National Pleione Report

incorporating

Hardy Orchids

1999

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BREVIPALPUS ON PLEIONES OR WHAT?

Although it is probably true to say that many Pleione growers have Brevipalpus in their collections it is certainly not the only reason why pleiones do not grow as well as they should. The following reasons spring to mind as to why pleiones sometimes do not grow to their true potential, but I expect other growers will be able to add other reasons to the list.

1. Too much water early in the spring when the new roots are just starting to grow is usually fatal. The compost should be kept just damp so that the new roots go looking for moisture and so build up a large vigorous root system.

2. Too little water through the growing season will restrict root growth and therefore the size of the pseudobulbs in the autumn when they go dormant.

3. If the compost is kept too wet in the summer the roots could die. The compost should be allowed to almost dry out between waterings. Moss (not sphagnum) in the compost is very beneficial. It makes it a little more difficult to overwater the pans because of the air spaces it creates in the pan. In fact moss is almost essential for some varieties (i.e. forrestii, confusa, humilis, scopulorum etc.).

4. If the pans of pseudobulbs are being grown in a small greenhouse during the summer the temperature can get too high. The growth slows down and almost stops when temperatures are above 32°c. (90°F.). The pans would be much better outside the greenhouse and lightly shaded from the sun from 11am until 3pm.

5. Too high a temperature and a dry atmosphere can lead to a Red Spider Mite infestation. These will come from the hedges and shrubs in the garden. Make sure the plants have a moist atmosphere during the night when it has been hot during the day by spraying the foliage and the floor.

6. The plants need to be shaded during the summer if they are being grown under glass otherwise the leaves will go yellowish and then the pseudobulbs will be smaller in the autumn.

7. The pans should be fed regularly throughout the growing season, about once a week using half strength liquid fertilizer, watering with plain water in between. The fertilizer used up to the end of July should be balanced Nitrogen, Phosphate and Potash with a ratio of 1:1:1. If it contains trace elements so much the better. From the end of July, until the leaves go yellow, use a fertilizer with more Potash 1:1:2. It is worth remembering that no plant will grow on nothing.

8. During the winter most pseudobulbs should be kept cold, at around 2°C (34-35°F) to ensure that they have a good rest. There are a few hybrids, if they are not kept cold enough, will not flower. The most notable is **P.Rakata 'Shot Silk'.**
P.maculata does need to be kept a few degrees warmer though.

9. I think it is a good idea to repot the pseudobulbs each year, or certainly every second year. If you do this you will not get a build up of either pests or fungi in the compost.

10. Before potting, scrub your pans with a solution of disinfectant, so that everything is as clean as possible.

This probably sounds like a lot of doom and gloom, but you will never have all these problems at the same time. If you are careful you need not suffer any of them at all.

Remember, clean pots, new compost and regular spraying with insecticides add up to **SUPER PLEIONES.**

Ian Butterfield, Bourne End, Bucks.

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A TERRESTRIAL EXPERIMENT 111

The shortest day has passed, always feel better with that behind me, time to start planning the comming year. This for me starts Boxing Day when knife in hand a visit to the Paph house to decide what plants to divide for repotting in the spring, and while performing these tasks to reflect on events over the past year. Let's take a simple job of storing my **Ophrys Apifera** tubers. For years Iv'e kept them during the dormant period in sand, that was until by chance a situation arose which was to change my mind.
While out motoring I was able to salvage some apifera plants from a road widening scheme. All plants were damaged and in different stages of growth, some very small tubers were still attached to the parent tubers. First job was to

wash and treat the damaged areas, dry and dust off with sulphur, but storing very small tubers 1/16" to 1/8" dia. in sand I had problems with dehydration as I found out to my cost when dealing with small tubers from flasks.
To refresh my memory by examining the growth pattern of my own plants the sinker emerges from the top of the parent tuber, the new tuber for next year's is attached to the end of the sinker and as it gets larger compresses the soil around it forming a cocoon, thus retaining moisture throughout the dry months.
Returning to our mutilated tubers - after allowing time for the cuts to heal over, each tuber was wrapped in absorbent tissue 1/16" thick, rolled into a ball and placed in a tray examined every three or four days and if the paper felt dry, mist sprayed with water and turned on to a different face to allow air to circulate on all faces. I had better results with this treatment and I was able to keep the tiny tubers for three months without drying out and loss.
As July arrived the tubers were inspected more often for signs of growth. In the case of the very small tubers a magnifying lens had to be used to identify their tops, and the growth start times were all different, therefore as I observed growth they were then potted up. The thought struck me how many tubers have been potted up without showing growth, the grower relying on water to start off, only to find the tuber rotted. I remember when planting out my **Ophrys Apifera** in my outside area, two failed to surface, knowing they had started growth I went looking, and on removal found the growing tips had started to turn yellow. This was my fault I had planted too deep, correcting this fault quickly saved me two tubers. The very small and small tubers I salvaged were treated as follows, 1/3 John Innes and 2/3 silver sand all put through a flour sieve with tubers potted up singly in 2" clay pots.
Several of the larger tubers even with quite large cuts grew well and these I decided to divide, perhaps the method I use will be of interest. As already mentioned I use mainly sand in my mix therefore any movement of the compost

would immediately disturb the root system, so while the compost is dry, work around the base of the plant to locate the sinker and mark with a toothpick. I use a small artists paint brush and a spoon for this job. Replace the soil, now water the plant and allow to drain, it is now possible to excavate a small hole without damaging the roots, remove the new tuber seal the cut with sulphur and fill in the hole with fresh dry sand and firm. The trick is to remove the new tuber when by inspection the tuber is large enough to be stored and still have time to produce a second before the plant starts to go dormant.

Other than tuber division reproduction is by seed, so a short note on seed pod treatment may be useful, for a little care at this stage can save disappointment later on. Assuming the pod is yours to pick, start by inspection, check to see if the capsule has any holes bored into it. I mention this as some time ago I was sent some Ophrys seed pods and on opening the packets found several well nourished grubs and all seed pods lost. A nice sealed pod also keeps out any fungal infection. Now with an old toothbrush, scrub the capsule with methylated spirit, place in a bowl and cover with a cloth. Dry slowly, not in the sun and when the pod turns brown it's time to cut off the top, holding the capsule by the stem end, the seed should now flow freely from the pod. I then store the seed in a folded grease proof paper until required.

Before any seed sowing is started it might be useful to discuss my equipement. Not having the facility of a laboratory I had to resort to my own initiative and make the equipement required. Preparing the honey jars with agar I can get away with in the kitchen but seed sowing I'm banished to a corner of my filthy workshop,but even with these conditions I can still get successful results for my needs. My sterilised sowing cabinet is home made and is suitable for seed sowing and replating, for years Iv'e used it quite successfully with the paphs. After sowing, the jars are transferred to an old double refrigerator, fitted

with small heaters to each section with indipendant temperature control. I have not yet built a light propagating unit.
Having resumed seed sowing after a break of three years I managed to obtain some European ophrys seed, something new, sown asymbiotically June '98 germinated by August, chlorophyl December, producing leaves 1/2" long by January. Although I sowed the jars with the same amount of seed I used for the apifera I did not get the same germination, I therefore decided to put even more seed into the jars on future sowings, and as I use the packet method putting more seed into the packet led to infection, therefore I had to ammend my procedure. I now place the whole contents of the seed capsule into a 10ml. tube, add a 5% bleach sterilising solution with a spot of washing up liquid, the seed is now shaken for five minutes. Next take a honey jar, less the lid, place over the top a clean handkerchief secured with an elastic band, make a small indentation in the middle, slowly pour the contents of the tube into the centre, then pour sterilised water slowly over the seed. It is now a simple job to pick up the seed with a sharp knife and transfer it to a 2" round filter paper. After folding, seal with a coloured plastic covered paper clip, the colour making identification of the seed easy.
I decided not to scrap my **Ophrys Apifera** site, having grown with reasonable success by growing the tubers in grass. I thought let's see what happens without, so the site was cleared and rebuilt the tubers planted out July. Observations so far, no slug damage, my nightly killing trips are finished. I can check on each plant and its progress every day, later on apifera seed mixed with sand was distributed over the site. I intend to leave the site alone now for the next three years, and should things go wrong I've still got the tubers I salvaged from the rubble as a back up.
I've made one more change over the years. My Methol Red pH indicator has

served me well but having to measure out .3ml. of the indicator every time I made a pH check became a bind,I therefore decided to bring myself into the Twentieth Century with the purchase of an electric pH meter. Certainly makes life easier, the thought crossed my mind - should I trade it in as a collectors piece - but it's still with me and still on the subject of collectables I still have my orchid bible "The Orchids a Scientific Survey" by Carl L Withner price then 105/- shillings, which brings me nicely to sowing mediums which I will look at next time.
As I conclude these notes the Daffs are all in flower, next job the crosses to be made and then to prepare the compost for repotting in March.
Regarding the ophrys a very interesting year, certainly improved my knowledge in dealing with damaged tubers, and to look forward to their future development plus jars of European Ophrys to play with. Should again be an interesting year, so until we meet again through these pages may I bid all, good growing.

G C King Amateur Oxfordshire

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PLEIONES, MY PLEASURE FOR 36 YEARS

March 1963. My fianc'ee and I walked down the streets, going to church. We passed a florist's shop and there they stood! Several little pots with a nice pink orchid in each of them.
The girl, my wife by this time, was aware of my interest and a few days later she handed me my first **P.formosana.** When I'm writing these words, the same clone is blooming for the thirty sixth time.

The virus causing 'Pleionitis' stayed latent for a long time, until I came across **P.humilis** and **P.hookeriana** while trekking in Nepal in 1979. Pleione **humilis** was found on a nearly sheer, mossy rockwall facing westwards, growing between small ferns and creeping plants at approximately 2200m. **P.hookeriana** was hidden in thick clumps of moss on the north face of the trunks in open pine forest, with big rhododendrons growing nearby. We found them between 2500 and 3200m. the nights still frosty at the end of April.
From that time my collection enlarged steadily. I ordered some species and hybrids from Ian Butterfield, bought some in Germany and Switzerland and raised my first self-made hybrids in 1982 (**P.x Hekla** and **P.x Eiger**).
The first time I made **P.x Eiger**, I used a normal coloured **P.formosana** as a parent and the offspring was rather uniform with small, drooping flowers. A second time **P.formosana alba** was the seedbearing parent, using pollen of the same clone of **P.humilis**. The result was quite different. The offspring was very variable in all aspects. I selected three nice clones with strong upright flower stems, one of them bearing fragrant flowers with a petal spread of 12cm. I used the same **P.formosana alba** to make **P.Ueli Wackernagel** (chunii x formosana) The first bulbs have flowered now and it seems that this cross is also very variable. The light pink ones lack any spottings on the lips and I wonder if they will be present when a coloured **P.formosana** is used. The yellow in the lip is rather prominent. It is self fertile so I hope to get alba's with a chunii like flower. The dark ones have a combination of colours very similar to **P.speciosa.**
As far as I know, I made the first artificial **P.x Lagenaria.** After several unsuccessful attempts I got results in 1987 with **P.maculata** as the seedbearing plant. Perhaps the Planets were in the right configuration at that time. It gives a rather uniform offspring. Of course there was the normal variation in

intensity of colour a.s.o. Phillip Cribb did confirm the equality with the natural hybrid. However one clone is outstanding in having broader leaves, the biggest pseudobulbs and all flowerparts are larger and broader. But the most striking difference is the tan coloured spottings on the lip. Most probably it is a polyploid form, but that has to be confirmed.
I did backcross the normal **P.x Lagenaria** with **P.x maculata** to give **P.x Liz Shan.** Most of them give small, maculata-like flowers with some pink in the petals and sepals, but some have nice flowers with a pretty appearance.
P.x Riah Shan is another maculata hybrid with **P. bulbocodioides "Yunnan"** as the other parent. The rather small flowers are intensely purple coloured as in Bletia.
Of **P. yunnanensis x chunii** (=P.x Burnsall) only one bulb has yet reached flowering size. The flower has the typical form of **P. chunii** but the colour is inherited from **P. yunnanensis.** The strokes of the brush on the lip are orange-brown.
Not everything is going as smooth as I want it too. **P. hookeriana** in my hands is a weak grower. Only a few bulbs reaching flowering size each year. The same counts for **P. limpritchtii.**
I did not use any pesticide until I started growing most of my pleiones outside. To keep saw-bugs and other waylayers away, I treat the potting material with "Ambush" every three months.
After reading the articles of David Harberd about Brevipalpus oncidii I decided to treat my whole stock with "Dicofol", which is still for sale in the Netherlands as "Kelthane". At the moment I can't evaluate this treatment because for about four years my pleiones had another affliction. A rather aggressive strain of phytoph'thora infected the pseudobulbs with no symptoms on the leaves or roots. It's a form of dry-rot, causing brown injuries in the bulbs.

Heavily infected small bulbs can sometimes be crumbled between ones fingers. So the last few years I have submerged the pseudobulbs for twenty minutes in a "Captan" suspension before storing them for the winter rest. It helps a lot, but some clones, a.o. **P. yunnanensis**, are still slightly infected. I have treated them last year as real alpine plants with fine gravel as a top layer. It keeps the bulbs dry and the substrate moist and they have grown nice bulbs as never before as did **P. bulbocodioides** and **P. forrestii.**

Jan Berg, Gestellaan 46, 3431 GN Nieuwegein, The Netherlands.

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LEAF TIP DIE BACK IN PLEIONES

I first grew pleiones in the 1996 flowering season, using a proprietary orchid compost. I favour clay pots, which are initially housed near windows facing E and S in a conservatory with a tiled roof, at a temperature of 10°C. The pots stand in trays containing about 1cm of gravel which is kept moist when the plants are in leaf. When temperatures improve and risk of frost is over (I live at 250m above sea level), the trays are moved to shelves near the roof on the north side of an E-W facing greenhouse where they remain until the leaves start to die. They then return to the conservatory until cleanup. Six of eight varieties flowered in 1996 and grew on to produce flowering size pseudobulbs. **Formosana avalanche** and **cairngorm** did not bloom and produced only half sized pseudobulbs. (These two have remained at that size over the last two years and, having read Dr Harberd's article in the December 1998, vol. 66 No4 issue of

the AGS bulletin, one has to wonder if they are infested with Brevipalpus).
The following year, with more varieties, the growing medium contained composted bark, peat, Perlite, shredded oak and beech leaves, forest moss and charcoal. An NPK fertiliser was used in the first half of the season, with a tomato fertiliser from mid July onwards. Again, most varieties flowered and produced good sized pseudobulbs. In both years, however, a large majority of plants suffered from leaf tip die back (LTDB).
My own pseudobulbs, and new purchases as soon as they arrive, spend December and January in a spare refrigerator at 4°C. For 1998, with thirty varieties and nearly fifty flowering size and some smaller pseudobulbs, the compost contained approximately equal parts by volume of composted bark (with the fine material removed), Hortifibre (ex J. Mc Lauchlan Horticulture), Perlite and chopped live forest moss, plus half parts of peat, Chempack's fertilised coir, and charcoal. A small ammount of bonemeal was mixed into the compost, which proved to be very free draining. The initial fertiliser was Vitafeed 13-0-43 followed, from mid July, by Chempack 0-10-10 liquid, all in suitable dilutions. Diluted seaweed extract (Chempack) was used occasionally.
Only the two formosanas and one of the two forrestii failed to flower. The pseudobulbs harvested and cleaned early in December 1998 were the largest to date, with many being bigger than anything I have so far purchased. Only five plants had LTDB.
Reed et al (National Pleione Report 1997), mentioned the possible role of calcium in LTDB, and the reported increased prevalence of the condition in association with the application of high phosphatic fertilisers. Calcium/phosphorus ratios are of importance in mammalian physiology, and there is evidence in cattle of a link between low blood magnesium and calcium levels. It may not be unreasonable to expect that there might be similar relationships in

plants. One wonders whether the lower prevalence of LTDB in my pleiones in 1998 was attributable in any way to the use of bonemeal, with its slow release of Ca and P, and a P free Vitafeed? Were the trace elements in seaweed beneficial or, more likely, was it a chance occurrence?
For the 1999 season I shall certainly use the same growing medium (except for substituting mini chip bark for composted material) and fertilisers. The prevalence of LTDB will be carefully monitored.
My contacts with other pleione growers have so far been few, but those I have spoken to, or corresponded with, Paul Cumbleton especially, have been generous with their advice. The articles in the National Pleione Report have also provided much useful information. I am grateful to the authors of those articles and to everyone who has helped me.

Brian Ingham, Barnard Castle.

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PLEIONE HOOKERIANA IN BHUTAN

by Phillip Cribb and Ian Butterfield

Although **Pleione hookeriana** is one of the commonest and most widespread species in the genus, it has received little attention from orchid growers because of its relatively small flowers and reputation as being rather demanding in cultivation. It is a charming dainty orchid whose flowers vary considerably in both size and colour and, in our opinion, it deserves to be more widely grown and appreciated.

On a recent visit to Bhutan we saw it in abundance and the following observations were made over a two week period in early June, a time when tourism in the country drops off with the approaching monsoon. This is the exact time when **P.hookeriana** bursts into flowers, providing a welcome splash of colour to the branches, trunks and mossy knolls of the high altitude coniferous and mixed forests that are its home.

Bhutan is a small Himalayan kingdom the size of Switzerland and is situated almost due north of the teeming Indian city of Calcutta. The contrast could not be greater because Bhutan is sparsely populated with about 660,000 inhabitants and well forested. Its northern border with Tibet is marked by a series of high Himalayan snow-capped peaks over 7,000m high, the highest being Jhomolhari at 7,314m elevation. Running south from the snows are a series of six river valleys separated by high passes. The rivers eventually flow into the great Brahmaputra River after they enter the north Indian plain. Where the valleys are flat enough they are cultivated but the mountain ridges between are well forested. In the south of the country the forests are subtropical, the haunt of the tiger, Indian rhinoceros, and wild water buffalo. The subtropical forests penetrate north a long way in the river bottoms. Above them are broad-leafed forests dominated by oaks and oak relatives, and in the drier eastern valleys by pine. Higher still the broad-leafed forest is replaced by montane conifer forest dominated by spruce, hemlock and fir. Above the tree line alpine meadows and screes stretch to the perpetual snows and glaciers of the high Himalayas. The only main road in the country enters from India in the south-west, runs north to Paro and then east across the middle of the country. In places it is single track and delightfully free of other traffic, a distinct relief when the precipitous nature of the country is experienced at first hand.

Pleione hookeriana is found in the montane conifer forests and at the top edge

of the mixed forests of broad-leafed trees such as birches, maples, rhododendrons, magnolias, and conifers.Based upon our observations it is found in Bhutan from about 2,800 to 3,300m elevation, growing in thick moss on the upper side of tree branches and on trunks, and more rarely on mossy hummocks on the ground. It generally grows in the wetter side of ridges and mountains where mist covers the peaks for much of the day at this time of year. Our first sight of it was perhaps the most memorable, growing on horizontal branches of ancient spruce trees (Picea spinulosa) at 2,975m elevation on the Dochu La pass between Thimpu and Punakha. In places the branches bore hundreds of star-like blooms in a variety of shades from white to rose pink. Some of these flowers were the largest we saw in the whole two weeks. At the top of the pass (c.3,200m), it was growing low down on the trunks of rhododendrons and on the ground in moss. On the Pele La the next pass to the east and between Punakha and Tongsa it was growing on the trunks and branches of large maples (Acer cappadocicum and A. pectinatum) at 2,900m, but on juniper (Juniperus recurva) higher up at up to 3,300m. We also found it abundantly growing on Juniperus recurva in several places on a trek in central Wangdi Phodrang Province at between 2,900 and 3,120m elevation. It mostly grew on the horizontal mossy branches with its roots running down to the interface of moss and bark. Occasional plants were growing on the ground where they had probably fallen from the trees above. Another locality was on the Yulong La the pass between Trongsa and Jakar in central Bhutan. **Pleione hookeriana** was growing, with the pretty white flowered **Coelogyne ochracea**, on tall hemlock and spruce and on maple between 2,950 and 3.220m. The lowest we found **P.hookeriana** was at 2,800m growing on the base of a small tree above a stream where the giant lily **Cardiocrinum gigantium** was in full flower. One of these plants had two flowered inflorescence.

Pleione hookeriana growing in moss on a tree trunk. (Inset) P. hookeriana alba.

PLEIONE HOOKERIANA CULTURE?

Before going to Bhutan in 1998 I had thought that I might be lucky enough to see a few **Pleione hookeriana** in flower. What I did not expect to see was the trees literally dripping with **P.hookeriana** in bloom. In many cases they were so high up we could only look at them with binoculars.

We saw them on a number of occasions, nearly always on the branches and trunks of trees, growing in very deep moss, with the clouds drifting through these trees and upwards over the mountain. The moss they were growing in seemed to be continually moist, but never too wet, as it was very coarse growing and there were many air spaces in it.

In cultivation in England, we have tried to grow **P.hookeriana** by watering the compost and keeping this quite moist. Unfortunately with this treatment **P.hookeriana** usually only lasts for two or three years before disappearing.

From what I saw in Bhutan I think we might stand a better chance of growing it if we misted the foliage regularly and just kept the compost damp rather than too wet. In other words 'water the foliage' rather than the compost - rather like they would get in the wild.

The compost should be mostly fresh moss (preferably a low growing wood moss collected from under pine trees), plus some half decayed oak or beech leaves which have been rubbed through a half inch sieve, and just a little pine bark. Do not push the compost tightly into the pot - leave it so that there are plenty of air spaces.

P.hookeriana comes from a high altitude so keep the bulbs as cold as possible (but not below freezing) for as long as possible in the spring. Remember it flowers in May, so it is the last pleione to flower in the spring.

While the plants are in growth during the summer, foliar feed and spray with insecticide when necessary as you would all your other pleiones.

As a last resort, say a prayer over them once a week and hope for the best.

Phillip Cribb, Royal Botanic Gardens, Kew. **Ian Butterfield**, Bourne End.

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TRAVELLING

It just took two days to receive the message I was waitng for on the voice mail of my hotel room in Central-Kowloon, Hong Kong. In December 1996 I came to the city equipped with a few addresses and phone numbers given to me by an aquaintance, who also had a special interest in pleiones as well as in cypripedium. After checking some addresses and mailing some faxes, only one Chinese gentleman replied, offering me bulbs of **P.aurita, forrestii** and **yunnanensis**, and letting me know that if I was able to place large orders (here we talk around 600 pound sterling per species), he could arrange to deliver any species of several orchid genera known in mainland China through a friend of his, who is assumed to be the largest wholesale dealer in Hong Kong. Those genera include most of the known species of pleione, many cypripedium species of which some are not recognizable as plants known to Western culture, and also all of the species of paphiopedilum known to mainland China. Of the latter there were even some of the rarer species available in albino forms, but at very high prices indeed.
Of greatest interest to Asian culture is the genus cymbidium, which is called 'Lan' in Mandarin. It is not so much the flower that raises the interest of the growers in Japan, Taiwan and mainland China, but rather certain criteria such as the shape and colouring of the leaves and their movements in the wind.

They are usually planted in tall clay pots which are sometimes quite precious. On my next two visits to Hong Kong I met the gentleman I had initially contacted as well as the dealer, having lunch with them at their weekly meeting with some other friends. The latter, Mr Y, was basically interested in making money and the former, Mr X, became a good aquaintance of mine. He is personally interested in any orchid or decoratively-leaved plant that might stand the hot summers in his rooftop greenhouse.

Mr X and I are currently building up a collection of decoratively-leaved anthurium and alocasia in Hong Kong, since there are almost no plants of these genera to be found there, but there is a great interest in getting at least some of the species. I am looking for cuttings or older seedlings of the large **Anthurium veitchii**, and if you, dear reader, would be able to get me one or a few, please contact me.

Within this article I would like to discuss to what extent the genera mentioned above are endangered, as well as some interesting points about little known pleione species.

The European and North American market for the genera cymbidium, cypripedium and pleione seems to be minor when compared with the Asian market that has the appropriate climate - Japan, Taiwan and Korea.The fact that there are so many plants in culture in the Western World simply shows a different approach in the appreciation of plants, especially of cypripedium and pleione. Here in the West we do whatever we can to keep these usually very expensive plants alive, and when they are brought to culture in good condition, a fair portion of imported plants will survive.

In Japan (which seems to be the main market for wild cypripedium and pleione), plants are lower priced, and because of their exotic appearance also very much liked. But the biggest problem is the cultivation of these plants imported

from colder areas, which leads to them being thrown away after they have flowered, because they cannot be successfully grown by the buyers. As, for example, our supermarket phalenopsis and paphiopedilum hybrids in Europe. Mr Y told me about his position in this game, and I regretted that he would not tell me any location of certain pleione species which I would very much like to see growing in the wild. In any case, this is the procedure: To begin with, pictures of plants are taken, some of them by fieldworkers from botanical institutions. Local people, mostly farmers, are sought out to gather these plants during autumn and early winter after an order has been placed. The orders for Chinese orchids usually come from Japan and Taiwan, and the plants are chosen from a catalogue made up of colour copies of the pictures taken. The orders are collected by Mr Y himself and flown to Hong Kong. It is known that the trade is "not really legal", but there are usually no problems shipping them in and out of Hong Kong. There is also not much trouble having them shipped into Japan and Taiwan, nor would I find it difficult to import them legally into my home country (if I were a mind to).
Fortunately, since the dealers do not buy little plants, those will probably be able to fill the gaps left by the bigger ones which were removed. Nevertheless, those areas affected must still be protected from deforestation.
An especially unpleasant way of harvesting epiphytic orchids, though common in some areas, is blowing up whole tree trunks with dynamite. There is another highly questionable way of collecting, which affects the genus cymbidium, by far the most appreciated in the Asian countries mentioned. It is mostly collected professionally by Japanese traders, who pay Chinese farmers to take any plant found while working systematically through selected areas. The harvested plants are viewed by these specialized men, and only a few are selected for their lucrative trade. The others are not replanted, but left there to die very

soon. Going to this much trouble to collect everything available is easy to understand, when you see single plants being offered and sold for prices between 100,000 and one million Hong Kong dollars, as Mr X told me, who attends several trade fairs and exhibitions.
Please note, as I do not want to be misunderstood: I do not have any personal interest in making up a story, nor do the other people involved have any interest in lying to me. Throughout my various encounters with Chinese and Japanese culture, I have always found them to be honest and dedicated business people. Even if I use words like "unpleasant" and "very questionable", I do not mean to judge. My heritage is not that of this culture, where orchids have been collected and used since the times when my ancestors were still living in trees without lifts and television!
I would like to add some interesting points regarding **P.saxicola, grandiflora** and **albiflora.**

P.saxicola.

This is the second season in which this very distinct autumn-flowering pleione is more widely available. During spring two years ago, while going through the files of the herbarium of Kunming, I found a few sheets of **P.saxicola** there. Before it was described as a distinct species in the eighties, it was assigned to **P.scopulorum.** A sheet stamped as an isotype was of a plant collected in 1940, and there were several sheets clearly recognisable as **P.saxicola.** The species was described using a plant from northwest Yunnan, and others on the herbarium sheets were from southeast Tibet and northwest Yunnan. The plants I brought into culture are from Hubei and an undefined area of Yunnan.In case a plant of this species is offered to you as a bulb, it is the easiest one to recognise: a very flat bulb with a very long neck, topped with a remaining leaf base instead of the kind of crown that is known from any other species or

hybrid. It is important to know that it lives in mountain areas sometimes covered with snow, unlike the other autumn-flowering forms. It seems to be common and widespread in suitable environments and is easy to grow.
Botanically, this species differs in its habitus from any other of the genus: the bulb, as already mentioned, with the dead leafbase instead of that little "crown" where no bulbils are produced even when the regular shoots are dead; the single leaf, which has a more significant stem than any other pleione; the flowering time, which marks the end of the growing season rather than the beginning of the rest period of the other fall flowering species, since it is still in full leaf; the way the flower develops and finally the flower itself: the tip of the labellum is pointed, with a callus of three entire lamellae and a very long calyx.
It seems to be the most ancient and primitive form of the genus and should be placed into a separate section.

P.grandiflora

Known in culture here in Germany since the early nineties, it was thought to be a pure white, and a very distinct species. Plants closest to the original description were found in northern Vietnam. In 1989 there was a description of a plant with white flowers and different callus called **P.pinkepankii**, named after a well known German orchid dealer. Dr.PERNER of Geesthacht, Nortern Germany, checked the typus of **P.pinkepankii** against recently imported living **P.grandiflora** and found it to be the same. Which means **P.pinkepankii** is a synonym for **P.grandiflora.** However, on my recent visit to Japan I found some spectacular violet-coloured forms of, well, obviously **P.grandiflora.** When I came back to my collection, another **P.grandiflora** had just opened, but it was a pink one that I had received from England as **P.albiflora.** Another week later while visiting a big collection in England, I heard of a truly yellow! form of

P.grandiflora. After seeing the violet forms in Japan, I thought a bit differently about **P.grandiflora** as a distinct species, considering just the appearance. It is as close to **P.bulbocodioides 'Yunnan'** as, for example, **P.limprichtii** is in its own right. Considering everything that comes up and out of this genus it seems necessary to do further research on this genus, especially on the geographic aspect in forming the recognised species. Over thousands of years phyla developed, united and reunited, and for me personally, I would really be interested in finding out if, and which ur-phyla survived and how they did, which can be seen in more isolated environments than Yunnan, the pool of this beautiful genus. The least thing that should be accepted is that the callus is not the most significant part in the recognition of this species, since it varies so much. Maybe a complex similar to the one of **bulbocodioides** could be opened for **P.grandiflora.**

P.albiflora

This seems to be the very last of the known species yet to be introduced into culture. The chance that I will be able to bring back a few plants, or at least some pictures, this or the next years to come from the very west of Yunnan, or from Northern Burma, should be fair. Dr Pfennig of Herford, Germany, who passed away a few years ago, took a few photographs of a (most likely!) **P.albiflora** imported one time. The flower came in a light pink; the callus was like Dr. Cribb had described, and there was a more distinct nectar spur than in **P x confusa** and some **P.Shantung.** It must be stressed that this spur together with a callus of rows of papillae gives this species very much its distinction, and it is much more differently-shaped than the spurs known from **P.humilis** and **coronaria.** If I ever find this species, I would be very happy to forward some to Doctor Harberd, thanking him for all his interesting articles on pleiones I read.

GREETINGS !!!

Gunther Kleinhans, Berlin, Germany.

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ANY COLOUR AS LONG AS IT'S GREEN - THE DISCREET CHARM OF PTEROSTYLIS

I still remember the precise moment that the orchid bug sank its merciless teeth into me. I was in my teens, and was browsing among the 'picture' books in the public library. As I idly turned the pages of the book I had picked at random, I came across a sight which sent a thrill through my system which still echoes within me - a green flower, and not any flower but one shaped like some giant insect from the deepest tropical forests!
I was well and truly smitten. I cannot remember what orchid it was (for that, of course, was what I had seen) that caused this dramatic effect, but from that day on I knew I wanted to grow orchids, and had a fondness for green flowers (and also a fondness for the kinds of plants which are sometimes derisively labelled 'botanical interest only').
Fast forward to fifteen years ago. I bought a tuber of **Pterostylis curta** (after all, it was described as having green flowers). When in due course it flowered I felt that same resonant chord of recognition - this was my kind of orchid! Not only did it have a definite look of the insect about it, with those long whiskery antennae, but it was definitely sticking its tounge out at me (a tongue which sprang back if I touched it).
I still have that original plant of **Pterostylis curta** (or rather three large pots full of its divisions with many others disposed of in the interim), and

to my surprise (have just gone out and counted) I discover that it has been joined by twenty other Pterostylis species and hybrids over the intervening years, many of which have increased to give good pots full of plants.
This article gives a description of my cultural methods for Pterostylis that have evolved by trial and error over the last fifteen years, and which result in steady increase and regular flowering for me.
The name Pterostylis is from the greek for 'winged column' (an identification feature I must admit not to having noticed). All species are terrestrials. Their 'once seen never forgotten' appearance results from the partial fusion of the dorsal sepal and the lateral petals to form a hood (the galea) which has earned them their common name in Australia of 'Greenhoods'. The lateral sepals are usually also fused for part of their length and tilted upwards and forwards to result in an upward-facing forked tongue with the hood arching over between the forks.
As might be expected, there is no agreement among botanists about exactly how many Pterostylis species exist, but a number of around one hundred and twenty is quoted by Jones (1998). The majority of these grow in Australia, with around seventeen endemic to New Zealand. There are also a number of natural hybrids known, and a small number of man-made hybrids have been registered (fewer than thirty to date).

Cultivation

I grow all my Pterostylis in a greenhouse which is kept just frost free in the Winter, but which for most of the year has plenty of ventilation to ensure a good air flow.
The dormant season for all the forms I grow is the Summer, and this is the best

period to repot. The Autumn flowering varieties can start into growth quite early, so I prefer to get the repotting done by the end of August if I can. They seem to grow well under my conditions in a compost of equal parts John Innes No1, fine bark, peat, Perlite and grit. (Actually I have a pet theory, as yet unproven, that no compost needs more than three bulk ingredients, but where is the fun in that?). This compost mix is probably not too dissimilar to the compost advised by Australian growers, for example Malcolm Thomas in his article for the 1996 National Pleione Report. There seems to be general agreement that the compost should be acidic rather than calcareous. When repotting it is not uncommon to find the new tubers at the bottom of the pot. However, when I repot I tend to plant them more shallowly - around 3 to 4cm deep. Once established, most of the colony forming Pterostylis that I have experience of can be relied on to at least double in number of tubers each year. Once the plant has 'bulked up' a bit I plant around fifteen to twenty tubers in a six inch plastic half pot. It seems easier to keep a large pot of fairly crowded plants happy than a single plant in a smaller pot - they obviously like company - so the first year or two with a new plant is always the most nerve-wracking.

After repotting I do not water them until September (unless growth is visible above soil level earlier in which case they get watered when I spot this). The Pterostylis I grow fall into two types: the Autumn/Winter and the Spring flowerers. The growth habit of these two types is different. In the case of the Autumn/Winter - flowering varieties the flowering shoot emerges directly from the soil, and has a number of narrow spear-shaped leaves up the flowering stem; subsequently a non-flowering rosette of 'normal' leaves appears near the flowering stem and this builds the following year's tubers. For Spring flowering varieties, the leaf rosette forms first and the flowering stem emerges from

the centre of this.
The compost is not allowed to dry out from October to April. I grow these orchids on the lower level of a two-layer greenhouse staging and they do not get direct sunlight for the hottest part of the day. If the leaves are exposed to bright sun, they tend to go yellowish - this may not matter, but I prefer to see them with what I think of as a healthy, fresh green. (In fact to my eyes, Pterostylis is one of the genera of orchids which look good when not in flower, with leaf rosettes that look as though they have been formed out of crumpled-and-flattened green tissue paper). In April, watering is reduced and then stopped as the leaf rosettes die and the plants become dormant, usually during May. Dilute liquid feed is given when I think about it (probably no more than four or five times per season). During the dormant months the plants are kept in their pots in a cool and shady spot under glass and given a little water once or twice to prevent desication.
I try to keep Winter minimum temperatures to around two or three °C, although on occasion the temperatures do fall below freezing for periods of a few hours, with no ill effects.
To date my Pterostylis have been reasonably disease and insect pest free (the aphids seem to prefer the Serapias in my greenhouse). I personally believe that greenfly think that the greenhoods are giant insect ogres, and steer clear.

Season shifting

Please keep this to yourself, but I have to admit to a failing. Despite years of trying I have not discovered a foolproof way to change the growing season for plants imported from the southern hemisphere. This is, admittedly, becoming less of a necessity as an increasing number of plants are propagated in the UK.

if however you do obtain a plant that has been grown in Australia then the plant is very confused; it arrives in the potting shed in (say) mid Winter believing that it is still mid Summer.
As far as I can see you have two choices; to get the plants into growth a.s.a.p. and put up with the smaller tubers which result from a shortened growing season, or to try to delay the growth until the next growing season. Being impatient, I go to the former. This is usually successful after two or three seasons of 'pining for the outback', but I have also lost a number of plants during this period. Has any reader worked out a reliable method for 'season shifting'?

Choice of plants

The following short list contains six of my favourites which between them can give flowers over seven or eight months.
Pt. Sentinel. This is the first into flower with me, sometimes as early as mid September. An attractive deep maroon and white combination on a tall stem with long whiskery 'ears'.
Pt. truncata. Flowers Autumn to early Winter for me. A sturdy stem with a neat green/brown/white flower (common name in Australia is 'Little Dumpies', apparently).
Pt. Nodding Grace. The hybrid between curta and nutans. A vigorous plant (even outdoes curta in terms of rate increase) with green and white flowers on strong stems in the early Spring.
Pt. curta. I have a soft spot for this as it was my introduction to the genus, is easy to grow, multiplies rapidly and has good sized green and white flowers (with spring-loaded longues), sometimes with two flowers per stem.

Pt. pedunculata. A favourite. Makes a neat rosette of leaves and produces quite small reddish brown and white flowers on top of a proportionately long stem. The general effect of a pot of twenty or so in flower is like a swarm of brown beetles transfixed in mid air. Great stuff!
Pt. Cutie 'Harold's Pride' AM-OCSA. This has an eye-catching large flower in shades of green, chocolate brown and white. One of the last to flower for me, lasting well into May some years.

References for further reading

Australian Native Orchid Society Victorian Group Inc, 1988, Cultivation of Australian Native Orchids.

Cribb, P and Bailes, C, 1989, Hardy Orchids, Christopher Helm.

Jones, D.L., 1988, Native Orchids of Australia, Reed Books Pty Ltd (A must have in my opinion if you have any interest in Australian Orchids. I think that a later edition exists)

Ian Rodgers. Wiltshire.

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HALF A LIFETIME WITH PLEIONES

My first encounter with pleiones goes back to the sixties when I lived in East Kent. I saw a **Pleione formosana** listed in a gardening catalogue selling plants

and shrubs of a general character though with the passage of time I cannot remember who it was, however I decided to purchase two plants. Although knowing virtually nothing about them I expected to receive a couple of pseudo corms and was amazed to receive two lush green leaves about six inches in length rather like lily of the valley leaves each with one or two roots at the base. There was no sign of a pseudo corm and they arrived in a sealed polythene bag. In the absence of any instructions I just buried the roots in pots of potting compost and put them in a garden frame, and lo and behold at the end of the season I had two pseudo corms. I kept them frost free for the winter and the advent of spring brought forth two blooms. From then on multiplication set in until they were numbered in three figures. Being interested in rhododendrons, from time to time I visited the R.H.S. Spring Show in Vincent Hall. On this particular occasion I saw some pleiones exhibited by Will Ingwerson. Only one species exhibited appeared significantly different to mine and this I thought really noteworthy. I discovered it was called **Pogonioides.** I ordered a couple along with some other formosana varieties **Blush of Dawn, Oriental Splendour** and **Oriental Grace** which I ultimately received by post, dormant but still in their pots. These were bone dry and appeared to be planted in a heavy clay. My **pogonioides** did well and I finished up with four figure quantities. The other varieties aquired at the same time never really did very well despite or perhaps because I removed them from their clay compost. I experimented with a variety of composts mostly based on peat and loam and later composted forest bark. After each new mix the plants would thrive and I would think I had cracked it only to find that the following year the miracle compost didn't seem so good after all. I ultimately concluded that pleiones would grow in almost anything provided the conditions were right, i.e. good drainage and that the roots can easily get down into the compost. If they can not then the

roots remain in the upper inch or two of the surface and the plants do not prosper. Soon after aquiring **pogonioides** I moved to Buxton in Derbyshire which is the last place that a horticulturist should reside in. Statistically August is the only frost free month of the year. Even runner beans do not grow satisfactorily outside most years. During this period I aquired several different varieties of pleiones and best of all a specimen of **confusa.** Although I grew this for many years and actually produced more pseudo corms they got ever smaller and never a sign of a flower. I then had the good fortune to be offered a specimen of **confusa** from a small alpine nursery on the Wirral and now my fortunes changed dramatically. I could do little wrong and this one pseudo corm has given me literally hundreds of offspring, the quality of which is such that I received frequent favourable comments as to their excellence.

My growing technique at Buxton was to plant up the pseudo corms when they were just starting to show signs of growth and to bring them into the greenhouse. Before planting, most of the old roots were cut off and the corms planted to about one third of their depth into the compost. It was necessary to keep the greenhouse frost free for which I often used an oil stove at night, and by day when it was extra cold. As the season advanced I would place the containers, boxes, pots etc. on the ground underneath the tomato plants where they seemed to benefit from the shade and humidity. They would stay here until the leaves died down when the growing containers would be brought into the attic.

When away on holiday in the summer I used to leave the plants out in the garden where they were frequently rained on continuously but this did not seem to matter. It's not wetness that matters in my opinion but wetness and lack of freely moving air. When the leaves died down in the autumn the growing

containers were simply placed in our attic where they remained cold but dry. Probably not much above freezing most of the time. I have found that Pseudo corms subjected to only one degree of frost will turn to mush if only slightly damp. On the other hand I have left boxes of **pogonioides** outside under a veranda for the whole winter when the temperature went down minus ten to minus fifteen centigrade and they suffered no damage. They were absolutely dry and only had a few leaves over them blown there by the wind. The veranda was on the side of the house, boarded on two sides and having glass windows but open at the front and therefore was at ambient temperature.

On moving to Devon after eleven years in Buxton the situation is rather different. I have found that with the mild winters it is quite easy by using a thermostatically controlled fan heater to keep the greenhouse frost free at a temperature of one or two degrees centigrade. This uses quite modest amounts of electricity. I also run a small electric fan twenty four hours a day to compensate for the greenhouse being totally closed and unventilated. I still pot up my bulbs just as they are starting to shoot in the spring and at the end of the season simply let them dry off and remain in their containers until potting on the following spring. Bulbs left in last year's growing containers need no attention whatsoever and the pseudo corms remain in perfect condition. Once taken out of the compost I find they have a tendancy to shrivel even if left in the greenhouse. In the past I have always repotted annually but over the past two years due to personal circumstances I have not done much repotting. In fact this year almost none. The plants do not appear to have suffered but are tending to climb over each other. This does make the foliage crowding situation worse but otherwise they do not appear to have suffered. However, I do not think it practical to leave them another year. Since moving to Devon I

ventured into trying to grow **forrestii** aquired at considerable expense but must confess that I have not been very successful. Usually after flowering once they seem to go downhill. However, having been given some pseudo corms by Kath Dryden and advised to grow them in pure sphagnum, I must say that they are looking quite good, certainly the best so far.

My prefered compost nowadays consists basically of something like 75% chopped live sphagnum and some "Pinegold Nuggets" bark (Erin I believe usually sold for paths etc.). If the texture of the compost is a bit too loose I simply add perhaps 10% of grit, fine peat or even loam. I am convinced it does not matter and I never measure anything but just go by the feel and look of it. **Forrestii** and **confusa** seem to do best in pure sphagnum, though in the case of the latter with a little quantity of coarse bark nuggets mixed in. Two of my main composts in the past comprised of fibrous loam, moss peat and grit in roughly equal proportions. Later composted forest bark, 25-50, loam 30, grit 10 and peat 10-35. Now it is "Pinegold Nuggets" bark in pieces of about three and a half centimeters long and two and a half wide and half a centimeter thick mixed with chopped sphagnum. The actual size of the bark pieces is not critical. A dash of soil, peat and or grit at the surface, often helps to make it easier to locate the pseudo corms in what otherwise may be a rather springy mix.

When at Buxton, my **pogonioides** did so well they were numbered in four figures and became an embarrassment and I offered them for sale by the hundred. Ian Butterfield purchased a quantity from me and thought the quality so good that he informed me that he intended to stage them at the Chelsea Flower Show. I never did hear how they got on.

When buying "Erin Pinegold Nuggets" bark I find that much of it is too coarse but one or two passes through a chipper produces plenty of usable material. I discard the fines as being undesirable, even more so if mixed with Perlite or vermiculite as in my experience pleiones do not readily root into such a mixture. I presume that it is because it tends to stay rather dry and airless being difficult to wet out. A coarse and open mixture with sphagnum to hold some water seems to be the answer.

When on holiday in the summer I have my greenhouse fully ventilated with automatic lights and doors permanently open and a timed watering programme. My watering system takes no account of the prevailing weather and is at best a compromise. If the weather is very hot and sunny the plants may get a bit dry but I do not think this matters in the short term. If dull and cool then some rotting of the foliage may occur but my losses have not been heavy so far. The alternative of course is never to go away. The chance of finding someone to look after the plants satisfactorily in ones absence I find is distinctly problematic. My watering system comprises of misting type spray heads, two foot in height above the bench and at four foot spacing, programmed to operate for two minutes at 10.00am and two minutes at 7.00pm. This seems to be a reasonable compromise and keeps things pretty wet. The morning watering keeps the plants happy by day when temperatures may get high and the evening damping down I believe helps to prevent leaf tip burn. I never worry about how hot the greenhouse becomes but make sure the damp atmosphere prevails. I must confess that if left for too many weeks like this some fungal attack of the foliage is quite likely. I think that in future years I shall incorporate an air extraction system to improve the ventilation. Perhaps I should mention that throughout the summer the glass is permanently shaded either by the use of green P.V.C.

blinds or the application of a proprietry brand of whitewash i.e. "Coolglass". Slugs and snails can be a nuisance under these conditions and a liberal use of slug pellets is recomended. Some years ago I visited a famous orchid nursery in the South West and was amazed to find pleiones in an orchid house with tropical orchids at a temperature of 70 degrees F. plus and a really high humidity. The pleiones appeared to be doing really well and I bought some good specimens of alba, **hookeriana** and **humilis. Hookeriana** did not really do well with me and I am sure it was not warm enough at Buxton. In my case, the pseudo corms are growing often touching one another or at one pseudo corm's space apart in trays and pots on a raised bench. This means that as the season progresses the bench just becomes a forest of leaves. Some water shadowing does occur and ventilation isn't all that could be desired, but on the whole it works out pretty well and losses are small. The containers that I use are varied. I favour clay pans approximately twelve inches diameter and five inches deep also eleven inches square by five inches deep. When these are in short supply I make do with plastic trays as used by D.I.Y.car enthusiasts after drilling some drainage holes in the base. These measure 21" x 13½" x 3½". The standard 13½" x 8½" x 2½" seed trays also serve when neccessary although are a bit shallow. The large trays work well but are rather heavy and a bit cumbersome.

FEEDING. During the growing season I drench the compost weekly or every other week with half strength general fertilizer such as "Miracle Grow" and later change to half strength tomato fertilizer such as "Tomorite". If I am in a great hurry the solution is simply sprayed over the leaves followed by a one minute burst of water spray to wash it down. This much more so late in the season when it is difficult to see the compost for leaves. With regards to

feeding I feel thet it is really a case of applying a general fertilizer with a fairly high nitrogen content once the roots have grown to a couple or so inches in length. This encourages good leaf growth. Once the leaves are more or less fully grown and corm development commences I change to the low nitrogen feed. The idea being to build up the corm without making it soft. Too much nitrogen may give a large corm at the expence of good flower production.

My efforts to place boxes of pleiones outside during the summer has not been very successful here in the South West. They never seem to thrive and slugs are a nuisance particularly if watered frequently. I think that perhaps outside they were unduly neglected and tended to dry out excessively. I have however naturalized a few **pogonioides** in the garden where they flower annually but do not really thrive.

A problem often experienced is the tendency for certain pseudo corms to multiply but remain small. The simple solution I find is to disbud the corms leaving only one growing point when planting out in the spring. I find that this often applies with **confusa.** Once one achieves a really good sized pseudo corm, the daughter corms are usually produced reasonably sized. It is often the small ones arising particularly from bulbils which are a problem. I must confess that in the case of **humilis** seed type bulbils which occur commonly at the apex of the pseudo corm, I have had little success in growing on. I don't ever seem to get the conditions right and I must confess that I marvel that better people than I manage to grow pleiones from seed. In Buxton, I often inadvertently dropped small bulbils on the ground, which was pure sand and usually damp as a result of watering run off from the bench above. These small bulbils lying under the bench often used to start to grow unatended, which suggests that the

damp shady conditions suited them. Contrary to popular belief, I find **confusa** is easy to grow if one has a good strain. I have grown pseudo corms from two different sources under identical conditions and one lot prospers whilst the other wastes away. I have no evidence of it being due to Brevipalpus. One problem with my bench system is that it is easy to get problems with rotting if the air movement through the foliage is inadequate. Too much fussing, particularly where watering and fertilizer application is concerned is counter productive and I am sure one of the most important things is really good ventilation. I have no doubt many people will have different ideas from mine, but that is what its all about, and if things always went right and success was assured, how boring it would become. It is basically the challenge that has kept me growing them all these years and it is always a thrill to flower for the first time a variety new to oneself.

What are my favourites? Well, I think it must be **aurita, Golden Ducat** and of course **pogonioides** and **Rakata**!!! etc., where does one stop? I know that some of the names I have used have been changed by the pundits but I prefer the old ones.

I hope my rambling comments may be of some interest as I have at last yielded to the editors constant urging to record my experiences. I think it is only because he, like many others, think that I have some secret as the stock that I produce is usually large and of good quality. If I have, I am afraid that even I am not aware of what it is unless it is a certain empathy that I feel with growing things.

Brian C Turner. September 1998.

IDENTITY OF "BLACK PIT DISEASE" ON PLEIONES

Most Pleione growers will be familiar with what some of us call Black Pit Disease. It starts as small dark flecks on the pseudobulb. These areas enlarge and as the tissue beneath them dies it sinks to form black pits in the pseudobulb. In extreme cases these pits coalesce to form large areas of sunken dead tissue and can end in the death of the pseudobulb. Some pleiones seem more susceptible to this problem than others with **P.forrestii, P.yunnanensis** and their hybrids perhaps the worst affected.

As far as I am aware no-one had previously sought a definitive identification of the cause of the problem, which meant we could only attempt treatment by trial and error not knowing exactly what we were dealing with. To remedy this situation I sent some affected pseudobulbs to the Royal Horticultural Society's laboratories at Wisley for investigation by their Plant Pathology department. There they incubated the samples in a damp chamber and after a few days were able to examine the fungus which grew on the lesions.

They identified the problem as **anthracnose**, a disease caused by the fungus **Colletotrichum gloeosporioides.** This fungus can infest a wide range of orchids as well as many other plants of horticultural and agricultural importance. Leaves and flowers as well, although the pseudobulbs are mainly affected. On leaves the symptoms start as a brown discoloration. As the disease progresses on both leaves and pseudobulbs, large numbers of fruiting bodies may develop in dead areas (though few of us seem to have observed these) and at this time there is a sharp demarcation between healthy and diseased tissue. On flowers, small, round, brown or black spots develop on the sepals and petals. These

spots may coalesce to cover a large part, if not all, of the bloom.

It is possible that black pit symptoms may also be caused by other fungal pathogens, but anthracnose is the only one to have been positively identified so far, and cosidering that this pathogen is known to be widespread and to affect many orchid genera it seems likely that this is the most common culprit.

Treatment

The only fungicide approved for the treatment of this disease which is available to amateurs is mancozeb, sold as Bio Dithane 945. In the USA growers use a fungicide based on thiophanate-methyl, a systemic fungicide, to treat this disease. This chemical is available in the UK, sold as Mildothane Liquid (produced by R P Agriculture)*.
However it is only sold to professionals, and in this country has no label recommendation for this disease and legally speaking should therefore not be used. As thiophanate-methyl is closely related to Carbendazim (also available to amateurs) one might speculate that this fungicide may also be worth trying. Some growers have tried other fungicides which are available to amateurs and to date Systhane seems also to be of some effect. This and Dithane 945 between them offer a real hope of of being able to control this problem. If others have tried these - or any other products - please do get in touch with me and let me know how successful you found them, or write something for the next report so that we can all share your results.

(* Thiophanate-methyl is also contained in Castaway Plus which is a mix with gamma-HCH, and in Compass which is a mix with another fungicide, iprodione. In the former the concentration is the same as in Mildothane, in the latter

there is only about one third the concentration of that in Mildothane. Both of these are also professional products only and neither has a label recommendation for use against anthracnose).

TRIALS AND TRIBULATIONS

I promised to report on the compost trial that I described in last year's Report. I had bought in some P.formosanas to do the trial with, but unfortunately there was obviously something wrong with this lot of pseudobulbs as they all started showing symptoms of fungal attack shortly after planting. I treated them with a fungicide which saved all but two of the bulbs, but obviously this resulted in two compost types (5&6) not being tried. (The loss of the bulb in compost 5 was particularly annoying as this was the mix most of my collection is in and I wanted to compare it with all the others). Growth of the remaining bulbs was poorer than it would have been if they had started healthy. Thus no real conclusions could be drawn from the trials so I have nothing to report!

However, for those of you who - accepting that these results are not really meaningful - want to know anyway, just for the record of the bulbs that did grow, best results were obtained from compost 4, closely followed by compost 2. The remaining composts came in the order 1, 3, 10, 9, 7, 8. As might be expected the poorest results were in the least well drained compost. But in general terms it gave me the impression that many compost types are suitable for pleiones as long as they are well drained, contain a lot of air and the grower is familiar with how to water that particular mix. As for me, I have stuck with a simple mix of 10 parts Cambark minichips, 2 parts peat lumps, 1 part

Perlite. For this year I now also add at least 2 parts moss, more for the trickier species. Whatever your mix, I hope you have a successful growing season.

Key to the compost mixes above

1 Pure Seramis
2 Equal parts Seramis and chopped Sphagnum moss
3 Equal parts Cambark 100, coarse Perlite and chopped Sphagnum moss
4 Four parts of the above (compost 3) and 1 part John Innes No.2
5 Ten parts Cambark Minichips, 2 parts peat lumps, 1 part coarse Perlite
6 As above (compost 5) plus 3 parts John Innes No.2
7 Five parts Cambark Minichips, 3 parts chopped Sphagnum moss, 2 parts peat lumps, 2 parts Cambark Fine, 1 part coarse Perlite
8 Equal parts peat (med/coarse unsieved) and Cornish grit
9 Equal parts Ericaceous compost (Westland), Cornish grit, coarse Perlite
10 Peat lumps only (as per Eric Humphreys method - see the 1995 Report pages 29ff)

Correction. The phone number for Cambark products given in last year's Report had one "0" missing from the end. The correct number should therefore be 01254 356600. Apologies for any inconvenience or confusion this may have caused.

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ROUNDUP

I hope you have all enjoyed reading the latest edition of the Report and that you have also gained some knowlege from it, knowlege that has been freely given by all our contributors.
A big thankyou to everyone who has contributed to the Report, without your generosity there wouldn't be one.
It seems to have been a good season all round for flowers. I do believe I have worn a rut in the garden path leading to the greenhouse going back and forth to see the blooms. The darkness of the early spring does not seem to have had an adverse effect on the flowers after all. I even seem to have had more luck this year taking pictures of my pleione collection.
Some people I have spoken to have seen the potential to raise new hybrids from their present stock. Hybridising is always a bit of a gamble but exciting and well worth having a go.
I'm sure you all realise that this Report is the last one of the century so get your thinking caps on, sharpen your pencil and inundate me with articles for the year 2000 edition.
Best Wishes to everyone, see you with the next Report? it's up to you.

Peter Bradbury, Bourne End, Bucks.

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