *A. constancei*.

One of my favorite androsaces for sheer beauty and ease of cultivation is *A. laevigata* (*D. laevigata*) which is found growing almost in our back yard here in the highest foothills of the western cascade Mountains from Mt. Rainier south as variety *laevigata* and in the northeastern and eastern portions of the Olympic Mountains as variety *ciliolata*. The range of *A.l. var. laevigata* extends south to the Columbia River Gorge and into the central Cascades of Oregon. *A.l. var. ciliolata* ranges south from the Olympic Mountains to the central portion of the Coast Range of Oregon.

The two varieties of *Androsace laevigata* differ very little in general appearance with *A.l. var. ciliolata* being the larger of the two in all its parts and the foliage is ciliolate along the margins, a characteristic usually not found in variety *laevigata*, *A.l. var. ciliolata* is usually found growing in full sun in screes where it often forms mounds or domes Whereas *A.l. var. laevigata* is usually found growing in east and north facing crevices as a mat or on sheer cliffs as a chasmophyte. Both plants bear beautiful blooms in shades of rose pink to almost red with *A.l. var. ciliolata* bearing the larger blooms. A white form has been reported from the Olympic Mountains.

We find both of these subspecies of *A. laevigata* easy in cultivation either in containers under cover or in the open. In the open we grow *A.l. var. laevigata* in northeastern facing crevices in a raised sand bed where it blooms heav-

ily and looks perfectly in character. *A.l. var. ciliolata* does equally well in the open in the full sun position in the same bed.

At the far southern end of its range in the Central Cascades of Oregon *A.l. var. laevigata* exhibits some most peculiar characteristics. About 30% of the plants that I have examined from this population are pin-eyed where the stigma is held above the stamens and beyond the throat of the corolla. the remainder of the plants in the population are either thrum-eyed where the stamens are above the stigma or the stigma is about even with the stamens. This arrangement comes very close to mimicking heterostyly in *Primula*. Only proper study by a professional botanist will determine whether or not this is a truly heterostyly population, a feature which should not exist in androsace.

It is interesting to note also that all of the pin-eyed plants from this population have unusually long, broadly needle-like foliate compared to the shorter wedge-shaped foliage of the typical forms of *A.l. var. laevigata*. The pin-eyed forms also make much larger plants than the type with larger blooms and are excellent plants for the alpine house or open garden. We hope to make seed of these pin-eyed forms available soon through the Androsace Group seed exchange.

The genus Soldanella

by Ilsa Burch

The family Primulaceae contains several genera besides *Primula*. One of the most charming, to my eye, is the genus *Soldanella*. According to "The Royal Horticultural Society Index of Garden Plants" by Mark Griffiths, there are ten species of *Soldanella*. Hortus only allows for six to eight species. All are alpine in nature and are "old world" plants, there being no species found in the Americas. Flower color varies from white to deep purple, and lilac and violet are most common.

I fell in love with the *Soldanella* during a visit to Germany in my childhood. I found a lot of the cultural pursuits, art, and architecture quite boring (I was about ten years old) and for a few minutes took refuge in a garden store where I looked at seed packets. There was the *Soldanella*, and although all this took place 30 years ago, and I have long since lost the packet, I can still remember the picture on the packet of a blooming *Soldanella* surrounded by snow. At the time I could scarcely believe that anything so beautiful could be real.

The ten species of *Soldanella* are all quite similar. They generally consist of a low mound of excellent and regular foliage. During bloom time (very early spring to late spring), the flowers rise and uncurl from the center of the clump, becoming campanulate to widely campanulate, and fringed on the edge looking for all the world like little lampshades. If you like 'cute', these are to die for. Once the flowers is pollinated, the seed pod swivels up

and points straight up, when the seed is ripe, the tip of the seed capsule breaks away like the top on a tea pot. Very civilized. Ultimate height may be anywhere from 4" to 10" when in bloom. *Soldanella villosa* is the largest species, and is as expected, covered with hairs. The flowers on *S. villosa* are smaller in relation to the overall plant than some of the others, making it slightly less showy in flower. It also runs and can be a thug if really happy. It is probably the best one for ground cover, and the easiest to grow.

A short list of the species, (all rated zone 5 and 6) is as follows:

Soldanella alpina - to 7 inches high in bloom. Hails from the Pyrenees. Normal color is lilac, but there are some white cultivars available.

S. austriaca - from Austria, about 4 inches high. Normal color is bluish-lilac.

S. carpatica - from the Carpathians. to 10 inches high in bloom. Normal color is violet, as many as 5 to a stem.

S. dimonieii - from the mountains of Macedonia, E. Albania, and Bulgaria. Jellito and Schacht suggest that the underside of the leaf in these is bluish-pruinose. Flowers are violet.

S. hungarica from the mtns. in E Central Europe, 5 to 2 inches high depending on the subspecies, of which there are two: ssp *hungarica* (small), and ssp *major*.

S. pusilla - a small lime-intolerant species, probably the hardest to grow (and obtain).

S. minima - from the eastern

Alps, and the smallest species. Very attractive, but not easy to keep happy.

One can buy Soldanellas as plants or grow them from seeds. If you want a quantity, seed is the least expensive way, but they are slow seedlings, taking at least two years to flower. If you buy plants, you will probably get hybrid's of *S. montana*, and *S. carpatica*, as these two cross-pollinate easily. If you order the smaller species, such as *S. alpina*, *S. minima*, or *S. pusilla*, you will probably get purer stock. The smaller species are harder to grow and flower, thus less opportunity is found for cross-pollination.

The flower buds are set in the fall or early spring, and in cultivation, this is a time of vulnerability to slug attack. In nature, they are apt to be covered in snow all winter, and there is a fable that they generate heat in the early spring and the flowers melt out as they grow. I do not know if it is true that they are capable of generating heat. It might make an interesting science project.

Cultural requirements for Soldanella are generally leafy soil, well-drained but moist, although I have seen established plants take exceptional drought. They have always seemed to bloom best when getting as much light as they can tolerate without getting sunburned. If watered amply, they are less prone to sunburn, so maybe there lies the answer. Jellito and Schacht suggest boggy spots in full sun!

They might thrive in the shelter of an alpine house but up until recently I didn't have one. I have lost the smallest species in the garden, maybe I can grow them in my new tube alpine house. The largest species do well in my garden in some shade, and to keep them blooming well, they must be

divided occasionally. They also seem to like fresh soil, like their cousins the Primula, but I have not seen them suffer any diseases (like root aphid), except for the slugs and an occasional root weevil notch on a leaf.

According to Jellito and Schacht's two volume set on perennials, Soldanellas are prone to several leaf funguses. However, I have never seen any leaf diseases. More hazardous for my Soldanellas are the moles who pop them up to dry in the summer sun.

Soldanella is not a genus for people who require a plant to shout "look at me!" when it blooms, and will probably appeal most to folks who treasure the small and delicate. But if you like Shortia and Schizocodon, you will probably like Soldanella, and they aren't nearly as hard to grow.



Photo by Cy Happy

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