

2004



THE
PLEIONE
REVIEW



INCLUDING HARDY ORCHIDS

Contents

Editorial	1
Pleiones: A Personal Perspective (part 4) <i>Martin Hazelton</i>	2
The Growing Season 2003 <i>John Craven</i>	4
Newly Registered <i>Pleione</i> Hybrids	5
<i>Pleione maculata</i> <i>Paul Cumbleton</i>	6
The Cultivation of <i>Pleione maculata</i>: <i>Jan Berg, Michael Sexton,</i> <i>Simon Retallick, Stewart Knox and Paul Cumbleton</i> (Five articles)	8
<i>Bletilla ochracea</i> <i>Terry Smale</i>	26
Growth and Dormancy in <i>Pleione</i> <i>Charles</i> <i>Ellwood</i>	30
Growing Moisture-Loving Hardy Orchids in The Garden <i>Malcolm Brownsword</i>	33
“Bulbils”	35

Further information can be found on The Pleione Website at www.pleione.info

Front Cover: *Pleione* Kituro. One of many nice clones from this grex.

Editorial

Welcome to the 2004 issue of the *Pleione* Review, the seventeenth since the first in 1988. The past growing season included a very warm, dry spell last summer, which saw the U.K. record the highest-ever daytime temperature of 38.1° Centigrade (100.6° Farenheight) at Gravesend on 10 August. Undoubtedly this affected the growth of our plants and I have had many reports of both good and bad effects on *Pleione* collections. Several of the authors of the articles in this year's issue relate their own experiences of the effects of this exceptional weather.

A substantial part of this issue is devoted to one species: *Pleione maculata*. This autumn-flowering species has long beguiled growers with its elegant beauty but has also frustrated many an attempt to make it grow and thrive in cultivation. Now however, several growers seem to be getting the “knack” of this species and several of them have written contributions about how they have achieved this. Perhaps in future, as a result, we will see this species as significantly more “growable” than at present.

Other features in this year's issue include some of the usual ongoing accounts of the ups and downs of some personal collections. On the hardy orchid front, we have useful articles on growing *Bletilla ochracea* in the open garden and in using a special “bucket” method for various species of hardy orchids where the ground would otherwise be unsuitable.

Add to this the usual “Bulbils” for your letters and the list of newly-registered *Pleione* hybrids and I hope you will find this year's issue an interesting and useful read.

Paul Cumbleton

Pleiones: A Personal Perspective (Part 4)

Martin Hazelton once again describes the developments with his own collection...

The summer of 2003 caused a few problems to my *Pleione* collection. Those growing in the outside bed only produced two flowers in the spring. They did not grow well during the summer and dwindled away during the very hot spell of weather experienced during August. I have temporarily given up on growing pleiones outside. The temperature in the small 8' x 6' greenhouse reached 110° Fahrenheit. This caused some problems. The *Pleione forrestii* did not grow so well, and my small stock of *Pleione coronaria* only made small pseudobulbs, which subsequently rotted off and were lost.

However, all is not lost; luckily I had some time earlier sent seed of *Pleione coronaria* to the flasking nursery I use. Moreover, I received some flasks of seedlings back in the early spring of 2004. These will take many years to grow on to flowering size, as they are very small. I also have a number of crosses involving *Pleione coronaria* coming along. The most vigorous of these is *Pleione formosana* x *Pleione coronaria*. I managed to re-pot or top-dress (according to the condition of the growing medium) most of the pleiones before the beginning of January.

In early January, I took my wife back to China to Beijing and Shenyang her home city in Liaoning Province northeast of Beijing. It was very cold there with the temperature at 14F and a very long way from the nearest *Pleione* territory. On my return, I re-potted the remaining pleiones and then deflasked in excess of 100 flasks of two-year-old *Pleione* seedlings. I used different compost this time, similar to that recommended by Ian Butterfield - namely three parts of fine grade orchid bark, one part wood/blanket moss. I also added one part of standard grade Perlite to this mix. Part way through the potting I ran out of moss. Therefore, I had to substitute one part of peat based ericaceous compost

for the moss in the next batch of compost made up. In early spring, I received a large consignment of new *Pleione* seedling flasks. These were duly enthroned in the upstairs room, where I grow them on until next winter. At the beginning of April, I erected with the invaluable help of my wife a 10' x 6' mini tunnel greenhouse to help accommodate the ever-increasing number of *Pleione* seedlings. I intend to start selling (initially to UK customers only) those seedlings that are surplus to my breeding requirements. I have a wide range but only very limited quantities of each. I also plan to set up a website, with the help of my stepdaughter. And I have been busy taking photographs to put on this. It is amazing what can be achieved with a digital camera aided by the appropriate computer software.

I am also planning to offer a plant naming service to those people who may like a *Pleione* named after a relative or friend etc. This service will not be cheap, but will be considerably cheaper than the £25,000 sum I have seen quoted in the horticultural press to have a rose named! I currently have four new *Pleione* grexes available for naming. This service will be available for anyone in the world. If interested, please get in touch for further details. I will close this article now and wish all readers a successful growing season.

The Growing Season 2003

John Craven tells us how the hot summer of 2003 was by no means a disaster for his collection...

I am sure we will all remember the summer of 2003 as the hottest on record. As a *Pleione* grower it set me new challenges. My main season starts when the bulbs are removed from the cold store around the middle of March and potted in readiness for the Harrogate Spring Flower Show, which took place during the last week in April. The early flowering clones namely *P. Shantung* and *P. formosana* 'Clare' were potted and then put outside in stacking trays apart from the odd frost, when they were covered in fleece. The weather at the time was quite favourable; exterior shading was applied in late March and additional shading inside the greenhouses in early April, using fleece.

It was exceptionally warm April weather at the time and also the first time ever that I have found it necessary to use secondary shading. Strong sunlight and high temperatures can soon cause fading and premature loss of flowers. I did not think at the time that this shading would be in place for the rest of the growing season. When pleiones have finished flowering they really benefit from warm conditions to kick start them into growth. My greenhouses have four roof vents and four side vents - a good flow of air is most important in *Pleione* culture; it reduces the stress caused by high temperatures.

In addition, all greenhouse benches are lined with black polythene and on top black capillary matting. The month of May did not give many clues as to the heat wave, which was to follow. To keep conditions in the greenhouse cool and humid, the capillary matting was watered three times a day during the height of Summer, which continued right through to the early Autumn - this kept me very busy. The plants responded in such a way that feeding was unnecessary. I do not remember a growing season like it. Usually the plants are fed on Maxicrop once a week throughout the growing season. It was only at the end of this season that I gave them three weak feeds of Maxicrop Tomato Fertiliser. The

pseudobulbs were the best I have ever produced with many bulbs producing triple flower shoots. The species such as *P. grandiflora* and *P. aurita*, which were grown in pure moss, produced bulbs that were just as pleasing.

To conclude, I would like to point out that the use of fertilisers are not always necessary - where plants are epiphytes in the wild they would gain most of their nutrients from the atmosphere. As plant growers we need to be aware of the climate changes and adapt our growing techniques accordingly.

Newly Registered *Pleione* Hybrids

Each year this regular feature lists all the new *Pleione* hybrids that have been registered since the previous *Pleione* Review...

The information in this list has been supplied by the Royal Horticultural Society as the International Registration Authority for Orchid Hybrids and is published with their kind permission.

Eleven new hybrids have been registered since last year's issue:

Grex Name	Parentage	Registered By	Year
Badaling	<i>P. Fu Manchu</i> x <i>P. Tongariro</i>	M. Hazelton	2003
Bo Pan	<i>P. limprichtii</i> x <i>P. W unzen</i>	M. Hazelton	2003
Confirmation	<i>P. maculata</i> x <i>P. praecox</i>	J. Berg	2004
Doris	<i>P. Vesuvius</i> x <i>P. formosana</i>	G. Fuller	2004
Fan Jiang	<i>P. Tongariro</i> x <i>P. Alishan</i>	M. Hazelton	2003
Ganymede	<i>P. yunnanensis</i> x <i>P. hookeriana</i>	K. Fairhurst	2004
Genghis Khan	<i>P. Kublai Khan</i> x <i>P. forrestii</i>	M. Hazelton	2003
Krafla	<i>P. Keith Pattray</i> x <i>P. Edgecombe</i>	I. Butterfield	2003
Leda	<i>P. Krakatoa</i> x <i>P. grandiflora</i>	K. Fairhurst	2004
Suswa	<i>P. Orizaba</i> x <i>P. Edgecombe</i>	I. Butterfield	2003
Whakari	<i>P. Caroli</i> x <i>P. Kenya</i>	I. Butterfield	2003

Pleione maculata

Paul Cumbleton writes about this species as a prelude to the articles on cultivation which appear on subsequent pages...

Distribution

This most attractive autumn-flowering *Pleione* was originally described as a *Coelogyne* in 1830 but was subsequently transferred to *Pleione* in 1851. In the wild it has a fairly wide distribution, though not so widespread as *P. praecox*. It stretches eastwards from Bhutan into southwest China and south-eastwards into the northern parts of India, Thailand, Laos and Vietnam. It usually grows as an epiphyte in all these locations.

Flowers

The flowers of *P. maculata* are relatively small, usually between 4 cm to 6 cm across, and carried one per short stem. The sepals and petals are white, the lip also white but with a bright yellow central blotch, purple blotches around the edge and with 5 to 7 white papillate callus lines, marked between with more purple. As a bonus, the flowers are scented.

Pseudobulbs

The pseudobulbs are distinctive, often described as turban or flask-shaped with a narrower elongated neck. They are green, often with a purple hue in patches all over the pseudobulbs. The most obvious feature to distinguish them from the similar-looking pseudobulbs of *P. praecox* is that in *P. maculata* the flower stalk is wrapped in inflated sheaths, which look like smooth bubbles sticking out from the stem. This feature is exclusive to *P. maculata* so you can use it to positively identify any non-flowering pseudobulbs you may be offered for sale.

Propagation

P. maculata rarely produces bulbils from the top of old bulbs, usually only doing so if all the main shoots have been damaged. These bulbils are often difficult to grow on to flowering size. Often, one pseudobulb will produce only one replacement pseudobulb, so no increase occurs. But if grown well, each pseudobulb can produce three and occasionally four shoots, so the prospect for future increase, once we have mastered cultivation, looks good. Seed germinates easily in flask but often suffers large losses on de-flasking. I'm working on that one...

Variants

Across its range, *P. maculata* seems to be fairly uniform in the appearance of its flowers. However, there are some variations from the typical description given above. Some clones have a purple stripe down the middle of the petals; this may be feint or quite strong (see photo p. 17). In some rare clones there is much more purple marking on the petals – in effect several lines that merge together.

The flowers of some samples from Thailand are smaller than average – almost half the regular size - while in recent days some unusually large examples have been imported which have flowers twice as large as normal, often with two flowers per stem and with huge pseudobulbs. These forms, larger in all their parts than the forms we have previously been used to, have been registered as *P. maculata* 'Big Major'. It is hoped their size may also indicate an increased vigour so that they may grow more easily, but that is yet to be seen.

Undoubtedly the most outstanding variant is the white form – *P. maculata* var. *alba*. This was probably once grown in the U.K. – Will Ingwersen mentions such a form with the varietal name of 'Virginea' in his "Manual of Alpine Plants" (first published in 1978). It has pure white flowers with just the yellow blotch on the lip and no other markings. Does anyone know if this variety still exists in the U.K.? I believe some plants still survive elsewhere...

The Cultivation of *Pleione maculata*

Contributions from several authors that should help all of us to grow this species more successfully...

Introduction

Pleione maculata is considered by many growers to be one of the prettiest species in the genus and yet sadly it has proven difficult to grow in the U.K. Because of this, in their book “The Genus *Pleione*”, Cribb and Butterfield note that *P. maculata*’s persistence in cultivation is due to the fact that it is constantly re-introduced by collecting from the wild. Huge numbers of pseudobulbs have been imported but the relative scarcity of plants in cultivation leads to the conclusion that the vast majority of these have died. It is clear that the successful cultivation of this plant has been elusive. In recent years however, several growers seem to be having increasing success in cultivating this plant, and one grower has even managed to maintain the same clone in his careful cultivation for almost thirty (yes, 30!) years. I invited several of them to write about how they grow this beautiful species. What follows are their various contributions.

1. Growing *Pleione maculata* by Jan Berg

Natural habitat:

P. maculata is an epiphyte growing in the Eastern Himalayas and adjacent mountain chains between 600 m and 1600 m (according to ref. [1] and ref. [2]), or between 450 m and 900 m (according to ref. [3]). Fig. 3 in ref. [1] gives the impression that they are growing as lithophytes as well. This figure and Fig. 1 in the same reference do not show much moisture-retaining material around the roots. Torelli [2] gives the following information about the climate in Northern Burma, the centre of the growing area. (The nearest weather station is Putao,

about 7°25', at 409 m. The temperatures for 900 m have been calculated from this):

Humidity: Constantly high (between 85% and 87% in April/May and 92% to 94% in June/January).

Rainfall: (See Fig.1 below) From the yearly total of about 3550 mm, 2950 mm falls between June and September, with the maximum in July (>1000 mm). Between December and January there is a total of just 13 mm.

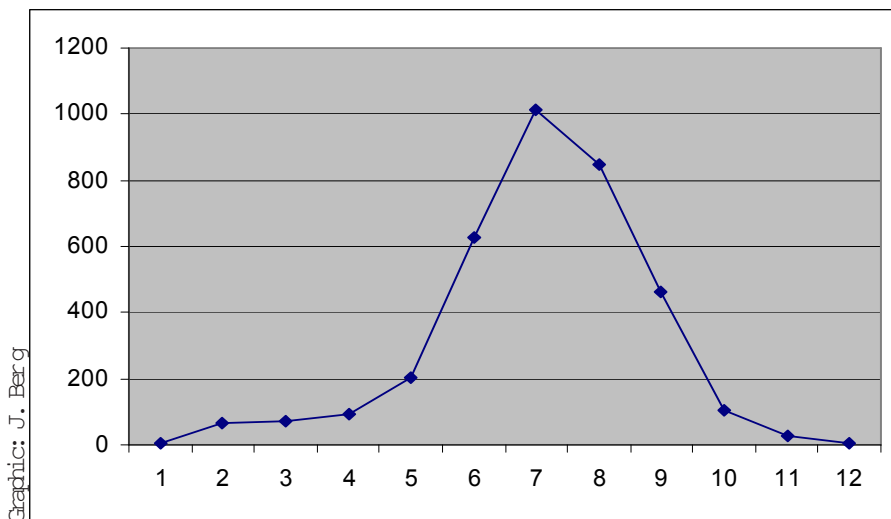
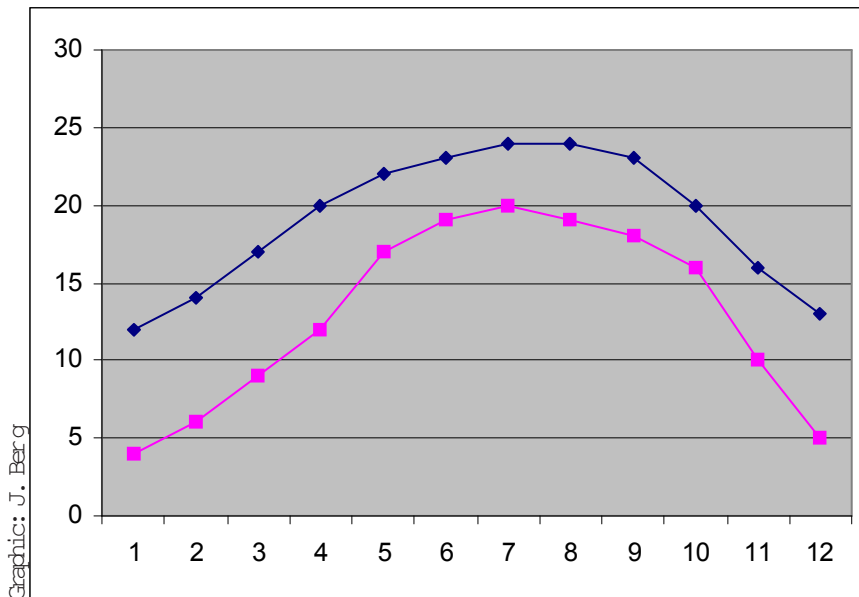


Fig 1: Rainfall in mm per month (1 = January, 12 = December)

Note: This figure (and the one on the next page) give averages. There are of course yearly and daily fluctuations. Also, especially in such a monsoonal mountain region, you will find quite different microclimates within a relatively small area.

Temperature: (See Fig. 2 next page). Striking is the small diurnal range, but this may be somewhat influenced by having calculated the temperatures from 400 m to 900 m.

Fig 2: Maximum (dark blue) and minimum (purple) monthly temperatures (degrees Centigrade).



Practical consequences:

Even in the wet monsoon, epiphytes are not soaked all the time. The best imitation of the natural habitat would be like that shown in ref. [1] Fig. 2. - that's to say mounted on cork or bark with some moss around the roots. But this method of growing requires a high humidity and strict daily attention - in the growing season the thin, living roots must never be allowed to get bone-dry! As an alternative I use shallow plastic trays, or plastic pots with a lot of holes in the side surface as well as the base. Do not place the trays on a flat surface. The holes in the bottom are stopped up this way and air cannot circulate well. I always put some small and thin strips under the trays to lift them up. After watering let the compost dry until just damp.

This has consequences with regard to fertilizing. Orchids roots in

general are not more sensitive to inorganic salts than the roots of other plants. In sowing and replating media the concentration often is 4 g/l (0.4%) or more. But when you let evaporate a drop of very diluted fertilizer you get 100% salts as a residue! So, after fertilizing, always wait until after one or two further waterings with plain water (or give a good flush with plain water) before leaving the potting medium to become just damp.

Temperature recommendations in the literature

The literature is somewhat confusing about this subject. Torelli (ref. [2]) writes: "It is one of the easiest pleiones to cultivate; and it is, among the Indian Pleiones, the one that demands the highest temperature during its winter rest (4-8°C)." And: "In this period (June to September) the ideal temperature is 24°C maximum and 19°C minimum. It is therefore advisable to put this plant outside at the end of spring, as in the greenhouse the temperature could be too high during the summer months."

Ghose (ref. [3]) recommends: "Should be treated as a hot-house or intermediate-house orchid."

In ref. [1] we read: "Unfortunately it has not proved an easy plant to grow..." and: "During the winter, plants need to be kept warmer than the other species, 3-5°C being ideal."

Knox (ref. [4]), who cultivated one clone for 20 years, had his plants in winter at a night temperature of 14-15°C (58-60°F) and 18°C (65°F) during daytime. In summer he tried to get the max. temperature below 30°C (85°F).

The way I grow *P. maculata*

I grow my *P. maculata* in a little warm greenhouse. It is situated a few meters north of my house of 3 floors. So the first rays of the sun reach the end of the greenhouse just at the beginning of May. Shading screen (50%) is permanently installed from that time on. In winter the maximum

temperature is 18 to 22°C and the min. 15°C. The *maculata* however are situated in the bend between the roof and the wall where temperatures, depending of the weather, are about 4 to 8°C lower. Humidity is mostly 80 to 100% with a minimum of 70% on days with severe frost. In summer the temperature may reach 38°C on very sunny, hot days. The full-grown leaves are sprayed in the evenings of warm days.

I repot as soon as the flowers have wilted. At that time the new shoots already have roots about 3 cm long. I put the bulbs on top of the substrate with no top layer of moss. The moist mixture (moist because it is easier to handle) consists of fine bark with some cork and 50% by volume of sphagnum cut into pieces of 1 to 2 cm. But I have grown *P. maculata* for nearly 20 years now and in fact I have used a lot of different mixtures. But it has always contained 50% of cut sphagnum, fresh or dried. You get the best draining if all the particles are of about the same size.

They do not get any water until the shoots of the common form [5] are about 15 cm long. Only if humidity is low in this period do I mist, not spray, them a bit. See Fig. 3 in ref. [1] - the only green in this photo in the natural habitat is the leaves of *P. maculata*. The neighborhood looks rather barren and dry. I do not care if the leaves do not unfold properly. They do so as soon as I start watering them. Also the bulbs swell back to the size they had at the end of the growing season. As I write this, halfway through February, they have not had any water for over 4 months now. Yet I can only get them out of the substrate with force which would damage the roots that have settled.

Fertilising is done 4 or 5 times a year. First with a high nitrogen mix of NPK 30:10:10, then 2 or 3 times 20:20:20 and in the first days of September one time with 10:30:20. The concentration is 0.5 g/l. Watering is stopped when the leaves show signs of yellowing.

But not all is hosanna. Every year my *P. maculata* have the trouble of leaf tip die back. Not only the tip of the leaves go, but also dead blots appear in the middle of the leaves. As we know, the cause is slow calcium transport (ref. [6]). Perhaps I should not give them the 30-10-10 fertiliser

and thus slow down the growth in that way, and/or give them more air movement to let them evaporate more to stimulate calcium transport? The rather high temperatures also may let them grow too fast.

I do not think the circumstances I grow my *maculata* in are optimal. In particular, temperatures may be too high. Increase is slow and I think the pseudobulbs are not vigorous enough. Knox [4], who grows them in comparable conditions, is not content either. But at least we succeed in keeping them alive for long times. Perhaps they should be cultivated in an intermediate greenhouse, the temperatures between those as recommended by Cribb and Torelli and those of Knox and myself. But I have to take into account my other orchids as well.

References:

- [1] Cribb and Butterfield; The Genus Pleione, 2nd edition, 1999
- [2] Torelli; The Genus Pleione, Caesiana 14, 2000
- [3] Ghose, B.N.; Beautiful Indian orchids, G.Ghose & Co publishers, 1959
- [4] Knox, S.; National Pleione Report 1997 p. 8
- [5] The *P. maculata* 'Major' described in The Pleione Review 2003 p.31, and which is registered now as cultivar 'Big Major', already has shoots of > 20 cm in the middle of February but are given water at the same date as the normal ones.
- [6] Reed, B.E.; National Pleione Report 1997 p. 10
Akam, M.; National Pleione Report 1998 p. 33
Ingham, B.; National Pleione Report 1999 p. 10

2. Maculata My Way by Michael J. Sexton

In 1997 I had to give up work though ill-health and was registered disabled the next year. At the time I was breeding rare parrots and lovebirds, but on advice from my doctor I had to sell them. Needing something to fill the gap and keep me occupied, I decided to visit Ian Butterfield at his Nursery as he lives quite near. I was totally hooked from that day and now I visit whenever I can, as there is always a warm

welcome and friendly advice. It is breathtaking to walk into his large greenhouse and see hundreds of pleiones in flower. Over the years I have built up a very good collection, purchased mostly from Ian as I can pick the ones I like when they are in flower. The first *P. maculata* I set eyes on was in the book, 'The Genus Pleione' written by Ian Butterfield and Phillip Cribb (second edition, 1999) and I was determined to own one. I purchased my first ones in 2,000 half buried in moss.

Having spoken to other growers and reading articles on them I decided all moss and half buried was not for me. So I needed a new compost and way of growing them. I set about experimenting with different mixes, which I will not go into as I had mixed results - some better than others - but always growing the bulbs on the top of the compost. The mix I ended up with was:

2 parts bark

2 parts composted bark

2 parts Perlite

1 part chopped mixed leaves and pine needles

1 part charcoal (not really needed but if not used then add one more part of Perlite)

8 parts chopped Sphagnum moss + a small amount of a formula of mixed organic compounds that I have been using over a number of years, with good results, which is still under test.

In October 2002 I had my first flower on a reasonable bulb. When it came to replanting them, and having increased my stock that year, I decided to plant them all in a large pot to give more growing space. I had a large new plastic bonsai pot, 26 cm. wide x 35 cm long x 10 cm deep. I drilled lots more holes in it, filled it with moist compost and mounded it up by about 4 cm. I spaced the bulbs out on the top and filled around them with a thin layer of moss to hold them in place. After planting, I over-wintered them on a shelf in my kitchen. When the weather warmed up I moved them to my conservatory. I stood them in a larger tray with about 3 cm of Hortico and added about 1 cm of water for humidity. Other than opening doors and windows I have no control

over the temperature. I did not water until they had good roots and leaves on them and even then I only gave a little water around the edge of the pot and between the bulbs, until I was satisfied they had full growth. Then I started to water and feed. As the compost holds lots of water I only watered when the pot started to feel lighter. I carried on this way until October 2003 and had more buds and flowers than ever I imagined possible, and on very large bulbs. One was 3.8 cm wide x 4.5 cm high with leaves of 5 cm wide x 35 cm high. On a total of 13 pseudobulbs I had 30 flowers.

I am not saying this is the right way to grow *P. maculata* as it might be just good luck and the very hot summer. I will let you be the judge but to this date I have not lost a bulb.

I will be doing more experiments this year on my compost plus a new one, both with and without my formula. I would like to run tests on other Autumn-flowering pleiones so if anybody can help me with bulbs at a reasonable price of *P. praecox*, *P. x lagenaria*, *P. saxicola* and *P. maculata* with a good stripe in the petals, you would make me very happy.

All the best

PS Any comments good or bad will be very welcome.

Email: jackieandmike.sexton@tiscali.co.uk

3. How I Grow *P. maculata* by Simon Retallick

My first attempt at growing *P. maculata* was several decades ago. I managed to obtain one through a bulb catalogue. I tried to grow it on a cold bathroom windowsill but the new shoot on it very soon rotted off and, like so often is the case, I didn't know "what I had done wrong". It could, however, have been a dud plant, or it could have been due to my spraying it every morning with water and to the low temperatures in that house! (The most likely case).

I thought no more about it and wasn't prepared to attempt growing it again until recent years when I heard rumours of people having success when applying higher levels of heat and being very careful about water contact in the early growth stages. In fact I had a chance to see a plant someone was trying in a very warm living room with *Phalaenopsis* temperatures! I was amazed at the strength and vigour of the growing shoots! I never had the chance to find out what happened in the long term.

In the autumn of 2000 I visited an orchid nursery and noticed they had several good imports of *maculata* bulbs, so I decided to have another go. I purchased a plant and placed it in the bathroom on a north-northwest facing windowsill where it was warm, but not hot, and as the days lengthened the following spring, the plants got late afternoon sunshine. By the time my *Pleione* greenhouse was in full leaf in June, the *maculata* in the bathroom were already beginning to bulb up!

At this point I decided it was time to put them out where they would have more humidity and cooler temperatures. The plants grew much slower, but by the autumn had developed large bulbs. I had fed the plants as soon as they had good root systems from about April onwards. Flowering was excellent, and has been every year since.

In the winter 2002–2003, I put the plants on a cooler bedroom windowsill from the autumn onwards, so *that* year has been different to the others. However, flowering was just as good in the autumn. Last year was the first that I flowered them in the greenhouse. Normally I would have brought them indoors to prevent spotting of the flowers with high humidity in the greenhouse. The difference had been my purchase last summer of a large air-circulator fan, which allowed me to leave the plants in the greenhouse. The fan led to flowering perfection over a long period (over two months from October to December!).

My cultural technique is detailed on the pages following the colour pictures: -

Photo: S. Retallick



Pleione maculata grown by Simon Retallick's methods (see p. 15)

Photo: S. Knox



Pleione maculata: a fine pan grown by Stewart Knox (see p. 22)

Photo: P. Cumbleton



Pleione maculata grown by Paul Cumbleton's methods (see p. 15)

Photo: P. Cumbleton



Newly registered *Pleione* Ganymede (*P. hookeriana* x *P. yunnanensis*)

Photo: P. Cumbleton



Pleione Suswa (*P. Orizaba* x *P. Edgecombe*), another new hybrid

Photo: P. Cumbleton



A fabulous form of *P. praecox alba* from N. Thailand. I just had to let you see this, but no don't ask - I do not own it and it is not available!!!

Photo: P. Cumbleton



New grex *Pleione* Leda has produced an interesting range of offspring. (See P. 5 for a list of all new registrations.)

Diagram: M. Brownsword

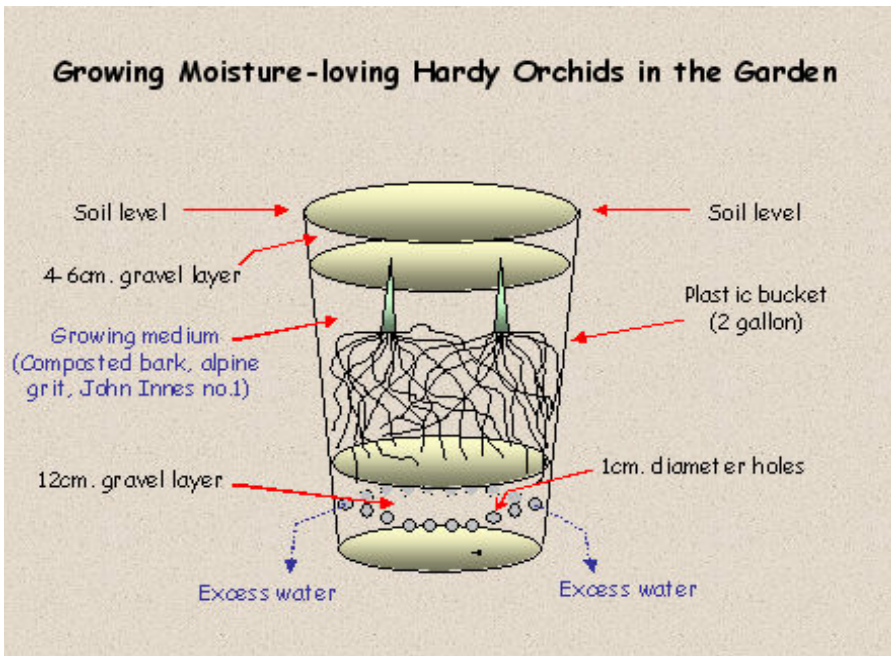


Diagram illustrating the “buried bucket” method for growing moisture-loving hardy orchids (see p. 33)

Positioning

In the bathroom/bedroom from December to late June. (NNW and NE-facing double glazed windows). In the greenhouse from June to Oct/December. (Moist shade)

Compost (has varied, but this years is:-)

6 parts fine bark with dust removed using fine mesh cloth
6 parts medium grade perlite
2 parts shredded dried sphagnum moss
2 parts shredded dried wood moss with dust removed using fine mesh cloth
1 part ¼" charcoal with dust removed

Planting

I de-pot after flowering but find there are new roots already growing then. I trim off most of the old roots, but leave about 3" to protect the new roots while re-potting and to help with anchorage. The planting level is set to sink the base of the bulb just below the compost surface. The compost I use flows freely from a scoop around the bulb until the correct depth is achieved. I only gently press the compost down with my fingers to avoid damaging the new roots and settle it further by gently tapping around the pot. When potted, I pour a little water down the side of the pot so it will defuse some moisture for the new roots to seek. Whether to water, or not is a debated subject, but I have found all autumn flowering species and the winter flowering hybrids do well with some moisture present at all times. They should, however, never be *wet* until the new shoots are quite extensive in about May.

Pots

I use one bulb per 4" plastic pot and some medium grade bark at the bottom for drainage. This leaves plenty of room for two new large bulbs to develop. Position the bulb back of centre to allow for this, with the new shoots facing forward.

Feeding

I feed from late April until October with quarter strength “Phostrogen Plant Food” about every third watering with good flushes between waterings.

Temperatures

The last couple of years I have kept records of the maximum and minimum temperatures experienced by the plants, which I think are the most useful data I can present. I have included absolute maximum and minimum temperatures experienced by the plants as well as the usual average day and night (max/min) temperatures. You can see the graph showing this data on page 28.

I hope that others will find my account useful, and seek a way to enjoy this delightful *Pleione* species as much as I have.

4. *P. maculata*: Almost 30 Years Survival in Captivity – But Only Just by Dr. Stewart Knox

(This is an abridged version of an article that first appeared in this magazine in the 1997 issue)

I purchased a few pseudobulbs of *P. maculata* from India in 1976 and it is the offspring of this importation that I still grow and flower. I re-pot annually, as soon as flowering has finished. The remains of the old pseudobulbs are removed, taking care not to pull off the new growths or damage the new roots, which are forming even at this stage. (This is probably the best time to buy *P. maculata*, unless bought potted). The old roots are trimmed to 1 or 2 inches long and the pseudobulbs carefully washed.

I usually use a 6-inch plastic pan and place a generous layer of polystyrene pieces in the base. The compost I use on top of this is a mixture of 5 parts fine bark (sieved to remove fine dust), 3 parts coarse

Perlite and half a part of charcoal – these measurements are very approximate! The pot is filled to two-thirds its depth with the mix and the pseudobulbs laid on top of this. More compost is added to one-third way up the pseudobulbs. A top-dressing of fresh, well-washed *Sphagnum* moss helps to stabilise the new pseudobulbs.

A light watering is given at this time. The compost is then kept only just damp until the new growths are well developed in the Spring. From May onwards watering is fairly frequent and may be required every 2-3 days depending on conditions.

I feed with “Liquinure”, starting in April at one-quarter strength. Then, during Summer, I feed every 7 to 10 days using the same dilution as for normal pot plants. I continue until the leaves start to turn brown in Autumn.

My greenhouse is 15 feet by 10 feet and runs North-South. Shading is by “Coolglass”, applied in late April with a second coat in May. All shading is removed in early September.

Heating is by electric tubular heaters. The *maculata* are grown in the warmer section, at a minimum night temperature of 14-15°C (58-60°F) and rising to 18°C (65°F) during daytime. In summer I try to keep the temperature below a maximum of 30°C (85°F). Air circulation fans run constantly.

I keep trying and experimenting, but like many other growers I am still looking for that “magic something” that will enable them to grow and flower in profusion.

5. *P. maculata*: How I Grow it by Paul Cumbleton

Potting and Compost

As with all the Autumn-flowering species, I re-pot as soon as flowering is over. My compost mix is the same as I use for all my other pleiones, as follows:

2 parts fine-grade (seedling grade) orchid bark
1 part coarse Perlite
3 parts chopped, dead *Sphagnum* moss

I don't sieve the bark – my collection is too big to spend the enormous amount of time it would take to sieve that much bark! It doesn't seem to make any difference. (I would also like to stop chopping the moss too as that takes ages, but I find it doesn't mix in well with the other ingredients if the strands are left long.) I also make up some more of the same mix but minus the moss, to use as topdressing for the pots. I find if moss is exposed to light it can get a growth of slimey algae, so covering the top of the pot with a just-bark-and-perlite mix prevents this.

I use plastic pots or pans, almost fill them with the mix and set the pseudobulbs on top. I add a thin layer of the topdressing mix to hold them in place.

Position and Temperature

I put the newly potted plants on the north-east facing windowsill of a spare room indoors. The temperature in here drops to between 10°C and 12°C minimum at night in winter, with 14°C to 16°C maximum through the day. In summer it gets much warmer of course. I used to put them out in the greenhouse with the other pleiones from about June until autumn, but lack of space may prevent that this year. If I can fit them in, I take out the roof glass, which helps keep the temperatures down to sensible levels and also lets in the rain, which all the pleiones seem to love.

Watering

The potting mix starts off slightly damp (as I wet the moss before chopping it) but only barely so. But I then do not add further water for some time, until the new shoots are actively growing. Even then, I either trickle just a little down the edge of the pot, or stand the pot in a little

water to wet just the bottom 1 cm or so. It is usually May before I increase the watering to normal levels. Once I am confident there is a really good root system I water freely. If they are exposed to the rain as described above they can sometimes be very wet indeed on a wet day, but the compost is such that all the excess just drains straight through.

Feeding

I use a balanced fertiliser (NPK 20:20:20) once or twice, applied at one third strength, starting around mid-May and at around 10 day intervals. I usually then change to a high potash feed (NPK 15:15:30) also at one-third strength for the rest of the season. This regime may vary year to year depending on what fertilisers I happen to have in stock, and this year I am also experimenting with a phosphate-free fertiliser (NPK 26:0:26) as research has shown that pleiones (along with most other orchids) don't seem to like phosphates very much. In practice, pleiones don't really seem over-fussed about fertiliser-types. My own experiments show that as long as they get fed occasionally with whatever you happen to have at hand, they will do just fine.

Summary

Though these various accounts show some differences in growing techniques for *P. maculata*, two overlapping points seem to emerge - **warmth and moisture control**. *P. maculata* definitely seems to require a much warmer winter period than other pleiones. Though accounts above vary somewhat, it seems prudent to suggest that a winter **minimum** of 10°C should be provided, with higher temperatures of 15°C - 18°C seemingly still not being too high. During summer, average temperatures into the twenties seem indicated. Watering should be strictly controlled until growth is well under way.

Thanks to everyone who has contributed information that I hope will enable us to successfully grow this beautiful species!

Bletilla ochracea

Terry Smale reports success growing this species in the garden...

The diaspora of indigenous plants from China over the last 15 years has provided a wealth of new material for us to try to grow. Newly imported species have included various pleiones that have been widely reported in the pages of this journal, including in particular *P. forrestii* whose yellow flowers have had a big impact on hybridisation programmes. The genus *Bletilla* is probably not quite as popular because the flowers tend to be smaller and less showy, but the colour range of these has similarly been extended in recent years through the introduction of the yellow *B. ochracea* from Szechwan.

The common *Bletilla striata* has long been available in the general horticultural trade and can be obtained in pink or white-flowered forms. When I first tried to grow this species, I knew that it was quite hardy but assumed that it would require shady conditions similar to tropical orchids. Under these conditions it survived and multiplied but rarely flowered, therefore it ended up on the compost heap. I subsequently learnt that bletillas actually needed to grow in sunny conditions and when I bought another rhizome in Epsom market, I planted it in a southwest facing raised bed alongside Eurasian bulbs such as crocuses and tulips. The soil in this bed is very well drained, containing a large proportion of coarse grit. It turned out to be a pink-flowered form with white-edged leaves and it grew and flowered extremely well; in fact too well! It proved to be a bit of a thug and encroached badly on its neighbours; so more material on the compost heap. A portion of it was saved and planted in a sunny part of a much larger raised bed that was created for humus-loving plants such as trilliums. It continues to spread and I should perhaps have incarcerated it in a bottomless pot, as I have done for the equally vigorous *Epipactis gigantea*.

Different species of *Bletilla* such as *B. formosana*, *szetschuanica*, *yunnanensis* and *ochracea* became available in the 1990s, but we were

Photo: P. Cumbleton

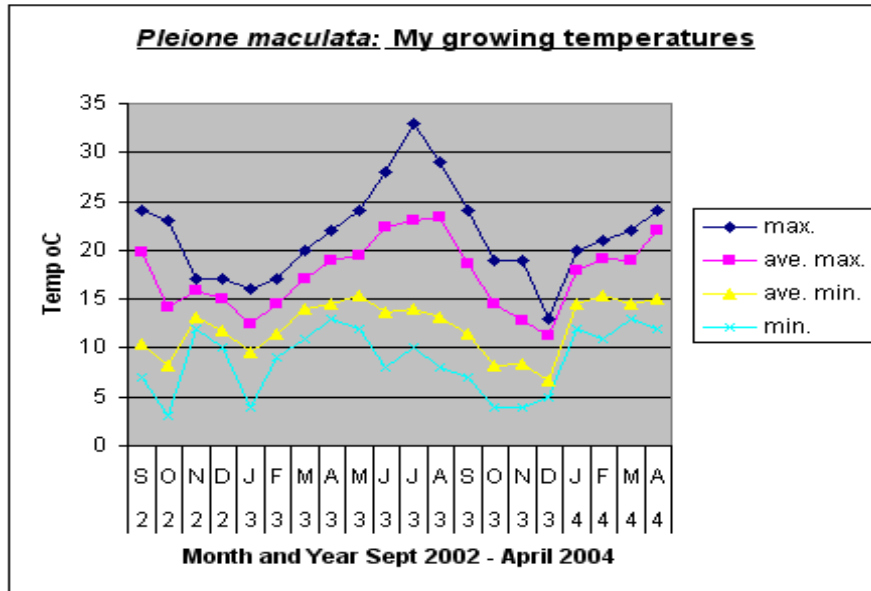


Pleione humilis. Two views of the pan that won your editor a Farrer medal at the Alpine Garden Society's Early Spring Show this year.

Photo: P. Cumbleton



Graphic: S. Retallick



Graph of the temperature data referred to by Simon Retallick on page

Photo: P. Cumbleton



Pleione coronaria. A difficult species but occasional flowerings mean it is sometimes able to be used in hybridisation (see page 2)

warned by suppliers that they were not hardy and would need to be grown under cool glass with a dry-ish winter rest. I bought a dormant plant of *B. ochracea* from Kath Dryden about ten years ago because I was attracted by the prospect of a yellow-flowered species. This was grown in a plastic pot in a cool greenhouse alongside South African bulbs. It increased well but was not a reliable flowerer. The species grows to about half the height of *B. striata* and is quite variable in the flower colour that can be anything from cream to rich yellow with red lip markings. My form produces pale yellow flowers. Since my plant proliferated so well, I had spare rhizomes and decided to plant one in the open garden in a sunny spot in the same raised bed as *B. striata*. My garden soil is free-draining and chalky; in the raised bed it has been improved by adding a lot of old potting compost plus organic material such as leaf mould and commercial soil improvers based on composted animal manure and bark. No grit has been added, but it drains very well whilst also retaining moisture. The rhizome was planted about 5cm deep and over a period of three years has increased from one stem to six and flowered very well, much better than in a pot. Writing this at the end of May, the new shoots are just appearing and should be in flower in about a month with 30cm tall spikes of four or five flowers. It has started to spread but is unlikely to become a nuisance.

Admittedly, we have not had any really cold winters recently, but we have had periods of very high winter rainfall, which does not fit with the earlier advice of giving *B. ochracea* a dry winter rest. I garden on the Surrey Downs at an elevation of about 200m and during the time the plant has been grown in the open garden, the lowest night-time temperatures have been about -5°C. However, unlike past winters, I don't think that there has been an occasion when the day-time temperature has not risen above zero. Consequently the ground has not been frozen for more than a few centimetres. I have not tried growing any of the other species, but we can certainly expect that *Bletilla* Brigantes, the *B. striata* x *ochracea* grex, would also be successful in the open garden.

Growth and Dormancy in *Pleione*

Charles Ellwood relates problems during last year's hot spell and muses over growing conditions and the causes of dormancy...

The long hot summer last year appears to have been a little too much for some of my plants. The one that suffered most was *P. chunii* ("the grateful weed"), which failed to live up to its bill-matter or even live at all. All the clones I possessed tried to grow without root, looked good for a long time, then died rapidly. Many other plants responded to the conditions by producing smaller bulbs with only the odd casualty. Whether the problems were caused by heat-stress, lack of water or just general poor cultivation I do not know. The plants were kept in the greenhouse, as I do not like using chemical slug control in the open garden, so they definitely got warm.

The best flowering response that I have had this spring has been from *P. pleionoides* 'Blakeway Phillips'. For the first time all the bulbs were kept in the garden shed through the winter then grown on in a coldframe. This was done because for the last couple of years I have realised that this clone along with *P. formosana* 'Serenity' seem to be happier in the coldframe than on the floor of the greenhouse. Not only are the flowers better but also the cooler-grown plants seem less susceptible to black pit as well. I have also noted that for many bulbs bought in from suppliers, flowering in the first year is early compared to that in subsequent years - so what is going on?

The greenhouse is heated (propane) predominantly for the benefit of the plants on the staging; the *Pleione* reside under the staging on the floor (*praecox*, *maculata* etc excepted). Could it be that I am keeping the *Pleione* too warm, or do they simply dislike the fumes from the heaters? Assuming that the first thought is correct, am I causing the plants problems with dormancy? In order to answer this question properly we need to know what triggers dormancy and what triggers the end of dormancy. Several possible stimuli spring to mind: day length,

temperature and humidity (moisture). Considering day length first, these plants grow naturally just outside the tropics, so day length change with season will be much less marked than we are used to in northern Europe. Also, some species are reported to grow with bulbs underground so light is not likely to be a stimulus for these species. I would suggest that variable day length is something to which these plants have had to adapt in cultivation and is unlikely to be a major stimulus in the wild.

Temperature varies both in the wild and in cultivation and as such is probably a major stimulus. Diurnal/nocturnal temperature fluctuation in the wild will be to some extent insulated against especially for the terrestrial species. Longer-term seasonal variation will have more effect. Do the onset of cooler nights and a general chilling of the bulb trigger dormancy? Is growth triggered by a gentle rise in temperature after a long (or short) cold spell? This may be where my conditions cause problems. In the greenhouse daytime temperatures will rise rapidly even in late winter sun. Are my plants uncertain as to when winter ends because of premature warming? Experienced growers tell me that *Pleione* will flower in the dark in the fridge if they choose to. Presumably once dormancy is broken the plants will try to grow regardless of conditions. Too much warmth seems to rush the plants through the flowering phase into leaf growth.

Finally, what effect does moisture have? In the wild, *Pleione* are generally reported to be subject to warm, wet summers with high moisture levels and much cooler drier winters. This we emulate as best we can by reducing water in the autumn and leaving the plants dry through winter. Is the reduction in water a trigger for dormancy? Would proper use of water in the spring help break dormancy or does our wet winter with high humidity levels work against us? Burning propane to keep the greenhouse warm will also keep the humidity high.

I wish I had the time, the equipment and the plants to investigate these questions thoroughly but I do not. The fridge is out of bounds to horticulture. My young son demands my time and I do not have the plants to spare to do the job properly. The effects of each regime must be tried on several bulbs of each clone and on several species or hybrids

for general application across the genus, preferably involving different types (epiphytes, terrestrials and hybrids).

I am going to try to keep most plants cooler longer this year. The *bulbocodioides* complex and hybrids thereof seem to have benefited from being placed in an unheated shed last year and in a new cold frame this spring. I have gained more greenhouse space as a result. It will be interesting to see if I have the courage to put some other species out as well; the *Pleione forrestii* that is apparently trying to flower now in early May being an obvious candidate. I am aware however that last winter was relatively mild with the thermometer in the shed getting no lower than -1 C. Which plants would survive colder temperatures?

How to over-winter the autumn flowering species is also a tricky question. *P. saxicola* normally has live root growing in autumn but takes a cold break. Current wisdom suggests warmer conditions for *P. praecox* and especially *P. maculata*. This is certainly the route I have taken with mine. They grew warm and humid last year in a propagator in the greenhouse but lack of headroom led to problems with the leaves. I had no flowers but at least I have bulbs, no smaller than those that went in and available this year, placed in a fish-tank to address the headroom problem. Keeping the humidity up on a warm day is not easy, the hydroculture pebbles in the base dry out fast. I have no lid for fear that I will cook the plants, having already seen 35 C on a sunny afternoon.

I will sign off this year with congratulations to the grower who took a Farrer medal for a lovely pan of *P. humilis* at the AGS early spring show at Harlow. It was spectacular.

(Editor's note: With some embarrassment but also pride I have to confess this was my plant! The Farrer medal is awarded for the best plant in show, an accolade all exhibitors hope to achieve one day. You can see pictures of the medal-winning plant on page 27).

Growing Moisture-loving Hardy Orchids in the Garden

**Malcolm Brownsword describes a novel system for the cultivation
of some hardy orchids in the garden...**

I have been interested in hardy orchids since the mid 1960s, when I moved from my native North Staffordshire to Oxfordshire, where I have admired many species, including some of the very rare ones. However, it was only after joining the Hardy Orchid Society seven or eight years ago that I 'took the plunge' after getting advice from Bill Temple, the Society's conservation officer and started to grow some of the easier species. The soil in my garden is more suitable for making pottery rather than growing orchids, it being heavy clay. As a result, it is waterlogged in winter, and bone dry in summer. There are two approaches that I considered – either use a raised bed containing the appropriate compost, or adopt the 'buried bucket' system illustrated on page 20. I chose the latter system

In the early spring, I took a 2-gallon plastic bucket and dug a hole in an area of semi-shade slightly larger than that required to accommodate the height and circumference of the bucket. A series of holes was then drilled about 8cm. from the base. A 12 cm. layer of grit was poured into the bucket, and a 2 cm. deep layer into the bottom of the hole. The bucket was then put in the hole and more gravel poured into the space between the bucket and the garden soil. Growing medium was then added, followed by the orchids, then further growing medium to within 4-6 cm. of the soil-surface. The growing medium is a mixture of composted bark, alpine grit and John Innes number 1 compost. Roughly equal quantities of each seem to work, but are not necessarily optimum. The composted bark helps hold water, whilst the grit aids drainage. The John Innes compost provides a low level of nutrients for the first season. Finally, about 4-6 cm. of gravel were added. The function of this is to deter weeds, slugs and snails, and also to minimise water loss by evaporation.

The key factor in this system is the drainage. Any excess water will pass through the holes into the surrounding soil, leaving only the gravel layer at the bottom of the bucket waterlogged. This gravel layer contains sufficient water to keep the growing medium above it moist. Even in the very hot summer of 2003, watering was only required about once a week.

I have grown the following over the past five years using this system: Marsh Helleborine (*Epipactis palustris*), Chatterbox Orchid (*Epipactis gigantea*), Southern Marsh Orchid (*Dactylorhiza majalis* ssp. *praetermissa*) and Broad-leaved Marsh Orchid (*Dactylorhiza majalis*). Not only do they flower well, but they also multiply quite rapidly. I have recently purchased a Jersey Orchid (*Anacamptis laxiflora*) that I plan to plant out alongside the other species next year. In my experience the two *Epipactis* species must be dug up and re-planted every two years, otherwise they can get very overcrowded. *E.gigantea*, whose roots resemble couch grass, tends to throw out flower shoots around the edge of the bucket, forming un-natural circles of plants. The two *Dactylorhiza* form very stout flower spikes during May and are best carefully dug up in August, when two new white tubers will be found. These can be carefully teased apart and immediately replanted at the same depth as before. Alternatively, they can be left to form large clumps. All the above-mentioned species respond to weak feeding after the manner of pleiones.

The above species can be purchased from specialist dealers fairly readily these days, but prices vary considerably. For the *Dactylorhiza* (individual plants or flowering size tubers), expect to pay between £8 and £20 each. About five years ago, I paid £10 for five or six *Dactylorhiza majalis* protocorms growing on agar jelly in a Petri dish. These spent the first winter in the refrigerator before being potted up in the following March. They flowered outside three years later. I now have nine or ten plants, having split some of them for the first time last August.

I hope I have persuaded a few readers to try this growing system for themselves. It really does work!

“Bulbils”

This is our regular feature for YOUR observations, short news items, announcements and general letters. Many of you may not feel able to write a whole article for the Review, but here you could contribute just a sentence, a single observation or a short paragraph. And if you have a bit more to say, you can send a longer letter. Please send all contributions to your editor (see contact details, inside front cover).

Orchid site far from lost

George King's letter in 'The Pleione Review 2003,' concerning the Harwell site in Oxfordshire, deserves a reply. I am disappointed at some of his assumptions, and particularly his title 'Orchid site lost.' I can assure him that several thousand orchids exist on the 300 hectare site and were counted last year. The Diamond construction site was surveyed for Bee and Pyramidal Orchids in the year before any work began and they were transferred to a secure habitat then.

Bill Temple, the Conservation Officer for The Hardy Orchid Society, has organised several parties of volunteers in recent years. These parties have transplanted large numbers of orchids from areas threatened by demolition and/or development to safer areas on the main site. Bill monitors their progress and even uses GPS to pinpoint the flowering sites. Partially due to his efforts, in 2003 there were 4,700 *Cephalanthera damasonium* (White Helleborine), 150 *Anacamptis pyramidalis* (Pyramidal Orchid) and over 800 *Ophrys apifera* (Bee orchid) counted on site and a smaller number of *Dactylorhiza fuchsii* (Common Spotted Orchid). Not many nature reserves could boast such numbers of orchids, yet this is an industrial site!

Admittedly, the rabbits took their toll in 2003, but one notable success was the flowering of 110 Bee Orchids in a compound adjacent to the building where I work. Their success was due largely to the fact that

the area is completely enclosed by link corridors and buildings such that access is denied to rabbits. In December 2003, a count of the plants in the same area showed about 75. Shortly after this, I helped transplant about 250 bee orchids to a new habitat where we hope the rabbit problem will be less. In January 2004, Bill informed me that he had counted 1,700 bee orchids. Past experience has shown that they transplant well. Part of the success over the decades of Bee Orchids at Harwell is due to the fact that the species likes disturbed land and the alkaline conditions provided by such 'artificial geology' as the old RAF Harwell concrete runways, which were buried a few years after the end of WW2.

Although George may have spent an hour searching for orchids and found none, I can assure him that many of us are making efforts to preserve our Oxfordshire orchids, and are having significant success.

Malcolm Brownsword

The Pleione Website

Remember that you can find a great deal more information about and hundreds of pictures of pleiones on my Pleione Website at:

www.pleione.info

I must apologise that no new pictures have recently been added to the site. Time seems an elusive thing these days!! I do have several hundred new pictures that I want to add one day. The hybrid list is at least updated regularly with new registrations and I promise I will make the time to add at least some of the new pictures in the not too distant future. Meanwhile I do hope you find the site continues to be useful.

This Year 's Contributors

Jan Berg has grown *Pleione* in the Netherlands for over 40 years. He enjoys hybridising and has so far registered 4 of these with the RHS.

Malcolm Brownsword grows both *Pleione* and hardy orchids. He is fortunate in having wild orchids near where he lives in Oxfordshire.

John Craven has grown and sold pleiones commercially for many years and won gold medals when exhibiting his plants.

Paul Cumbleton - your editor on the *Pleione* Review for four years. I grow *Pleione* species and hybrids and also breed my own hybrids.

Charles Ellwood is an amateur grower who fell for *Pleione* a decade ago and now grows a range of species and hybrids.

Martin Hazelton lives in London and has grown pleiones since 1964. He enjoys hybridising and has registered 35 hybrids since 1979.

Stewart Knox lives in Middlesborough where he has grown *Pleione* and other orchids for many years

Simon Retallick grows *Pleione* in Anglesey and a wider range of other orchids are under his care at Treborth Botanic Garden.

Michael Sexton got hooked on pleiones in 1997 and has since built up quite a collection.

Terry Smale is well known for his expertise in South African geophytes and succulents. *Pleione* are a recent and growing interest.

Thanks to all for your contributions!

Back Cover: <i>Dactylorhiza majalis</i> ssp. <i>praetermissa</i> - see page 34

