

National
Pleione
Report



Incorporating

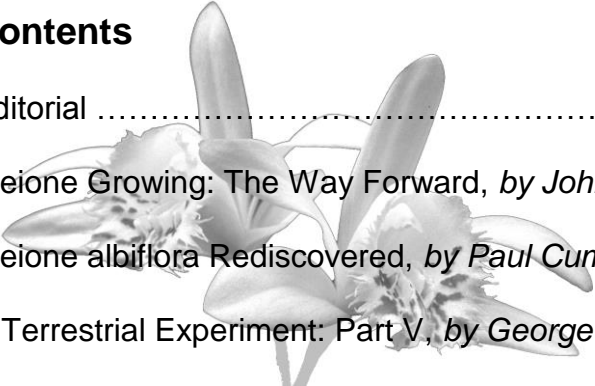
Hardy orchids
2001



NATIONAL PLEIONE REPORT 2001

Incorporating HARDY ORCHIDS

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Cover photo: *Pleione* Mawenzi (*P. yunnanensis* x *P. scopulorum*)

National Pleione Report issue no.14, published June 2001

Editorial

As the responsibility for producing the National Pleione Report (NPR) changes hands, Paul Cumbleton outlines the NPR's history and gives a vote of thanks to Peter Bradbury...

Last year Peter Bradbury asked me if I would be interested in taking over the production of the National Pleione Report (NPR). I agreed to this, which means that the year 2000 edition was the last to be produced by him. My first and most pleasurable duty is to record here a huge vote of thanks to Peter for the immense amount of work he has put into this project over the years. It has all involved a lot more time and effort than many people may realise. Peter has given this time and effort selflessly to provide us with what has become a wonderful source of information about our favourite plants.

A Brief History of the NPR

The NPR was never envisaged as a regular or professional publication. It all started back in 1988 when Peter was retired early and found himself with time to fill. He had thought for some time that it was a pity that there seemed to be so little information available about Pleiones. So he decided to do something about it. Ian Butterfield enabled Peter to contact a few of his long-standing customers who he thought were especially interested in Pleiones. Peter wrote to them and asked each to write a short piece describing their

methods of cultivation and to send it to him. The idea was simply that he would type out these short articles and each of the contributors would receive a copy of all of them. He could have simply sent out a bunch of photocopied sheets, but to make them look more appealing he decided to bind each set together, added a cover and gave the collected articles the title "The National Pleione Report". The copies were duly sent to the small handful of original contributors. That could have been the end of it but word spread about the articles and requests for copies started coming in from all over. More than 100 copies of this original issue were eventually distributed!

This first issue was done laboriously on an old manual typewriter with no automatic correction facilities. People requested that the Report should be more than a one-off so it became a yearly production. An electronic typewriter was purchased which speeded up things somewhat, but each copy has still been cut to size, put together, stapled and bound individually by Peter's own hand. Peter also realised that if this was to be a yearly production, Pleiones alone did not really give enough material to fill each issue, so he decided to include one or two articles on hardy orchids and Disas. Thus the title was expanded to become the now familiar "National Pleione Report incorporating Hardy Orchids". For many years the contents were all plain text, but in more recent issues he was able to have a photograph on the front cover and then also to include some colour photographs inside that have added greatly to the enjoyment and interest we gain from the publication. Through charming persuasion he was able to do this without adding too much to the cost. So, as Peter hands on the reins and turns his time to other projects, there is something I am very happy to offer Peter on behalf of us all...

A Big Thank You!

The time and effort involved in producing the NPR has included not only the typing and physical putting together of the copies, but canvassing for articles, buying the materials, arranging for the copying and the printing of the photos, addressing and despatch of the finished copies etc. All of this was done without the aid of a modern computer. The final result of this effort has been a publication we have much enjoyed and from which we have all learned a great deal. Peter, your efforts have been really appreciated. THANK YOU SO MUCH!

The Future of the NPR

With access to a computer I should be able to produce the NPR more easily than Peter could. I am no expert in desktop publishing however, so bear with me! I would like to take advantage of the possibilities it offers to make some changes that I hope will make the NPR even more enjoyable. You will already notice some minor changes to the text formats and layout this year that I hope you will approve of. Next year I would like to make further changes mainly to the physical format, depending on the views that you, the contributors and readers, expressed in the survey that accompanied the subscription form. Whatever changes happen, the future of the NPR depends ultimately on articles contributed every year by you the subscribers. As Peter always said, "No articles means no Report". Please consider writing something for next year's issue; even a short note or a single observation can be of interest.

Pleione Growing: The Way Forward

Good cultural practise is so important. Here John Craven, a commercial grower who uses an organic approach, gives some good advice...

My article in the 1998 NPR described the cultivation of Pleiones outside in full sun. I am still growing my sale plants this way and I am very happy with the results. Following on from this article, I thought it would be useful to look in more detail at how we look after our Pleiones. It is quite easy to forget the basics and get carried away with the introduction of new species and hybrids - all very exciting for the enthusiast.

When a collection of plants is brought together, over a period of time problems can occur if proper cultural practices are not put in place. The more intensively the plants are grown the greater the risk of infection. Nearly all growers large or small have their own methods - if these give good results then stick to them. By all means try out new ideas but evaluate them against existing and tested methods. For many years I have been growing my Pleiones organically which relies mainly on the care of plants through observation and good cultural practices and the very minimum use of insecticide. One of the most accommodating things about *Pleione* culture is that they fit into our four seasons beautifully. Winter is the season when the majority of Pleiones are fully dormant and the only time of the year when we can inspect each bulb individually. It is sound practice to knock them out of the pots, separate the bulbs, trim back the old roots and remove the old shrivelled pseudobulbs annually, discarding the old compost. When trimming off the old

roots the bulbs can be checked for fungal damage and that they are true to type. I like to dust the dormant bulbs after trimming with sulphur powder and again prior to planting. Good hygiene is important - new compost, clean pots and greenhouses will greatly help in the control of pests and diseases. Aphids are the most common pests that attack *Pleiones*. To control these I use liquid Derris. This has no effect on the foliage at any time. *Pleione* leaves are very sensitive to chemicals and quite easily burn, though outdoor grown stock are less prone to aphids and therefore require less spraying. I have not found it necessary or desirable at any time to use scheduled chemicals in order to maintain the stock.

In my feeding programme I use a seaweed extract called Maxi-Crop, which is organic. Its natural properties help to prevent attack by pest and diseases and it is also effective in the prevention and control of red spider mite. The greenhouse where plants are grown is also the key. Poor ventilation in many small greenhouses with just one or two openings can cause serious problems, the plants becoming too hot very quickly. This puts them under great stress and is one of the main causes of leaf tip dieback. The movement of air is important. You may say I am old fashioned but I still grow the majority of my exhibition plants in clay pans. I like these, they help to keep the roots cool in hot weather and if they do get too wet they dry out quickly.

I have been following this method of cultivation for many years. My stock is producing more flowers now than at any other period, and I have had a good number of varieties for over thirty years. There is no substitute for good husbandry and the organic approach is gaining popularity in many areas of horticulture.

***Pleione albiflora* Rediscovered**

The true *Pleione albiflora* has at last been seen both in its natural habitat and in cultivation. Paul Cumbleton relates these welcome occurrences....

Plants supposed to be *Pleione albiflora* have occasionally been offered in cultivation but have invariably turned out to be something different, often *Pleione grandiflora*. More commonly a plant named *Pleione albiflora* 'Pinchbeck Diamond' is offered, but this plant does not agree at all with herbarium specimens or with botanical descriptions of the true *P. albiflora* and is undoubtedly no more than a clone of the hybrid called *Pleione* Eiger (*P. formosana* x *P. humilis*)

The history of *P. albiflora*

Cribb and Tang described the true *P. albiflora* in 1983 in Curtis's Botanical Magazine 184:177. This description was made from herbarium specimens after it was realised that some of these, originally identified as *Pleione grandiflora*, were in fact something new and different. So the plant was described and the name *P. albiflora* was published before any living specimens had been seen or recognised. Since then there has been just one report of it being seen in the wild, in 1993 by someone called Swift, but otherwise until very recently it has not been seen again and has certainly not been in cultivation. A photo of a rather withered white *Pleione* was published in 1999 that had been taken by the late Dr.

Horst Pfennig (Journal Für Den Orchideenfreund 6: 82) and which was almost certainly *P. albiflora*.

Then in 2000 Dr. Gianantonio Torelli published his book “The Genus *Pleione*” carrying on its cover a picture of a true *P. albiflora* in flower, with further pictures inside. These are the first pictures ever published of a living plant in full bloom. This was a plant that had just flowered for him, having been received unintentionally among an importation of other known species. One notable feature of *P. albiflora* is that it has a distinct spur at the rear of the lip and this is evident in his pictures. This plant is thought to have originated from the Baoshan area of China and is the first known example in cultivation. It agrees perfectly with the herbarium specimens and botanical description. A very small number of other plants have since appeared in Germany and in the U.K. (see photos on page 9).

Searching for *P. albiflora* in Burma

In an attempt to rediscover *P. albiflora* in its natural habitat, Gunther Kleinhans researched the known information at Kew and set out for Northern Burma in the late spring of 2000. He has kindly provided some notes about his travels. He says that it was at an altitude of 2600-2700m in the Hpare pass in Kachin State that his search was rewarded. As he came up the hill toward the pass he came across a *Pleione* in flower. It was pure white with brown markings on the lip and was indeed a *P. albiflora*! In the pass were further plants. Most of these were off-white with mauve veins on the back of the petals and sepals and with lips marked with reddish brown and yellow. Some had more yellow among the brown markings than others. There was a second population about 10 miles away with similar

colourations. Though the flowers at these locations are different in colour to Torelli's plant, they are certainly still *P. albiflora* and fall within the known range of colours for this species.

Also in this area were many *P. forrestii*, including just a single group of the white form. Although the *P. forrestii* and *P. albiflora* overlap, the *P. forrestii* generally are more abundant at about 300m higher than the *P. albiflora*. Interestingly there were also just a few *P. x confusa*, the natural hybrid between the two.

Conservation Status

Though now rediscovered, the conservation status of *P. albiflora* may possibly be a cause for concern. The Chinese are logging the border areas extensively and here there is little habitat left. At the second site where *P. albiflora* was found they were growing on a single tree left unlogged on the bank of a small stream. At this site many *P. forrestii* were also in flower but only growing on the remnant trunks of felled trees. However, the famous plant hunter Frank Kingdon Ward found further habitats in the north of Kachin State, east of Putao. This area is unreachable yet for the Chinese and here *P. albiflora* may well be locally abundant and unlikely to die out soon. Efforts are under way to cross-pollinate some of the few plants in cultivation. If this is successful it is hoped that this species can be established in cultivation from seed-raised plants. This would help reduce potential collection of plants from the wild and help conserve this probably rare species.



Pleione albiflora (Burmese form)



Pleione albiflora (Chinese form)



Side views to show spur

A Terrestrial Experiment: Part V

George King continues his series on his efforts at raising some hardy orchids...

As we welcome our new editor, we sadly say farewell to one, who during the time he has held the reins has done so much to make this magazine the interesting and informative yearly publication it now is. I also wish our incoming editor the same success.

Now to my notes for the year 2000. Eleven jars of *Ophrys apifera* germinated with very good results. These had been sown by asymbiotic culture on the 10/05/00 using modified Thomale medium with added vitamins and strained pineapple juice. The protocorms produced chlorophyll by the 26/08/00 and were then transferred to a light unit to continue growing. By the 06/01/01 the seedlings had reached a height of half an inch, and as these seedlings grew thickly they were now in need of replating. It is now April and I still have not got round to it. The question I'm asking is why I had such good results; having harvested the *apifera* seed, I have proceeded to sow this same seed in three successive years with the best results in the second year. The experiment was also repeated with some European *Ophrys* with similar results, so this exercise will continue.

During the sowing of these eleven jars I did make one other change, which may be of interest. It is my usual practice to wash the seed in a 5% calcium hypochlorite solution before I put the seed into the packets to be sown. However on this occasion I had run out of calcium hypochlorite, and not wishing to delay proceedings found some thick domestic

bleach. It was here that I ran into a problem, as on pouring the 5% solution into a test tube containing the seed, the test tube filled with froth. The solution was to use a sterilization tube that I had been given some two years previous and which had laid idle in a drawer. For those not familiar with this device, it consists of a glass tube with a fine filter two-thirds from one end and a rubber bung inserted in each end. With this it is a simple job: remove both bungs and pour the contents of the test tube into the larger area of the sterilizing tube. Then wash cooled, boiled water slowly over the seed to remove the froth. Now invert the tube, pour sterilized water in the other end and wash the seed into a sterilized handkerchief as described in my 99 notes. There is no loss of seed, and domestic bleach is easier and cheaper to obtain than calcium hypochlorite. The sterilizing tube was obtained from Orchid Sundries. (*Editor's note: Orchid Sundries was bought by Ratcliffe Orchids¹ in 1997*).

Four years ago I had the notion of keeping notes on the growing of Pleiones as a total newcomer, and since my initiation I have got quite attached to them. They also fill a gap between the Paphiopedilums which finish flowering in March and the *Ophrys apifera* starting to flower in June. The start of the exercise was to research into the requirements of their culture, to be followed by a visit to a nursery whose owner would advise which cultivars were suitable, and then to place an order. So far this was all theory but in January it would all change with the arrival of the dormant pseudobulbs. I had read that the compost should be open so I used the same material as I did for the *Ophrys*, which is John Innes No 3 with plenty of grit. As a quick check on the drainage, I filled a clay pot with the compost and then watered; if the water ran out of the bottom in five seconds I was satisfied. With Pleiones the reward comes first with the flower growing from the base of the pseudobulb. This is followed by root action, sometimes so vigorous as to lift the

pseudobulb clear of the compost, so that with great care I have to re-site the pseudobulb without damaging the roots, which are not replaceable. As the root system is shallow it will not be long before the roots can be seen running over the surface and around the rim of the pot. In hot weather I have to water twice a day, but in cold damp conditions I give a light spraying early in the day. At first all my pseudobulbs were grown in single clay pots which, should I make an error, would confine the damage, but as my stock increased I started to plant out in groups. Some will divide quicker than others. After three years I am beginning to get the hang of it and I am now able to purchase with confidence some of the better varieties. The additions this year were *Pleione chunii*, of which I had seen a photograph and on flowering it, I was not disappointed. The other addition was Vesuvius 'Tawny Owl' (see photo on page 14). What sold me here was the large brownish-orange lip. Unfortunately this year there was no split so I will have to be content with a single replacement pseudobulb for next season.

Just when you think everything is going to plan up pops a condition to upset the applecart. Having got a very good start with my *Ophrys apifera* outside, with steady growth through the winter and spring, just before flowering the weather changed. We had a three-week spell of hot sun. "Fine" I thought. I had a good show of flowers from the bee Orchids and plenty of seedpods, after which the weather changed to cold and wet. I noticed some of the stems keeling over and found rot had got into the crown of four tubers. The whole collection was lifted. The rest were all right, being grown higher up the slope; no doubt conditions like this account for the fluctuating growth of plants in the wild but I could not afford the loss. A portable top has now been made to give shade and to control the amount of water the plants receive after flowering. But it was not all gloom; in August 2000 I had one jar of replanted European *Ophrys* containing four seedlings. As my track record

for weaning out in pots was zero, I decided to plant the seedlings in with the *apifera* outside, and to my relief two of them grew. When the top growth had started to dry up the following April, I had one of my internal debates: if I lifted them to find out how they had grown, I might lose them; but if I did lose them for some other reason I would not know how they had developed. I eventually took the view that if successful the knowledge was there to be repeated, so the tubers were duly lifted and I was pleased to see that both had produced a new tiny tuber. Clearly with this result the experiment will continue.

As I conclude these notes for this year, the bee orchids are showing flower spikes, as are the pyramidals. I've still got to do those replants, and I forgot that the *Paphiopedilums* need repotting. It's never ending, so until next year, my I bid you all good growing and remember: failure is also knowledge.

Reference:

¹ Ratcliffe Orchids Ltd, Pitcot Lane, Owlesbury, Winchester, SO21 1LR
Phone: 01962 777372 Fax: 01962 777664 Email: Ratcliffe@zoo.co.uk
Website: <http://www.ratcliffe.uk.com>



Pleione Vesuvius 'Tawny Owl'

Pleione aurita*: A Different Species From *Pleione chunii

Pleione nomenclature is far from a settled subject. Here Gianantonio Torelli, M.D. gives us his views on two names with a confused history...

(This article is partly modified from the monograph "THE GENUS PLEIONE" written by Gianantonio Torelli and published by CAESIANA in winter 2000; for copies please contact the editor: Prof. Franco Bruno, Dipartimento di Biologia Vegetale, Università La Sapienza, piazzale A. Moro 5, 00185 Roma, Italy)

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Phillip CRIBB, after having described *Pleione aurita* in 1988, did self-criticism in 1994 in THE ORCHID REVIEW **102**: 276, disowning this name and restoring the old name of *Pleione chunii* for this plant, on an alleged priority of nomenclature. But is this statement correct?

Let's analyse this taxonomic problem. *Pleione chunii* was described by TSO in SUNYATSENIA vol. 1. No. 2-3: 148-151 (1932), on the basis of a specimen collected by CHUN (Chun 43047) at Lockchong in the Chinese province of Guangdong. *Pleione aurita*

was described by Phillip CRIBB in DIE ORCHIDEE, **39** (3) (1988) on the basis of plants collected in Yunnan. According to Phillip CRIBB (1994) in the folders of *Pleione hookeriana* preserved in the Beijing herbarium there are some specimens of *Pleione aurita*, labelled as *Pleione hookeriana*, and one specimen, labelled as *Pleione chunii*, so similar to *Pleione aurita* to urge CRIBB to synonymize this latter name with the older name *Pleione chunii*. The RHS (I remember however that RHS has authority only in the recording of hybrids, while it does not have any authority on the taxonomy) has accepted CRIBB's proposal and therefore it considers the name *Pleione chunii* as the only one valid in recording hybrids. Personally I have many doubts on this interpretation, as I will now try to explain. CRIBB in his original description (1988) compares *Pleione aurita* to *Pleione hookeriana*, and he points out the obvious differences; in that moment he doesn't consider *Pleione chunii*. Indeed in his book THE GENUS PLEIONE (1988) Phillip CRIBB, at page 77, describes *Pleione chunii* in these terms: " *Pleione chunii* differs markedly (from *Pleione yunnanensis*) in the shape and size of the sepals and the petals and in having six fimbriate lamellae, rather than five entire lamellae on the lip. From the original description it would appear to be more closely allied to *Pleione bulbocodioides* but it is possibly distinct as it has mottled pseudobulbs, broader sepals and petals and six, rather than four or five, lamellae on the lip". I repeat: mottled pseudobulbs and six fimbriate lamellae on the lip. These characters, which CRIBB derives from the original description, clearly contrast with *Pleione aurita*, which instead has green pseudobulbs and five rows of hairs in the callus. This is confirmed from the fact that CRIBB in his book (1988) does not relate *Pleione chunii* to *Pleione hookeriana* (that has hairs on the callus of the lip) but to *Pleione bulbocodioides* (that has lamellae in the callus); if *Pleione chunii* had had hairs on the lip TSO, and therefore CRIBB,

would have surely noted it; instead they spoke about lamellae. In 1994, as mentioned before, CRIBB synonymized his new *Pleione aurita* with the old *Pleione chunii*.

On this statement I think that we have to make some considerations. In the Beijing herbarium CRIBB found that in the folders of *Pleione hookeriana* there were some *Pleione aurita* specimens wrongly labelled as *Pleione hookeriana* and a specimen (of *Pleione aurita*, I think) wrongly labelled as *Pleione chunii*. It is probable that the Chinese botanists in the past had found *Pleione aurita*, but that they had confused it with *Pleione hookeriana* var. *sinensis*, that has conical-elongated green pseudobulbs quite similar to the *Pleione aurita* pseudobulbs and flowers also characterized by 6-7 lines of yellow hairs on the lip. I think therefore that in the Beijing herbarium we can find mixed together, badly labelled because erroneously identified, specimens of *Pleione hookeriana* var. *sinensis* and *Pleione aurita* but no true *Pleione chunii* specimens. The finding of one or more herbarium specimens wrongly identified and/or wrongly labelled, do not justify ignoring the original description done by TSO in 1933, that is the only reliable datum that we should consider. The TSO description of *Pleione chunii* is so accurate and detailed that we have to regard this plant as an autonomous species, well different both from *Pleione yunnanensis*, to which it is compared by TSO, and *Pleione aurita*, to which Phillip CRIBB synonymizes it.

To dispel all doubt, I will compare the obvious differences between *Pleione chunii* and *Pleione aurita* in a table; these features are drawn from the original TSO description regarding *Pleione chunii* and from the original CRIBB description regarding *Pleione aurita*, integrated by personal examination of several live flowers for this latter species. The table follows overleaf...

Table comparing the differing features of *P. chunii* and *P. aurita*

Feature	Pleione chunii	Pleione aurita
Pseudobulb	Depressed-globose to conic-ovoid, green mottled with purple spots when old	Conical, even green colour
Pseudobulb measures	1-1.5 x 1-2 cm	3-4 x 2-2.5 cm
Bract	3 x 0.8 cm, truncate, green	1.8 x 1.3 cm, sub-acute, rose
Flower	Rose-purple	Rose- lavender
Petals	Sub-acute	Rounded
Lip	Rose-purple, with numerous darker blotches	Even rose-lavender, without any coloured blotches
Apical margin of lip	Fimbriate	Undulate-erose
Callus	6 fimbriate lamellae	5 lines of long yellow hairs
Ovary	1.5 cm	2.2 cm
Distribution	Guangdong	Yunnan

The differences stated in this comparative table are so obvious that it is impossible to have any doubt that they are two distinct species. The pseudobulbs have different shapes and dimensions and in *Pleione chunii* they have purple spots when mature, while they are always and only green in *Pleione aurita*. The flower colour is rose-purple in *Pleione chunii*,

while is rose-lavender in *Pleione aurita*. The lip unmistakably differentiates the two species: in *Pleione chunii* it has many dark blotches, its apical margin is fimbriate and the callus has six fimbriate lamellae, while in *Pleione aurita* the lip has no blotches, its apical margin is undulate-erose and the callus has five lines of long yellow hairs. A last consideration: the type of *Pleione chunii* was described on the basis of a collection from Guangdong, a region very far from Yunnan, where *Pleione aurita* grows. It is difficult to think that the same plant can grow in such distant regions.

Based on these considerations I prefer to maintain the name *Pleione aurita* for the species with green pseudobulbs, rose-lavender flower and five lines of long hairs on the callus, coming from Yunnan and described by CRIBB in 1988, leaving instead the name *Pleione chunii* to a species with mottled pseudobulbs and six lamellae on the callus, coming from Guangdong and not yet rediscovered.

CRIBB's decision to reduce *Pleione aurita* to a mere synonym of *Pleione chunii* is now creating many practical problems, above all a great confusion in hybrid registration, as the Royal Horticultural Society now accepts *Pleione chunii* as the only valid name for these two species so different from each other. I hope that these notes will bring clarity on the species that TSO described as *Pleione chunii*. I also hope that *Pleione aurita* will regain its own name and that soon the Royal Horticultural Society will correct the parent name in those hybrids in which *Pleione chunii* now appears as a parent. I am firmly convinced that future botanical studies in Guangdong will lead to the rediscovery of the true *Pleione chunii*.

Goodbye *Brevipalpus*

Paul Cumbleton advises of effective controls for this widespread pest....

Many growers of Pleiones have worried about the possible presence on their plants of a pest mite called *Brevipalpus oncidii*, one of the so-called false spider mites. Though known about for many years, we should thank David Harberd for focusing recent attention on it, both in the NPR (1995 issue) in his article in The Bulletin of the Alpine Garden Society (Vol. 66 No. 4, pages 480-483). His descriptions however of the effects this pest can have on our plants may have depressed many of us and even put off some people from growing Pleiones altogether. In another article (Vol. 67 No. 2, pages 178-179) Ian Butterfield reminded us that poorly growing plants are not always due to *Brevipalpus* and of the importance of good cultural techniques. Where *Brevipalpus* is present though it can seriously affect the growth of our Pleiones. However I have good news - ***Brevipalpus* can be easily and effectively controlled** by several means.

About *Brevipalpus oncidii*

Brevipalpus belongs to a family of mites known as the Tenuipalpidae. Knowledge of the biology and control of this family of mites is still limited, though more is known about the species that are important pests of agricultural & horticultural crops. They are a particular problem on citrus, tea, grapes and various ornamental plants. The species causing

problems on Pleiones is *Brevipalpus oncidii*. In commercial terms this is regarded as an occasional pest, recorded mainly on *Oncidium* and *Odontoglossum* species in California and England. Although we know it also infests Pleiones, I can find no published research about it on this genus, probably because they are not of sufficient commercial value to warrant spending money on scientific studies.

My observations

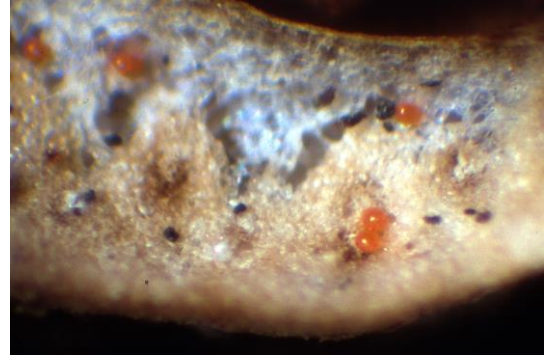
I decided to make observations on *Brevipalpus oncidii* and to try out various possible control methods. I have some entomological training and access to a microscope with an attached camera, so I started by looking at *Brevipalpus* under the microscope to familiarise myself with it and to take photographs. I then placed several infested bulbs in a warm place (my airing cupboard!) to culture the pest and watch the life cycle. The temperature varied between 20 and 24 centigrade throughout the period.

a) The eggs

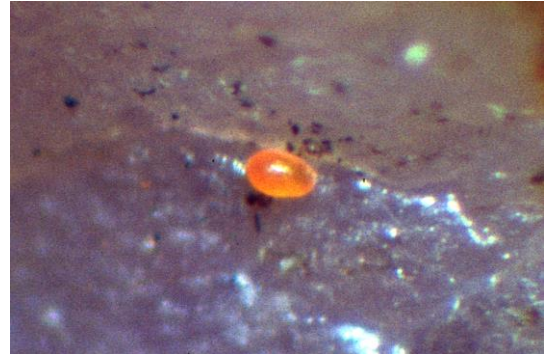
Brevipalpus eggs are round tending towards oval and a bright orangey-red (see photos 2 and 3 on page 22). They were laid on all parts of the Pleione plants - roots, pseudobulbs, bulbils and leaves. However they had a preference for some locations over others: they most favoured laying on the underside of the pseudobulbs and in the depression at the very top of the old pseudobulbs formed where last years leaf used to be attached. The time from laying to hatching varied somewhat, but most hatched about 20 days after laying.



1. *Brevipalpus* adults



2. *Brevipalpus* eggs laid in old leaf scar



3. Close up of *Brevipalpus* egg

b) The adults

After hatching, the young mites go through some juvenile stages and take from four to six weeks to reach the adult stage. The adults are oval in shape, narrowing at the rear end and are reddish in colour (see photo 1 on page 22). They walk over all parts of the plant, though often favouring the underside of the pseudobulbs. Their movements are rather slow compared to those of the more familiar Red Spider Mite *Tetranychus urticae*, but they move more quickly the warmer they are. They feed by inserting their mouthparts into the cells of the plant, injecting a kind of saliva to digest the contents and then sucking out the resulting fluid. The saliva contains chemicals that include persistent systemic toxins. These toxins are transported to all parts of the plant and are responsible for the detrimental effects seen on our Pleiones.

Experiments with control measures

I chose various chemicals that I thought may have an effect on *Brevipalpus* and used dip tests to see how effective they were. Dip tests involve literally dipping infested pseudobulbs (during their dormant season) into chemical solutions, immersing them for just a second before removing them. The treated bulbs were then examined at regular intervals under the microscope to see if the mites were dead. Examinations continued for a month after treatment in order to ascertain if any eggs hatched or whether they had also been killed by the treatment. One treatment was subsequently also tested by spraying growing plants in the summer.

Results of experiments

David Harberd has mentioned the effectiveness of the chemical Childion and my own tests confirm this, but this is a professional pesticide unavailable to amateurs. He also suggested as an extreme measure to start a collection afresh from bulbils that he believed were a part of the plant not infested by the mites. Unfortunately my own observations on *Brevipalpus* revealed that they happily infest all parts of a plant including the bulbils and I have taken photos of them on these. I therefore cannot recommend this approach. Happily, it is not necessary as there are now effective chemical controls available to amateurs.

Based on the tests, I can recommend the following treatments for control of *Brevipalpus* mites:

a) Polysect (active ingredient: Bifenthrin)

This was used at the strength recommended for control of Red Spider Mites. It effectively killed adult *Brevipalpus* but had no effect on the eggs. To gain complete control therefore, more than one treatment is needed (in order to kill mites hatching from the unaffected eggs after the first spray). The studies on life cycle suggested a suitable programme would be to treat three times with the treatments timed three weeks apart. This assumes the warm temperatures the studies were done at. To test this theory and also to see if Polysect works when applied as a spray during the growing season (when temperatures may be expected to be closer to those in the studies), I tried it on a collection known to be well

infested with *Brevipalpus*. The plants were sprayed thoroughly at the end of June, again in the third week of July and a final time three weeks later, in the second week of August. At the end of the year the bulbs were examined while dormant under the microscope. No *Brevipalpus* mites or eggs could be found.

b) Neem Oil

Neem is a natural product extracted from the Neem tree and has been used in Asia as a natural insecticide for hundreds of years. It is now available more widely including in the UK (see list of suppliers on page 27). It works by a variety of actions, both physical and chemical. Using this at the standard strength recommended on the label, it effectively killed both adults and eggs. As it is a natural product this would be a good choice for those of you who prefer an organic alternative. This was only tested by the dipping method but there is no reason to think it would not also be effective as a spray.

c) Horticultural Spraying Oil

The value of light mineral oils as insecticides has been known for some time. Their action is not due to being toxic to the pests but is a physical effect, clogging the breathing pores of the insects and thus smothering them. The product I tested was "Horticem Spraying Oil". Although a professional product, it can be purchased and used by amateurs. This is because it was recently de-registered (due to its physical, non-toxic mode of action). This means it is no longer regulated by the Control of Pesticides Regulations 1986. The producers of the product confirmed this to me in a recent Email and enquiries at a local

stockist confirmed they are happy to sell it to the general public. Though non-toxic, it can irritate the skin, so do wear gloves while using it, and of course observe all the other precautions on the label. In my tests it was, like the Neem oil, very effective at killing both eggs and adults of *Brevipalpus*.

d) Childion

This chemical is for professionals only, but for them I can confirm that this product is effective at killing both the adults and the eggs of *Brevipalpus*. More than one treatment may be necessary to get complete control.

e) Methylated Spirit

A rather extreme treatment which some have tried is to soak the dormant bulbs in methylated spirit. This treatment is probably illegal under UK regulations, but for historical interest it might be noted that a soak of an hour or longer was needed to kill both adults and eggs. The obvious question is whether this might also adversely affect your bulbs? I know of two people who have tried this without any adverse effect - including one who soaked for 24 hours! The bulbs still grew away fine afterwards. I have however also heard of one person who says his bulbs died after this treatment so beware!

f) Physical removal

For those who have just a few bulbs and access to a microscope, it is possible to use a needle to pick off the mites from each bulb and squash the eggs. You may miss one or two but this method is quite effective at keeping infestation levels down to almost undetectable levels. It is of course time consuming but is at least a completely chemical-free option for those who grow just a few Pleiones.

None of the chemicals described showed any harmful effects to the plants when used as recommended.

Conclusions

Brevipalpus need not be viewed as being any worse a problem than other pests that commonly affect our plants. It should certainly be no reason to put people off from successfully growing and enjoying Pleiones. The mites can be easily and successfully controlled by the methods described. My personal routine is to dip the bulbs while dormant in either Neem or Spraying Oil and then spray with Polysect as described during the growing season. It is particularly important to treat newly acquired bulbs once your own collection is free of the pest as my observations confirm that this pest is very widespread. I always check new bulbs under the microscope and have found that *Brevipalpus* is almost always present on bulbs received from a wide variety of sources. Adopting the control methods described should I believe keep your plants free of this pest.

See the next page for a list of chemical suppliers in the U.K.

Suppliers in the UK:

Polysect is widely available at Garden Centres. The active ingredient, bifenthrin, is also used in other brands of insecticides, which would therefore also probably be effective.

Neem Oil is available by mail order from:

M.A.M. Horticulture, 16, Old Glebe, Tadmarton, Banbury Oxfordshire, OX15 5TH

Phone: 01295 780824 Fax: 01635 674494 Email: LaeliaM@aol.com

Or from:

Orchids by Peter White, 61 Stanwell Lea, Middleton Cheney. Banbury. Oxon. OX17 2RF

Phone: 01295 712159 Fax: 01295 710668 E-mail: Peter@pwhiteorchids.co.uk
Website: www.pwhiteorchids.co.uk

Horticultural Spraying oil is available from some agricultural/horticultural merchants. To find your nearest stockist check out Hortichem's website at www.hortichem.co.uk, phone them on 01980 676500, fax: on 01980 626555 or Email to hortichem@hortichem.co.uk

Pleiones: Some Observations and Remarks

Jan Berg shares some thoughts on breeding and culture...

Post-pollination phenomena in order to avoid a second pollination are, I think, not uncommon in orchids. For example, in *Phalaenopsis* of the *amabilis* type the side lobes of the lip wilt soon after pollination, bending inwards and closing the gate to the stigma. In *Gastrochilus acutifolius* the top of the column swells, barricading the entrance to the flower. In the genus *Pleione* the column bends downwards reaching the lip within three days after pollination, preventing insects pollinating it again. (*Editor's note: The flap of tissue in front of the stigmatic surface also often folds down over the stigmatic surface, sealing in the pollen and preventing any further pollen from being deposited. Sometimes the whole flower also droops downwards*). In the closely related genus *Coelogyne* I observed the same reaction in *C. corymbosa*.

Such mechanisms seem important to plants with a multi-flowered spike or with more than one flower spike on a plant. They increase the chances of another flower being pollinated. This is less important for plants in the wild that normally bear just one flower on one or at the most two stalks, as in the genus *Pleione*. But perhaps the fact that they also multiply by vegetative means, so forming more flowers per 'individual' plant, is enough to maintain this phenomenon. Bending of the column does not mean that fertilization has taken place. When for example pollen of the African orchid *Ancistrochilus thomsonianus* is brought to

the stigma of *Pleione maculata* the column also bends. Perhaps even the pollen of a tulip would have this effect. (*Editor's note: For fun I tried this out but the tulip pollen had no effect!*)

In the 1999 issue of the National Pleione Report (NPR) I mentioned the making of the artificial *P. x lagenaria* and the probability of one clone being polyploid. It still has to be confirmed. The chromosomes of *Pleione* are extremely small and with my equipment, a student's microscope (x 1000) and staining with toluidine blue¹, I was not able to do so. In July 1999 one bulb of this clone made two new shoots in addition to the two already half-grown shoots. In October 2000 these extra shoots came into flower. The flower size and colour were back to the normal *P. x lagenaria* and the bulbs bore just one leaf as the *P. praecox* parent does. I have been growing the *P. praecox* parent for at least ten years and it never had more than one leaf. I think this spontaneous mutation of the clone (which I named *P. x lagenaria* 'Tanned Beauty') is in favour of it being a polyploid.

P. formosana 'Cairngorm' is a well-known semi-alba cultivar². The disadvantages of this clone are a short flower stem and a flower that does not open fully. I was lucky to get a *P. formosana* with open, pure white and scented flowers on a tall stem, the lip having rose-purple markings. To my disappointment the next year, under my conditions, the bulbs produced light pink flowers. I grow my *P. formosana* at much lower temperatures than the person from whom I bought this variety. The same effect of low temperatures in a certain period is known from the famous orchid hybrid *Calanthe x Harrisii*. The otherwise pure white flowers get a shade of pink. To my knowledge there is nothing known about the genetic background or mechanism(s) of this phenomenon.

Writing this, I wonder if the *P. formosana* 'alba' that I used to remake *P. x Ueli Wackernagel* (= *P. chunii* x *P. formosana*) and *P. x Eiger* (= *P. formosana* x *P. humilis*)³ is a real 'alba', especially as the Ueli Wackernagel fell clearly apart into a light and a dark form. I will have to self this 'alba' and look at the offspring to get an answer perhaps.

In the year 2000 I grew all my spring-flowering Pleiones, including *P. humilis*, with fine gravel as a top layer. They did fine, but perhaps it was just a good year. At least it does no harm. On the other hand I have the impression that the upper layer of the real substrate does not dry out easily and the roots in that layer benefit from it.

The article in the 2000 NPR by Ian Butterfield about growing *P. maculata* surprised me. Firstly by his mentioning of what may be a *maculata* var. alba. I hope he will let us see it by way of a picture in the NPR; secondly by his difficulties in growing *P. maculata*. I have been growing a few clones since 1985 in a heated greenhouse and they never give me any trouble, except some 'dry rot' this year.

My *maculata* have a place as far from the stove as possible and in the bend between the roof and the wall so they get the best of the cool air at night. I stop watering in the first half of October and they then do not get any further water until I dare not with-hold it any longer, once they already have leaves about 10 cm long. The plants are repotted soon after flowering and not buried in the compost but just placing them on top of it. The compost is not covered with a layer of moss but does contain at least 50% of chopped sphagnum. In this greenhouse I also grow *Paphiopedilum*, *Calanthe* and other 'warm'

orchids. I think in winter the temperature is a bit too high for the *maculata* but I have no better place for them and it works.

References:

¹ G.E. Marks; Stain Technology 1973 Vol.48, No.5, 229

² In my opinion the term semi-alba should be used for albas with normal coloured lips, real albas having at most only yellow in the lip. Should the 'semi-alba' that under certain circumstances has a flush of pink be named 'quasi semi-alba'?

³ National Pleione Report 1999 page 8



Pleiones: A Personal Perspective (Part 1)

M. J. Hazelton shares with us how he was introduced to Pleiones and describes his efforts at breeding new hybrids ...

My interest in orchids started sometime in the early sixties. I used to belong to a walking club at school and we would go on trips to various parts of the countryside. This was in the North Downs area around Boxhill and other localities. I can remember seeing various species of orchids in flower on our travels, namely Bee orchids *Ophrys apifera*, Common Spotted Orchid *Dactylorhiza fuchsii* and Fragrant Orchid *Gynadenia conopsea*.

I first became aware of the existence of *Pleione* orchids sometime during 1964/1965. I saw an advertisement for *Pleione formosana* in I think "Amateur Gardening". I duly sent off for some pseudobulbs in response to the advert. These arrived together with their own special potting compost that seemed to consist of bark, sphagnum moss, peat and osmunda fibre. These plants came from the firm of T. Simmons & Son of Finchley, North London (alas no longer in existence).

These plants did well for me. One turned out to be an attractive pale lilac with fawn lip markings, produced from olive-green pseudobulbs. This particular clone had a nice fragrance and I became a converted *Pleione* grower from that moment on. I visited the

Simmons Nursery on a number of subsequent occasions over several years. Over the years my collection started to grow and I obtained new plants from a variety of sources.

My interest in the breeding of new *Pleiones* started sometime in the 1970s. I saw a splendid pan of *Pleione* Versailles 'Muriel Turner' at an RHS show at Vincent Square and this inspired me to try my hand at breeding. I subsequently made contact with Ian Butterfield who had just started to exhibit at major flower shows at the time. Ian kindly put me in touch with a very reliable seed-raising laboratory with whom I have dealt with ever since. The first of my *Pleione* crosses were made in the spring of 1975. These were:

1. *Pleione limprichtii* x *Pleione pogonoides* (now renamed *P. pleionoides*. See "The Genus *Pleione*", second edition, for up to date nomenclature changes.¹

2. *Pleione limprichtii* 'Primrose Peach' (now a form of *P. bulbocodioides*) x *Pleione formosana* 'Achievement'. This cross produced some nice pale lilac-pink flowers. Many had fluted labella inherited from the *formosana* parent. The markings on the labellum were mostly reddish-brown. Some were well marked with yellow also inherited from the *formosana*. This strain is normally catalogued as pink 'Versailles', although in the light of new information a name change to *Pleione* 'Fuego' is in the offing perhaps.

3. *Pleione formosana* 'Cairngorm' (W2) x *Pleione formosana alba* 'Clare' (incidentally both these *formosana* clones were selected at the Simmons Nursery). This cross produced pale lilac flowers from purplish pseudobulbs. One would have expected an all white progeny from this cross, but the W2 clone of *formosana* is not a true albino-breeding clone. Dr.

David Harberd had similar results using this clone crossed with other true white clones. These produced magenta flowers from purple pseudobulbs. Crosses between two true albino clones normally produce an all-white progeny.

The first *Pleione* hybrid that was registered by me was in 1979. This was named 'Alishan' after the Alishan Mountains in Taiwan from where *Pleione formosana* was imported. (Some people think it was named after a curry house). The cross was originally made three times with three different pod parents. These were:

1. *P. formosana* 'Lilac', a clone obtained from Robinsons of Swanley
2. *P. formosana* 'Serenity', a simple but refined form, possibly a Japanese selection
3. *P. formosana* 'Achievement' obtained from Ingwersens as *P. formosana* 'Special Form'

The pollen parent in all cases was Versailles 'Bucklebury' FCC RHS, which is probably the best clone of Versailles raised to date. It is thought that this clone originated from Morel's original cross in France. The best seedling from my cross came from *P. formosana* 'Serenity' x *P. Versailles* 'Bucklebury'. This had deep purple sepals and petals and a superb labellum marked in dark orange. This clone was named *P. Alishan* 'Brer Fox' but unfortunately it perished several years later.

When *P. Alishan* was made with *P. formosana* 'Achievement' as pod parent, it produced some nice coloured flowers in which many had a fluted labellum. The cross with *P. formosana* 'Lilac' produced rather dingy reddish-lilac flowers, except for one clone that had the petals and sepals strongly tipped white. This clone was subsequently named

'Morning Hoarfrost' and was somewhat similar to Ian Butterfield's Alishan 'Merlin'. It too also faded away at a later date, as not all goes according to plan! It seems that some of the choicest clones are often the most difficult to retain and are slow to increase.

Attempts have been made to cross *Pleiones* with various other genera including *Dendrobium*, *Bletilla*, *Laelia*, *Coelogyne*, *Cymbidium* and even *Calypso bulbosa*. I have used the following *Coelogyne* in various crosses: *cristata*, *fimbriata*, *speciosa*, *ochracea*, *massangeana*, *moreana*, *litiginosa*, *oculata* and also the purported natural hybrid *Coelogyne intermedia* (*cristata* x *albo-lutea*)². To date only one cross produced any seedlings. This was *Pleione formosana* 'Cairngorm' (W2) x *Coelogyne intermedia*. About twenty seedlings were returned from the laboratory and these contained both green and brown-bulbed seedlings. The green bulbed seedlings were the most vigorous and one grew to flowering size. They flowered about seven years from sowing and one produced a nice white single flower marked with yellow on the labellum. The pseudobulbs were more like the *Coelogyne* parent and the growth habit was that of the *Pleione*. The one plant increased and grew well for several seasons before dying off.

I did take a flower to an RHS show to show it to Ian Butterfield. We will however never be sure if it was a genuine bi-generic hybrid, it will remain a mystery. Ian also reported that he had raised a number of *Pleione* x *Coelogyne* crosses that reached flowering and they resembled pale flowered *Pleiones*. (*Editor's note: Ian Butterfield also reports that he believes his plants may have been haploid Pleiones rather than bi-generic hybrids with the Coelogyne. Haploid plants are ones with only half the usual number of chromosomes, so in his plants all of the chromosomes may have come from the Pleione parent*). The mystery remains unresolved.

In my next article I will further expand on my experiments and views on Pleione hybridisation and make some observations on the new Pleione material that is coming into cultivation from abroad.

References:

¹ Cribb P. and Butterfield I. "The Genus Pleione" Second Edition

² Clayton D. (1999) re *Coelogyne granulosa* (Hort) Orchid Review 106 (1219) p. 41
