

2003



INCLUDING HARDY ORCHIDS

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

Front Cover: *Ponerorchis*: ‘Nioh’ flower shape - see article page 18

Editorial

W elcome to the 2003 issue of the *Pleione* Review, the sixteenth since the first in 1988. I am grateful to all those of you who have commented kindly and expressed appreciation of the new format introduced last year. Thank you all too for your patience and support after a burglary involving the theft of my computer led to the late publishing of this year's Review. Burglary aside, the past year has had some good points. I have been crossing pleiones to make new hybrids and growing the seed myself in sterile jars of nutrient. This year I flowered my very first hybrid! It is a cross between *P. Zeus Weinstein* and *P. aurita*. The result is nothing spectacular but being my very first hybrid it is special to me. Also, I started a new job, working for the Royal Horticultural Society at Wisley garden, where I am now Senior Supervisor in the Rock Department, responsible for the famous Rock Garden and Alpine Display Houses. A job working with plants - what more could I ask?

This year's Review contains a mix of articles on *Pleione* and other genera. Gunther Kleinhans contributes an informative article on *Ponerorchis* and another describing his hunt for *P. reichenbachiana* in Burma. Naming plants accurately depends on being able to tell species apart – but how do you decide what a species is? Charles Ellwood muses on this problem for *Pleione*. George King continues his series on his experiments with terrestrial orchids and Martin Hazelton brings us up to date with his *Pleione* collection. We all have ups and downs with our collections and Jan Berg describes some of his delights and troubles. In recent years some exciting new *Pleione* have appeared in cultivation. One of my favourites has been *P. grandiflora*. In my article I have tried to clarify the confusion between *P. grandiflora* and *P. x barbarae*. "Bulbils" for your letters and the update on newly registered *Pleione* hybrids complete the mix for this year. I hope you will find this year's issue interesting and informative and that you enjoy reading it.

Paul Cumbleton

A Terrestrial Experiment - Part VII

**George King continues his series with some useful insights into
Ophrys cultivation...**

As my *Pleione* collection enters into its sixth year, and now having sufficient stock to be able to plant up into larger containers, I am able to appreciate a more colourful display. Up to now I have always purchased my stock from a professional supplier and never had problems with infection such as *Brevipalpus*. (As a beginner I would not know what to look for if I had it, so quite clearly prevention is better than cure.) On reflection, my collection could have been achieved quicker buying from the “second-hand” market, as the cost of the bulbs is usually less here. I pursued this idea and proceeded by contacting the supplier, and enquiring as to their method of growth and treatment of stock. The person contacted was only too pleased to supply the information and when the bulbs arrived I found them neatly trimmed, washed, and twice dipped with neem oil. Goodbye *Brevipalpus*, nice to know another amateur was thinking of my collection’s health.

Oh what a year a warm spring makes - that is definitely the case when it comes to the treatment of the *Ophrys* as the plants are now in flower and approaching plumping up their tubers before going into dormancy. Water and moisture must be controlled or problems with rot will ensue. As mentioned in earlier notes, my collection is now grown in an open site with the top detachable. With the improved accuracy of weather forecasts now, it’s not often I am caught out. The benefits from this method of culture show in the much improved growth; with the free root run the plants are larger, the size of the tubers is increased and as the plants are growing on a slope this keeps the water away from the growing crown of the plant. But however well I grow the plants, nine times out of ten I still only get the one replacement tuber. I have within the last two years acquired two *Ophrys fusca* tubers and the results are the same, as they are also with my own *Ophrys lutea* seedlings, which I flowered last year.

When I grew the *Ophrys* in pots my technique of division was to use a small paintbrush to find the sinker and then to water the pot. This would bind the soil together so allowing me to remove the soil near the sinker without interfering with the roots and to locate the new tuber. After removal, treat the cut with sulphur to prevent any fungal infection, fill in the small hole with fine dry soil and then water after a couple of days. However, when the plant is growing in a six foot square site it is difficult to reach so another approach has to be adopted. In this particular case the area with the selected plant was allowed to dry out then a trowel was placed underneath and the whole plant lifted. Again the soil contained fine sand so it was easy to expose the new tuber without damaging the roots. I had used this approach some years ago when I experimented with *Orchis morio* with no ill effects to the plant - just a matter of placing the plant back in the hole, working the soil around the roots and then watering. It all works out in theory but quite different in practice; my timing could have been better. The tuber is small but quite useful and I will keep it attached to the old tuber. So far I have managed to divide the *Ophrys fusca* the same way.

Continuing the news of my seedling program outlined in last year's Review, the *Ophrys* planted out in November grew steadily throughout the winter, and in the following February the leaves started to die back. But when they were lifted I could only find eight tubers. I knew there were more - the problem being that when the leaves die it's a devil of a job trying to find tiny tubers the size of a grain of sand. The only solution was to strip off the top inch of soil from where the seedlings were growing and scatter it over an area that I reserved only for small plants. This proved a success for the following season another five plants appeared in this area. In their second year the seedlings started to put on some good growth. At this point I am unable to prove that all the seedlings came from the flask as I have been distributing surplus seed on the same site. One further point, despite my dividing *Ophrys lutea* and *fusca* it does not seem to impose stress on the plants, for I also selfed most of the flowers and for the first time will be able to sow my own seed. While self-pollinating these plants I observed that when removing the pollen from a fresh flower the pollen sticks to the pointed

stick like glue The solution I found is to allow the first flower to fade. Then remove the pollen, transferring it to the next flower upwards and so forth to the top.

Following on from my experiments using the fleece material as insulation, I can report that even with an outside temperature of minus six centigrade, I suffered no damaged to the plants. However when the thermometer dropped lower, I took the added precaution of wiring in a tubular heater as a safeguard. This heat was localised and did not cover the whole site, so again the site was stripped and rebuilt. This time I used a heating cable. This was a much better idea, for while the fleece took care of any damp m the atmosphere I now had control over the soil. These improvements I think certainly resulted in larger plants and tubers during the last growing season. The tubers are now in their final stage before lifting and there is one final problem – holidays. One bit if carelessness now could ruin all my effort, so I decided to leave the top on and then completely cover the site with an old white double bed sheet. On arrival back, everything was cool and dry and one *Ophrys fusca* had flowers that were still fresh.

One closing comment: Over the past ten years while on holiday I have been studying a large group of *Ophrys holoserica maxima*, observing their cycle of growth and flowering. As the farmers allow the scrub to grow, so the *Ophrys* have been gradually getting smaller until this year after much searching I could find nothing. After the farmers burn off this scrub the *Ophrys* return. Clearly the plants must reproduce their cycle of growth and I therefore take the view that the plants revert back to the fungus for their energy source and that the trigger for this behaviour is lack of light and water, I have been growing the *Ophrys* since 1988 and this condition has only happened once and the new tuber grew normally the following season.

This concludes my notes for the past season. With the increase in tuber size I expect plenty of flowers next year so until then may I wish you all good growing.

Climate and Evolution

Charles Ellwood offers his thoughts on the effects of the past ice age and of future global warming on the evolution of *Pleione* species...

For some years now I have been trying to put together a representative collection of the known (accepted) *Pleione* species and this interest has led to me pondering how the plants evolved and where they are going. It has also led me to consider how they got to their current distribution. The following commentary is a distillation of my musings.

At the height of the last ice age I assume that Asia was, like Europe, a much colder place than it is these days. I believe the snowline would have been lower than it is today at any given latitude and that the vegetative zones would have been concomitantly lower on the mountains. In short the vegetation was at its lowest altitude and/or most southerly distribution when the ice was at its most advanced. The sea level was also lower than now with Taiwan being closer to (joined to?) the mainland. This would represent the most likely time for the ancestors of *P. formosana* to spread from or interact with the mainland representatives of the *bulbocodioides* complex.

How many species there were at the lower altitudes I know not but if we consider the warming of the planet as the ice retreated it is clear that the plants would be under pressure to move to higher altitudes/latitudes. The spread by seed to newly favourable altitudes would encourage the appearance of new, more tender plants close to old, established colonies of higher altitude species, now beginning to be out-competed. The likely result, hybridisation, may have led to the development of stable new populations we now regard as separate species.

Equally, pioneers advancing up separate valleys would be expected to grow dissimilar even if their origins were the same unless the populations

could communicate. (Pollinator range is short, and high mountains interfere; seed can travel much more easily). One can also imagine populations being left stranded on isolated mountains/ mountain ranges with minimal chance of interaction with other species or other populations of their own species. (Could this be the mechanism by which *P. vietnamensis* has differentiated from *P. praecox*?). The important point is that this is a dynamic process with no steady state whilst climate is changing. Hybrid swarms are known for *P. x taliensis* and *P. x barbarae* - will they out-compete and replace their parents? How many local variations are there in the *bulbocodioides* complex? Will they be recognised as species, or varieties or will they simply be assigned to the accepted species from which they differ least? Did *P. aurita* evolve from *P. chunii* or vice versa?

So what of the future? Global warming will put pressure on plants to move further up the mountains (we are currently about where we were 2000 years ago based on European climate) but the plants should respond well if they have mountains left to climb. Plants left on isolated ranges near the top are obviously in most danger. The major danger is that global warming radically alters the local climate over a few years. For example the onset of wet winters would be terrible as would dry summers. Man-made habitat destruction represents another major threat especially for plants with limited distributions. Let's hope that such concerns do not become reality and that the habitats our plants enjoy in the wild continue to thrive.

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

Pleione grandiflora and *Pleione x barbarae*

Paul Cumbleton discusses *P. grandiflora* and the hybrid *P. x barbarae*, hoping to shed some light on some confusing names...

If you buy a plant with the label “*P. grandiflora*” you may end up with something with white flowers or with pink flowers. The pink ones are sometimes specifically sold as “pink *grandiflora*” – but just which species of *Pleione* have you bought? You may have noticed in the past couple of years that pink-flowered forms sometimes have the name “*P. x barbarae*”, while the white ones remain “*P. grandiflora*”. So which names are correct and how did this situation develop?

P. grandiflora was first described in 1903 by the botanist Rolfe, from a collection made at Mengtze in the south of Yunnan province in China and assigned the collection number ‘Henry 11116’. This plant was described as having white flowers. Henry made another collection (no. 11115) from the same area, which he described as having pink flowers. Based on this, everyone assumed that *P. grandiflora* must be a variable species with white or pink flowers.

However, this could not be verified until very recently because no plants were introduced into cultivation until almost 90 years later. One or two plants appeared at the end of the 1980s, but the main introductions commenced in the late 1990s. At first these all had white flowers but more recently pink ones started to arrive. This seemed to confirm what Rolfe had originally said about *P. grandiflora* having white or pink flowers. This idea became generally accepted and was published in both the major monographs about pleiones where you can see both white and pink forms labelled as *P. grandiflora*. However, in Cribb and Butterfield’s work “The Genus *Pleione*” (2nd edition, 1999) they also mention the possibility that the pink forms may be natural hybrids between true, white *P. grandiflora* and another species such as *P. bulbocodioides* or *P. pleionoides*. But at that time they concluded this was unlikely because neither of these other species had ever been found

growing in the same areas as *P. grandiflora*. (which has been recorded from southern Yunnan in China and south into northern Vietnam. The known ranges of *P. bulbocodioides* and *P. pleionoides* are further north). It has also been observed that the white ones usually grow in separate colonies from, and at higher altitudes than, the pink ones.

When I first saw the pink forms I immediately thought “these are hybrids” – the flowers were very variable, the plants particularly vigorous and the flowers seemed to combine the features of *P. grandiflora* (white) and *P. bulbocodioides*. They also flower typically later than the white forms – another feature one might expect if they were hybrids with the late-flowering *P. bulbocodioides*. The hybrid idea has now been given credence by some research done at Kew Gardens. They looked at a large number of flowers and also carried out DNA analysis. This showed that the pink forms are indeed distinct from the white ones – they vary much more in their colouration, the size of the flowers and in the morphology of the lip than the white ones and often make particularly large pseudobulbs. The DNA analysis confirmed that they are of probable hybrid origin, with the white *P. grandiflora* as one parent and *P. bulbocodioides* (or a similar species) as the other. These pink-flowered hybrids should now all be called *P. x barbarae* and NOT *P. grandiflora*.

Phillip Cribb and Ian Butterfield first published this view in “The New Plantsman” magazine (September 2001, pages 138 to 146) in an article entitled “Little Known and Confused Species of *Pleione*”, and again in “The Orchid Digest” (Vol 65 (4)) later the same year. This information seems not to have become widely known as yet – articles about pink forms of “*P. grandiflora*” (which should now be *P. x barbarae*) are still appearing. For example, the December 2002 issue of “Orchids” (the magazine of the American Orchid Society) carried an article on *P. grandiflora* in northern Vietnam – but the plants being described are a colony of the pink hybrid *P. x barbarae*.

The vigour and variability of the *P. x barbarae* hybrids suggest that the plants occur in what are called hybrid swarms. This is where you not only have first generation (F1) crosses but these have subsequently

Photo: P. Cumbleton



Pleione x barbarae: Several varying forms



Photos: P. Cumbleton

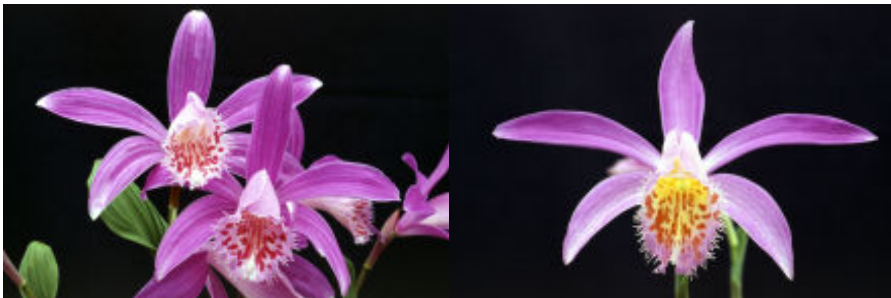


Photo: P. Cumbleton



P. x barbarae: A deeply coloured form and a very pale form

Photo: P. Cumbleton



crossed with each other, backcrossed onto either of the parents and so on over several generations to produce a swarm of plants where each individual will vary depending, amongst other factors, on “how much” of each parent it has in its makeup.

Some other confusion with these names is worth mentioning. Because of the great variability of the pink forms (and before their hybrid status was recognised), several of the differing forms were described and given new names, as if each one were a new species! (Had this process continued we would have ended up with dozens of “new species” as almost each individual flower differs from the next! Had the botanists who made these descriptions known at the time that all these plants had come from colonies in which they grew side by side in the wild, they may have been more cautious). The names they applied were: *P. haberdii*, *P. moelleri*, *P. mohrii* and *P. barbarae*. Once it was known that these plants are all hybrids it became necessary to use just one name for all of them. Because *P. barbarae* was the first name published, it had priority under the international rules on nomenclature. This is why this name, *P. barbarae*, was chosen to be the name that is now used for all these pink forms. (It is often written with an “x” before the “*barbarae*”, hence *P. x barbarae* – this “x” is put to indicate that it is a hybrid. The rules do not insist that this “x” be used, so it is legitimate to write *P. barbarae*, but I prefer to keep the “x” in when writing the names of all the natural hybrids, to make their status clear.)

The true, white *P. grandiflora* has also had other names applied to it at times – these were *P. pinkepankii* and *P. braemii*. Neither of these names is legitimate. If all this has confused you, let me perhaps clarify things by saying that only two names are valid when it comes to plants of the “*grandiflora* type”: If you have white-flowered plants, these are the true species, *P. grandiflora*. If you have flowers that are any shade of pink, these are hybrids and should be called *P. x barbarae*. All the other names mentioned are synonyms and therefore not valid.

The great degree of variability in *P. x barbarae* has been mentioned several times. (*Photos*: pages 9-10). The colour of the flower can vary

from palest blush-pink to deepest mauve-pink, with or without some white striping of the petals. The lip may be pink or white inside, with or without some yellow suffusion. The lip spotting, which may be slight or heavy, varies from red to purple. The size and shape of the flowers also varies, with many being quite large, and the flower stem may be long or short. They tend to flower late in the season (May to June in the northern hemisphere) and the flowers tend to last longer than those of most other pleiones – four to six weeks is common and I have one clone whose flowers last seven to eight or occasionally nine weeks.

True, *P. grandiflora* also shows a degree of variation, though much less so than *P. x barbarae*. (Photos: pages 35-36). The most obvious and striking variation is that many clones have a lovely yellow suffusion in the throat of the lip. This varies from pale lemon to a deep, golden, egg-yolk yellow and in some this colour extends onto the reverse of the lip too. However, some clones have no yellow at all in the lip. The spotting on the lip also varies – it may be shades of brown, reddish or orangey-brown or, more rarely, pale purple. The number of spots also varies from few to many. The size of the flowers also varies somewhat as does the size and attitude of the sepals and petals. The sepals and petals are usually white or creamy-white but some clones appear to be the very palest creamy lemon colour on opening, but this usually fades to white or cream after a day or two. However, in one or two rare but most striking clones the petals and sepals are more distinctly yellow all over and do not fade after opening. So although I have been describing the true *P. grandiflora* as white (to distinguish it from the pink *P. x barbarae*) it can in fact occasionally but rarely be yellow!

Having described the differences between these two plants, the vigilant among you may have noticed we are still left with a problem – if *P. x barbarae* is indeed a hybrid between *P. grandiflora* and *P. bulbocodioides*, how come the latter has not been found growing close to *P. grandiflora*? There are in fact several possible answers to this question and to start you thinking, Charles Ellwood mentions one or two in his article starting on page 13.

Defining Species in the Genus *Pleione*

Charles Ellwood muses on what constitutes a species in the genus *Pleione*...

Since first I took an interest in the genus *Pleione* some 10 years ago (thanks to a display of *P. forrestii*) I have tried to gather together a collection of all the known species (several of which still elude me). This exercise has led to me asking myself the inevitable fundamental question as to what constitutes a species in this genus? The answer is clearly not trivial, as all of the plants within the genus appear to be inter-fertile (judging by the range of wonderful hybrids). Equally my lack of formal botanical training may well mean that I miss detail that is very apparent to the trained eye.

Much of the published information on species distribution and characteristics is contained within the two recent monographs on the genus and the two authorities do not always agree, but I have relied very heavily on these texts to better understand the genus. The points of disagreement made me consider how I recognised the species within my collection and I was surprised by the answers, which I record below. I have tended to base my understanding of a species around the first plant(s) of that species that I have acquired but I believe these have all been true to name.

The first characteristic I notice is the flower colour, which combined with the flowering time, is often sufficient to convince me (early and white must be *P. humilis*, fairly early and yellow *P. forrestii* etc.). I suppose I should beware the white *P. forrestii* (I wish the plants sold as such were indeed always or even usually as named, but I digress). Almost as quickly I notice that the flower shape/size of *P. x barbarae* and *P. yunnanensis* can both be pink with darker colour splashes but I would all be able to tell them apart without needing to look at the lip callus, solely on flower size and shape. Similarly the major differences I see between *P. aurita* and *P. chunii/hookeriana sinensis* are size and colour;

lip callus structure does not help me here. I find that I can separate most (but not all) of the species very rapidly when they are in flower and I check occasionally to see what the callus looks like. Because of this I noticed that the plants being sold as *P. scopulorum* seem to be very variable (I know that I am not alone in noting this, nor do I claim to be the first to notice it). Some plants seem very small, have dark flowers and have a lip callus of rows of hairs, contrasting strongly with the plants I first met as *P. scopulorum* which were taller, paler and had a callus structure that differed from all the other *Pleione* I had or have seen. Does anybody know whether we have two species, a species and a hybrid thereof or do we accept that callus structure can vary within a species?

My research has however confused me more and more with regard to the *bulbocodioides* complex. Indeed the deeper I dig the more confused I get and here is why. *P. formosana* as represented in cultivation is thought to derive only from plants collected on the island of Taiwan, though at least some experts suggest a mainland distribution as well. It is accepted to be a very variable species with variation in the number of callus ridges and of flower colour both being accepted. The consensus is that the *Pleione* on the island are all of the same species whether they are short and pale or tall and dark. Looking at the *bulbocodioides* complex on the mainland things are more confused (at least to my eye) and the new introductions we have seen seem to make for more confusion. To me, variation in flower colour appears to be the main criterion for differentiating one species from another, the callus structures all being similar with the number of callus ridges varying within and between species. I have seen a clone assigned to *P. bulbocodioides* with a heavily (pink) spotted lip looking for all the world like a paler version of *P. limprichtii*.

It may help if the species could be separated geographically but several species have overlapping distributions (this problem is exacerbated if *P. voltolinii* and *P. hubeiensis* are accepted) and anyway we do not know from where the majority of plants in cultivation originate. At its simplest I would pose this question “Is the variation within the *bulbocodioides*

complex on the mainland any greater than that exhibited for *P. formosana* on Taiwan?” If the answer comes back “yes” then my supplementary question would be “how do we define species differences so that we can subdivide this group of plants and assign any natural hybrids within this complex as such?” If the answer comes back as “no” then should we not consider revisiting the proposal to subsume the species currently recognised into *P. bulbocodioides* with subspecies or variety ranks for the current names?

My reading has also left me pondering a couple of other questions related to this complex of plants:

Firstly, *P. bulbocodioides* is a putative parent of *P. x barbarae* yet it is not known from the areas that *P. grandiflora* inhabits, at least according to the published maps. Do we have insufficient knowledge of the distribution of one or both species or is *P. x barbarae* a relict population from a time when the species grew close together? Pink *Pleione limprichtii* was apparently collected on Mount Victoria in west central Burma. This location is approximately 500 km from China and further from the known distribution range of *P. bulbocodioides* into which I believe the plant was subsumed as cultivar “primrose peach”. The intervening ground is predominantly low lying (a mountain ridge extending northwards to the Naga Hills provides the highest route towards the Chinese *Pleione* homeland). This population does not appear to be considered when the distribution of *P. bulbocodioides* is drawn. Are the collection data unreliable?

Secondly, *P. humilis* “Frank Kingdon Ward”, reportedly another plant of Mount Victoria, is believed to be a hybrid of *P. humilis* and *P. bulbocodioides* (presumably “primrose peach”). My limited experience of growing *P. humilis* suggests that it is invariably early to flower, while *P. bulbocodioides* usually flowers late in the season - so how did the two hybridise? Does “primrose peach” flower early or does *P. humilis* from Mount Victoria flower later? Is this plant the product of a cross of a different species (e.g. *P. albiflora*) or does *Pleione* pollen stay viable for months on the back of a bee?

Pleiones: A Personal Perspective (Part 3)

Martin Hazelton brings up to date on developments in his collection...

I have had an eventful year. Shortly after compiling last year's report I made a first visit to China, visiting Beijing, Xian and Chengde. Just prior to my trip we experienced a cold snap. My pleiones are grown without heat and were covered with newspapers and protective fleece. This was left in place during my vacation as a precaution against further bad weather. No damage occurred to any of the pseudobulbs.

Earlier that autumn I had constructed a rocky bank on the east side of the garden. This is underneath two Chusan palms (*Trachycarpus fortunei*), which are also known as hemp palm or windmill palm. I used recycled stone and old discarded *Pleione* compost in the constitution of this bank. I am now experimenting and growing some pleiones outside. I had some dubiously named stock that I decided to risk outside for this experiment. They were planted outside in February and with the early, mild Spring I had pleiones in flower outside for Easter. They were kept fed and watered during the growing season and grew well. They have been covered with a protective layer of old blanket and polythene sheet for the winter period.

In last year's Review I mentioned that I had a *Pleione* that might turn out to be *P. voltolinii* (now regarded as synonymous with *P. pleionoides*). On flowering it turned out to be a miniature form of *P. bulbocodioides* with pale pink flowers and a nice scent. The *P. praecox* hybrids also mentioned last time did not grow as well last year as I did not repot them. They have since been repotted but due to lack of space I have decided to keep them in the unheated greenhouse. They have already experienced sub-zero temperatures, so it will be interesting to see if they have survived. One cross, *P. Erebus* x *P. praecox* formed a flower spike so I decided to bring it indoors. This proved to be a mistake as the bud aborted.

I will close this year's article now as I am very short of free time. As I write (January 2003), I am to be married in a week's time to a lovely Chinese woman who I met in the U.K.! No doubt I will be boarding that plane to China again to meet new members of the family in Manchuria. Perhaps one day I will even be able to see some pleiones growing in the wild. I wish all readers a successful growing season.

The Japanese Culture of UTYOURAN — *Ponerorchis graminifolia*

Gunther Kleinhans describes the many beautiful hybrid forms of *Ponerorchis* that have been raised in Japan and details their cultivation...

Ponerorchis is a small genus of mostly terrestrial orchids closely related to the well-known genus *Orchis*, to whom it was, at times, considered to belong. The Botanist H. G. Reichenbach proposed in 1852 to place it in a newly created genus, *Ponerorchis*, and after several reconsiderations this name is still valid today. (In 1972 P. Vermuelen confirmed the genus as a distinct group of East Asian orchids being closely related to *Orchis*, with which it shares spherical, ellipsoid or oblong tubers. The column has two bursicles that enclose the pollinia, whereas *Orchis* has only a single bursicle.) The genus comprises several species growing in mountainous habitats throughout Eastern Asia, and three of them are known to be native to Japan. The three species are *Pon. chidori* (which is said to also grow epiphytically), *Pon. joo-iokiana*, and *Pon. graminifolia*. The latter is also native to Southern Korea, where it grows, as in Japan, on grassy land in temperate, mountainous regions. Only *Pon. graminifolia* has been used for extensive breeding work that began before the Second World War and continues until today. Here the name “*Ponerorchis*” clearly lies – it refers to a plain or ugly relation of the European genus *Orchis*, whereas in fact *Ponerorchis* offers some of the more spectacular plants suitable for the alpine house. *Pon. graminifolia* is a small, finely structured, fragile and grass like plant. The variety in flower colour and shape has caught the attention of Japanese plant enthusiasts, who generally treasure very much their native flora.

I found a short article in “The New Plantsman” Vol.1, Part 1, 1994. Hybridisation has been mentioned between *Pon. graminifolia* and *Pon. chidori*, and between *Pon. graminifolia* and *Amitostigma gracile*, and

took place decades ago. It may very well be possible that the offspring of these earlier hybrids have been used for further breeding, because today's *Ponerorchis graminifolia* cultivars show an amazing array of variety. Besides the article in the "New Plantsman" I checked in some other, Japanese books, where also three varieties of *P. graminifolia* were mentioned. They only show, however, variety in the colour pattern of the flower, and much less in its shape. The varieties are: kurokamiana, suzukiana and micropunctata. The Japanese name for *P. graminifolia* is UTYOURAN, and I will use the latter expression to refer to the wonderful results of the concentrated breeding efforts undertaken by Japanese florists (in the old fashioned British sense).

Japanese plantsmen have a long history of selecting and breeding some of the most wonderful cultivars of ornamentals, and UTYOURAN is just one of them. 150 years ago, when the plant world (this time not just the Royalty) went wild on Far Eastern introductions, many of their plants became accessible through shows and public gardens. There were *Chrysanthemum* shows in many of the big cities all over the world. Europeans were fascinated by the selections of *Adonis amurensis*, where plants other than the plain yellow singles have been collected: green, white, bronze and red, also showy doubles. After the last world war, when income grew, Japanese horticulturists caused regular booms for plant specialties among the interested population. BONSAI became fashionable again, and a bit later UTYOURAN were a big hit.

Most Japanese plant enthusiasts have the desire and a special craving for things small, unusual and precious, and many Japanese nurseries and garden centres cater to these needs and desires by offering a wide range of small and delicate ornamental plants. About 35 years ago UTYOURAN reached its peak in cultivation. Its cult-like following paid very high amounts of money to get a desired cultivar, and many of today's named cultivars originate from this time: names sell!

The enthusiastic following, however, has changed during the last 20 years to another Japanese oddity, *Hepatica nobilis* var. japonica, called YUKIWARISO, with its myriads of flower and colour mutations.

Nowadays there is a rather small circle of UTYOURAN enthusiasts left, and many of the former stars of the show bench are now available in larger quantities for much lower prices. There is still an annual UTYOURAN exhibition in Tokio during the first weekend of June at the “Greenclub” where, during the rest of the year, members of many other specialized plant groups and societies eagerly display their favourite ornamentals with considerable dedication.

The Cultivars of UTYOURAN

The flowers of UTYOURAN found in nature are generally not very interesting: small, maybe half an inch tall and a quarter of an inch wide, nice, but not very showy with their whitish and pink flowers displaying spots or patches in darker pink or magenta colours. A large amount of seedlings in cultivation turn out this way; they are inexpensive, cute little plants. Five to twenty blossoms can usually be found on its single flower truss.

Dedicated horticulturists, however, were able to produce quite stunning results through crossing, sowing, selecting, again crossing, sowing, selecting and so on: flowers an inch tall, and some cultivars with blossoms even wider. Only a small percentage of the offspring produce plants of desirable flower size, shape and colour pattern. There is a “floristic” system that I would like to point out to you, dearest reader:

Flower Shapes

HYOJYUNKA: The “natural” flower shape, exhibited by most plants, has a lip with three lobes: the two side lobes point down, and are less prominent than the middle lobe. Desirable cultivars have, of course, larger flowers than common plants, as well as a strong and distinctive colour pattern. (*Photo: page 24.*) You will find the most common colour patterns described below; they can apply to all of the flower shapes.

NIOH: The lip’s side lobes are much more prominent, often overlapping the middle lobe and, in many cases, resemble ears. The ears vary in

Photo: G. Kleinmans



Ponerorchis: RENSETSU flower shape

Photo: G. Kleinmans



Photo: G. Kleinmans



Ponerorchis: Four colour forms of the NIOH flower shape

Photo: G. Kleinmans



Photo: G. Kleinmans





Photo: G. Kleinmans

Ponerorchis: NIOH flower shape



Photo: G. Kleinhans

Ponerorchis: KAPUTOZAKI



Photo: G. Kleinhans

Ponerorchis: HYOUYUNKA



Photo: G. Kleinhans

Ponerorchis: Form with crippled leaves

size, and equal or surpass the middle lobe in its colour pattern. A large selection of outstanding NIOHs is available, and it is probably the most beautiful of UTYOURAN's flower shapes. (*Photos*: pages 22-23 and front cover).

RENSETSU: This shape is relatively rare, and therefore expensive. Most or all of the two side lobes are integrated, together with the middle lobe, into one structure; many cultivars appear to have no lobes, but a lip that is as wide as it is long. Different colour patterns exist. (*Photo*: page 21)

KAPUTO-ZAKI: This funny name refers to all plants that cannot be placed into the other shapes. It consists of plants developing (consistent, not occasional) monstrous flowers, flowers crippled through what looks like virus infection, and any flower that is odd and does not fit into the pattern of the other shapes. Among these plants are the most spectacular: side lobes may by far surpass the size of the middle lobe, spreading like wings, the blossoms large enough to resemble small humming birds in flight - really wonderful! (*Photo*: page 24)

Flower Colour

The colours displayed by UTYOURAN are various: there are greens, yellows and white, sometimes pure but mostly combined with the common shades of pink. The lips' patterns are usually of darker colour: dark pink, magenta, purple to dark purple, but there are also plenty of 'blushes', where the colour runs as on a still fresh watercolour painting - very nice!

This is a selection of the more common colour patterns; there are some others. Many enthusiasts gave up on naming them because each new generation might display something new. The colour patterns usually concentrate on the blossom's lip section.

SHIRO: pure white flower, albino

SHIROSHITEN: white flower with small, magenta spots

SHIITTEN: white basic colour with a large, dark magenta blotch

HANMONKA: with small or larger spots distributed on a lighter pink flower

KOUITTEN: pink basic colour with a large, dark magenta blotch

BOKASHI: centre of the lip is lighter than the basic colour, watercolour-like

NIJI: similar to BOKASHI, where the blush extends over all the lobes of the lip

Among the most spectacular colour patterns are plants with “freckled” flowers: irregular (not round) spots all over, and not just on the lip (*Photo*: page 24). There are also the plants that have flower trusses with blossom of different colours, some white, some pink. Other, very rare plants may even have blossoms with their basic colour vertically divided; one half is white, the other one is pink. Yellow blooming plants are the rarest, whilst greens mostly occur on monstrous flowers.

The Flower Truss

UTYOURAN bear flower trusses similar to our native *Orchis* and *Dactylorhiza*, but they often carry their blossom more loosely. The trusses become more substantial with age. Usually, seedlings bloom in the third or fourth year after sowing, starting with a few, rather small flowers. After five years of good cultivation the single blossoms reach their full size, and strong plants develop around fifteen flowers on their truss.

Leaves

There are some cultivars that are kept mainly for their foliage; most of

those have variegated leaves, and some bear crippled, curly or rolled foliage. By “crippled” I mean the leaves are not their natural shape, but are bent, bubbly, twisted and turned. (*Photo*: page 24). Many of these plants are very weak and often die after a few years.

Care and Cultivation of UTYOURAN

UTYOURAN may be of great interest to the *Pleione* lover since its requirements are similar to those of pleiones: a semi-shady place with a moist atmosphere and plenty of fresh air. During most of the autumn, winter, and again most of the spring, while dormant, no water is needed, but the air should be sufficiently moist (as for *Pleione*). Temperatures during the peak of dormancy, in winter, should be around 0 to 5° C, again, similar to *Pleione*. Please consider that they grow in very loose soil and are covered with heavy snow during winter, therefore protection against frost is needed. The cultivation instructions in the “Plantsman” article do NOT apply to “normal” cultivation of UTYOURAN: they were given by Japanese growers to force a shipment of plants into flower, for display at the 14th World Orchid Conference in Glasgow. The Conference took place in April, while in nature the plants usually bloom in July. Flowering in Japanese cultivation takes place in June.

Pots, Medium and Fertiliser

Unlike *Pleione*, UTYOURAN develop only a very few and thick roots that like to grow vertically down into the soil: deep pots, not pans, with a large drainage hole are required. The plants like to grow in a light and loose medium with perfect drainage. The Japanese use a fine grainy medium that resembles coarse sand, but it is porous and much lighter. It consists of unburned miniature clay pebbles. This material is not available in our garden centres. Therefore, experiments should be conducted, trying different materials to optimise growth. The following medium can be used without fatalities on behalf of the plants, but as just mentioned further improvements might be required. The mix could consist of two parts finely beaten Seramis© (without the dust), one part fine perlite (again, without the dust) and one part dark, loose humus.

This medium should be pH-neutral. It needs to be replaced for each new growing season to assure that the humus doesn't compact, blocking the required free drainage. To grow substantial tubers, bearing large flower trusses with lots of large blossoms, fertilisation is required. Japanese growers use a balanced organic slow-release fertiliser, which is placed on the soil surface and releases its nutrients during watering.

The Growing Season

Between the end of March and the middle of April newly purchased tubers should be planted, or older ones replanted. For a single tuber a deep pot of not more than three inches wide is suitable, but plants probably look better if they are grown in small groups of one single cultivar. The tubers' eyes, from which the growth originates, must be on top, and should be covered by about half an inch of substrate. Distance between tubers should also be about half an inch.

Once the temperature rises (slowly and gradually, a sudden increase will make the plants "shoot") the growth will finally show up on the surface and slowly grow taller, unfold its leaves and later burst into flower. Flowering may last up to a month, after that the plants remain green until the late summer or early fall; all upper parts of the plants will have died by then. The tubers' roots will eventually also die while the plant is getting ready for its long dormancy.

Watering should begin once the growth shows up on the soil surface, and fertilisation two or three weeks after. Both continue until shortly after the leaves have died, when the temperature gradually begins to fall to autumn levels. Between waterings, the medium's surface should be allowed to dry. During the months of dormancy plants must be kept cold, and no water should be given until the next spring.

Pests

The most likely pests are aphids and hungry snails and slugs; you know what to do!

Propagation

Growing UTYOURAN from seed needs experience and takes a lot of time, but is the only way, unless one finds an occasional sport, to develop new beautiful cultivars. The seedlings usually need three or four years until they flower for the first time. Large tubers develop new tubers on their sides. At some point these clusters fall apart, and the single tubers can now be planted separately.

Availability

UTYOURAN are currently little known and rare plants in Europe. Unclassified common plants, and the more common of the named cultivars are readily available from Japanese growers and should be shipped via express during dormancy. To get more exciting, new and as yet unnamed cultivars, the following is recommended: one visits a large UTYOURAN-breeding-nursery during flower in June, when other enthusiasts and nursery owners flock in to select plants from the seedlings blooming for the first and second time.

To prepare these plants for shipment to Europe they should be taken out of their pots and substrate, the tubers and roots should be loosely wrapped with moist tissue surrounded by an open plastic foil (to prevent the plants from rotting). The flowering plants can now be loosely placed into a strong wooden box which is large enough to accommodate the whole plant without bending, breaking or smashing the stems, leaves, flower trusses and blossom. The plants are fine for two to three days. Once at home, they must be repotted as fast as possible and placed in a cool and airy place without direct exposure to the sun.

As when importing most or all orchids, *Ponerorchis* require CITES permits. To get CITES can be quite a pain due to the paperwork. However, if one can prove that the plants are cultivated, which should be easy in this case, gaining CITES permits should be easy. Nobody wants the wild ones: they are much too plain.

Delights and Troubles in the Growing Season 2002/2003

Jan Berg relates the ups and downs of his *Pleione* collection over the past year...

In last year's Pleione Review I mentioned the late leaf drop in 2001 of the pleiones that I grow outside. I connected this with the exceptionally warm October (the warmest in 130 years) and the overall rise of global temperature. Curious to see the figures for 2002, I visited the Royal Dutch Meteorological Institute (KNMI). The visit did nothing to put me more at ease! The average temperature for 2002 in the Netherlands was 10.8° C. That means 1.0 degree higher than normal. Only 1990, 1999 and 2000 were warmer (10.9° C). Since 1987 the data show very warm years - the top ten warmest years of the 20th century have all occurred since that year. Worldwide, 2002 was the second-warmest year since 1860 and nine of the warmest years occurred in the nineties of the 20th century. Our fears are more or less confirmed.

What will this mean for orchids, our common interest? If winters continue to be warmer than normal it may diminish heating costs somewhat. Perhaps we can grow more species outside in summer, although extremities in weather will occur more frequently. On a global scale there will be shifting in the vegetation. Some species will enlarge their area, while others will become more restricted. We may expect interesting figures from countries such as France, Australia (and Great Britain?) where the growing localities of their native orchids are well documented. Because I have the impression that the genetic variability in orchid species is greater than in other families of plants we may have the expectation that they will adapt to a changing climate. But this is the Pleione Review so let us write about pleiones:

At an exhibition in March 2001 (held in Leiden, Holland) my eyes caught site of a bulb with the label *P. maculata* to it. The form of the

bulb seemed to me more like one of *P. praecox*¹, but the supplier was sure it was *maculata* and after flowering in autumn I was convinced of that too. The next year it gave two enormous shoots with leaves of 40cm long x 8cm wide (compare this to the 10 to 25cm long x 1.5cm to 3.5cm wide given for *P. maculata* by Cribb and Butterfield in their book “The Genus *Pleione* (1999)). It also produced bulbs of 5cm x 5cm (compared to 1cm to 3cm x 1cm to 1.5cm). Each bulb gave two flower-stalks with two flowers per stem. After flowering, the bulbs (without roots or leaves), weighed 67 and 74 g respectively. The supplier told me that the bulb was imported from India and he was informed that in the future the source will be able to deliver something they will call *P. maculata* var. “Major”. Had they sent him one already and had I bought it? As far as I know there exist no official variety “Major” so I labeled it provisionally as *P. maculata* “Major” (without var.).

Another but less pleasant surprise was the occurrence of *Pleione* flowers with a broken colour pattern in several clones. I fear it may be a virus. The phenomenon is known for instance with tulips. If it is the same this year I will destroy them all and also the bulbs of the same clones that do not flower. Combating greenfly and other sucking creatures (*Brevipalpus oncidii*!) will have first priority. Perhaps I will try to infect a clone with normal flowers and keep this plant miles away from the others, just to see if it is transmissible.

P. humilis is known to produce a lot of bulbils at the apex of the old pseudobulbs. But have you ever seen one that produced a flower at the apex instead of bulbils? A friend showed one to me. The bulb had made two flower buds the normal way. But after keeping it too cold and changing to higher temperature and back these buds turned brown. After that, to his and my surprise, two new flower buds developed at the apex and grew out to make normal flowers.

These very small bulbils of *P. humilis* are worth examining under a microscope with moderate magnification. They look like, and I think will function in the natural environment as, seeds. The wrinkled dead leaflet stays firmly attached and at the base of the bulbil there is a needle

like point. When blown off by wind they will spread much farther from the mother-bulb than the bulbils seen in other species and the point will help anchor them to a good landing site.

Recent years have seen more and more pleiones freshly imported from China. Last March I visited a Belgian orchid nursery. They offered the following imported pleiones: *albiflora*, *aurita*, *forrestii*, *maculata*, *praecox*, *saxicola*, *scopulorum* and *yunnanensis*. The bulbs of *P. scopulorum* were much bigger ($\pm 2 \times 2$ cm) than those of my own clones. I bought some and they give real *scopulorum* flowers and two leaves. The *albiflora* I expected to be a *grandiflora* and the one I took already had a developing bud with a shade of rose. On flowering I think it indeed turned out to be a rose *grandiflora*. (Editor: This is probably actually *P. x barbarae* – see the article on page 6). The flower is not as big as those of the several white clones I grow and has a nice yellow throat. Among the *P. yunnanensis* there were two bulbs that seemed different. On flowering, one seemed to be *bulbocodioides* with a nice long flower-stem and bulbs rather different from the clones I have grown for years (originating from Ian Butterfield). The other on first sight looks to me like a rose/violet *P. limprichtii*. It has a short flower-stem and the lip when spread is as long as broad. But looking at the pictures in the article of G. Torelli (Caesiana 14, 2000) it also looks like what he is calling *P. hubeiensis*, which according to Cribb and Butterfield is a synonym of *P. pleionoides*. The more clones I see of the different species the more grows my admiration and compassion for the taxonomists. I can understand why they sometimes revoke their decisions.

I end with a thank you to all the readers who sent me information about the John Innes compost. I feel myself an expert now!

(Jan Berg E-mail: jan.berg@zonnet.nl)

¹ Clones I have previously grown have pseudobulbs twice as long as wide. But looking at the pictures and drawings in Cribb and Butterfield's book has taught me that perhaps this form is more exceptional.

Searching for *Pleione reichenbachiana* in Burma

Gunther Kleinhans describes his search for an elusive *Pleione*...

Some time ago, while walking through the crumbling streets of Rangoon's (Yangon) colonial city centre I came upon a little bookshop which reprints old publications on nature and ethnology. Here I found and bought a book that gave a good overview of Burma's orchid flora, or at least what was known by then. It was "The Orchids of Burma", a compilation made by a Captain Bartle Grant, published in 1895, from works of different authorities: enthusiasts, plant hunters and botanists. There are two entries for the genus *Pleione*: *praecox* and *reichenbachiana*. Both are described as "distinct and beautiful species". Whereas *P. praecox* represents a rather common species, *P. reichenbachiana* was considered to be very rare, and indeed it is. Today we know more about the distribution and the variability of both types.

The most interesting remark for someone who is looking for *P. reichenbachiana* in its natural habitat originated from Reverend Charles S. P. Parish (1822-1897). He was based for some time in the then small post of Moulmein (Mawlawyaing), on the Western side of the mountains dividing Burma from Thailand. From there he stated that *P. reichenbachiana* was "found on the mountains East of Moulmein at a somewhat lower elevation than *P. praecox*". Since Reverend Parish had spent a good deal of his time painting and drawing the surrounding orchid flora, and it is likely that he probably collected some or many of the plants he was about to paint himself, I have confidence in trusting his judgement: drawing or painting plants requires a lot of detailed observation.

Previously I had only read about *P. reichenbachiana* in Cribb and Butterfield's book "The Genus *Pleione*". They regard it as synonymous to *P. praecox* (seeing it as an interesting form of *praecox* but not

sufficiently different to it to regard it as a separate species), so I never thought much about it. However, as a collector of this genus, Parish's note is of importance to me. He was surrounded by both of the pleiones that Grant describes, and he made clear to me that there is something missing from the plants that I already have. So I decided to visit Burma in September 2001 and look for it. Shortly before leaving, my fellow *Pleione* enthusiast Holger Perner told me that he has taken pictures of plants recently introduced from Thailand that resemble *P. reichenbachiana* (which is described below). They are kept in Hamburg Botanical Garden.

During my preparation for the trip I tried to pinpoint a locality where I might find *P. reichenbachiana*. Given were the mountains East of Moulmein. This area however could not be visited without complicated requests to the government for special permission - and the chances of actually getting permission were very poor because it is not only a restricted, but also a forbidden area. Most probably this is not only because of the Karen tribe (who wish the central government ill), but also that none of them want foreigners getting high while walking through beautiful poppy fields.... So, I had to look for alternatives. More risky would be to cross the border without a visa via Thailand. An acquaintance told me that he could arrange this with some Karen friends (he filmed a documentary about the Karen's struggle against the government). A safer bet of course would be to look on the Thai side; the border town Mae Sot sounded good, but for this trip I really wanted to try my luck in Burma.

I decided to go for the least interesting choice, which was to follow up on an entry by Benson, who collected in the Arracan Mountains for the Veitch nursery. Now, there are different spellings of Arracan - Arakan, Arrakan, Rakhine and Attaran, and which of them is where? Benson, of course, must have meant the mountain range to the Northwest of Rangoon, which is geologically the youngest in Burma, and therefore probably has a far less interesting flora than the eastern mountains. It is separated by some one hundred and ninety kilometres (plus the shallow Pegu divide) from the mountains above Moulmein. Could this entry

Photo: P. Cumbleton



Pleione grandiflora: A fine yellow-lipped form

Photo: P. Cumbleton



Pleione grandiflora: A collection of various forms



P. grandiflora: Various forms including one with purple spots (top left)

Photos: P. Cumbleton



Photo: P. Cumbleton



P. reichenbachiana (?): Whether you regard this as a separate species or as a form of *P. praecox*, it is both distinctive and beautiful

have been a mistake? Maybe only a spelling mistake, because just south of Moulmein runs a river with the name Attaran, and maybe this is where Benson found his plants, somewhere above the river? But again, this is forbidden country.

Pauksa-Taung, at 1708m the third highest elevation within the Arracan Mountains, was my ultimate, hopeful choice. My travel arrangements required little time, so first I went to visit the town of Maymyo (Pyin U Lwin). During British rule Maymyo was chosen as a summer residence by British officials, due to its pleasantly fresh climate. It sits at an elevation of over 1000 m and is still a beautiful and quiet place. It also boasts a once famous site of *Paphilopedium bellatulum* as well as an important private orchid collection with a large laboratory, successfully propagating rare species from seed. Among this collection were several pots of *P. praecox* in flower; typical *P. praecox*, the ones as we know them: sepals and petals deep rose, a blush-white or pinkish lip with a yellow disk and a few darker rose spots; a callus of five toothed ridges. There were examples from the Shan State and the Chin Hills, locations that are similarly separated as Moulmein is from the Arracan Mountains (the Arracan mountains actually extending the Chin Hills to the South).

A week later my little entourage and I were walking up towards the top of Pauksa Taung. It was a really warm day, and I wondered how pleiones could grow there. I occasionally strip-searched a moss-covered tree trunk or a rock for pseudobulbs, but found nothing. Shortly before reaching the top (a densely forested platform), the climate changed. We were in the clouds now, it was fresh, even chilly, and everything was dripping wet. And yes, there they were - pleiones, and well past their prime: already out of flower, with wilted leaves. We spent a night in misery up there, and while taking another walk the next morning I found a late blooming *Pleione* on an upper branch of a tree. We managed to get it down so we could examine it more closely. The flower's petals, which were deeply pink, were partly eaten, but not the lip. Again though it was a typical *P. praecox*, not even what Dr Cribb would describe as a plant of intermediate character. Sadly, despite all our efforts and earnest searching, we did not encounter *P. reichenbachiana* on this trip.

These days my collection comprises *P. praecox* from the Himalayas, from Yunnan (China), and from the Shan State, which extends the Yunnan mountains further to the south. There are examples from the Chin Hills and the Arracan Mountains, and they all more than resemble each other in their essential features. Parish noted that they also grow in the Tenasserim division, an area very far south for a *Pleione*, on the summit of the Nat Taung Mountain. Further habitats to the east seem to occur in northern Laos and northern Vietnam. *P. reichenbachiana*, however, seems to be restricted to the border area of Burma and Thailand, growing as far North as Northern Thailand and to the south probably deeper into the Tenasserim division. I also assume that *P. reichenbachiana* grows much further to the east, probably throughout mountainous areas of northern Laos, where there are plenty of suitable altitudes. *P. reichenbachiana* is known for its “tasteful” colour distribution and a slightly different yet consistent callus. It has rosy-lilac sepals and petals, with slightly lighter edges, a white lip with 3 ridges of papillose teeth with rosy-crimson veins in front and spots of the same colour scattered over the surface. (*Photo*: page 36). It is also known for its rareness. *P. vietnamensis*, which seems to be closer related to *P. reichenbachiana* than to *P. praecox* was found several years ago on a mountain in the middle section of Vietnam.

What of the plants of intermediate character? These are hybrids of course, probably stabilised hybrid swarms, similar to those of *P. x barbarae*. A Chinese botany student at the Botanic Garden of Kunming told Dr Perner and me once that he has been to a mountain in south-eastern Yunnan, where *P. grandiflora* is known to grow. It can also be found in the adjacent mountains of northern Vietnam. The white *P. grandiflora* grow at higher altitudes than the pink *P. x barbarae*, and both form their own separate colonies. Most of the pink plants seem to be stabilized through permanent natural recrossing; the consistency with the callus of pure *P. grandiflora* shows that. A small percentage of the pink plants, however, show lip features of a totally different nature. In consistency with the recently created “complexes” for *P. hookeriana* and *P. grandiflora*, I assume that *P. praecox*, *P. reichenbachiana* and *P. vietnamensis* will soon find their place in a complex of their own!

“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).

Charles Ellwood writes with some responses to last years “Bulbils”:

Question: Can rapeseed oil be used for pest control?

My guess is that the product Naturem, based on rape-seed oil, has been formulated so that it readily forms an emulsion in water and goes on to form an even film of oil that is fatal to insects (by suffocation) but not to plants. This implies that the emulsifiers used would have very low phytotoxicity. The use of pure oil, which is not formulated in this way, may well be very messy and unsuccessful. The making of pesticidal preparations has long been strongly regulated and the use of adulterated oil for the purposes of pest control may well be illegal.

Question: Is flower colour affected by temperature?

A couple of years ago I bought some *P. forrestii*, which arrived in spring with buds ready to open. The flowers were so pale that I labelled them “alba”. However, as the flowers got older they darkened to yellow with the purple marks in the lip turning red as the colour advanced. These plants were as named - standard *P. forrestii*. A year ago I bought a clone of *P. forrestii* (well established in cultivation by Kath Dryden). This year with the warm March temperatures it was one of the few *forrestii* to not abort its bud. It half opened and went over quickly and it was very pale. My guess is that maximum, not minimum temperature is important and that the original bulbs had got rather warm in the post.

A friend tells me that the bulbs that aborted flower buds this year will grow bigger and stronger next year and I will have a lovely display of *forrestii* flowers. I cannot remember whether he started “Once upon a time...”

Question: How do we grow *P. maculata*?

With great difficulty! I flowered it the first year I tried it, crippled it the second year and killed it the year after. I am having some success at the moment with it in a propagator, warm and moist, the roots love it but the leaves are vulnerable to scorch and neck rot; still it makes a change from leaves but no root!

New question for this year:

I believe that we are now supposed to call all artificial hybrids that have wild equivalents by the wild name i.e. *P. Edgecombe* should be renamed *P. Kohlsii* (both being *aurita* x *forrestii*). As we do not know for sure that the wild plants are not back crosses does this mean that all hybrids with only two species in their make-up are obliged to go by the wild name if the hybrid is known? Are *P. x lagenaria (maculata* x *praecox)*, *P. Liz Shan (lagenaria* x *maculata)* and *P. Lassen Peak (praecox* x *lagenaria)* all to be combined as *P. Lagenaria*?

Charles Ellwood

(Editor: The proposal to change names as indicated above was first suggested in the Supplement to the Orchid Review 110(1247): 86 (Sept. 2002). However, the RHS has reconsidered this and made revisions. Julian Shaw, the Orchid Registrar, writes to explain as follows):

Natural hybrids and grexes: a clarification

In the *Orch. Rev. Suppl.* 110(1247): 86 (Sept. 2002) it was suggested that natural hybrids and grexes of apparently identical parentage should be treated as co-extensive taxa. And as such, the natural hybrid binomial had priority over the equivalent grex name. However, a reconsideration

of the nature of natural hybrids and grexes leads to a different conclusion: that the grexes listed constitute cultivar-groups within the hybrid circumscribed by the binomial.

Why is this the case? It appears from the literature that initially orchid grex names were applied in a manner similar to natural hybrid epithets; both circumscribed all the possible progeny resulting from interbreeding between two species and their offspring. This has been the general application of the grex group in horticulture and was the practice followed in *Rhododendron* and *Lilium*. At some point about the late 1950's - early 1960's there developed a debate in the *Orchid Review* as to whether back-crosses should be given grex names to distinguish them from primary crosses and thus admit them to Sander's List. Eventually the consensus moved to separate primary and backcrosses as separate grexes with distinguishing names.

At this point the general application of the grex name in orchid registration departed from both the standard use in horticulture and that of the binomial hybrid species name. A botanical binomial that is applied to a hybrid includes all the progeny relating to crosses between the two parents, regardless of whether these are F1 crosses, subsequent generations or backcrosses (ICBN Art. H.4.1). Thus the Latin binomial for a hybrid has a broader application than the grex name which currently is applicable only to the progeny of a single cross, be it a filial generation or a back-cross. For example, the newly registered grex *P. Vicky* is bred from *P. bulbocodioides* x *P. x barbarae*. Since *P. x barbarae* is thought to be the natural hybrid between *P. bulbocodioides* and *P. grandiflora* the resulting grex is no longer of species equivalent rank (as it involves at least one back-cross), but forms a cultivar-group within the limits of the name *P. x barbarae*. Therefore plants belonging to the F1 generation of *P. bulbocodioides* x *P. x barbarae* may be referred to *P. x barbarae*, and may be labelled either *Pleione Vicky* grex or *Pleione x barbarae Vicky* grex. Should individuals from this grex be back-crossed to either parent the progeny becomes a member of another grex but is still within the limits of the latin binomial and could be labelled *Pleione x barbarae* [Another] grex. A further example is the plants

derived from *P. maculata* x *praecox*, which include: a natural hybrid, *P. x lagenaria* (*maculata* x *praecox*), *P. Liz Shan* (*lagenaria* x *maculata*) and *P. Lassen Peak* (*praecox* x *lagenaria*). These last two grexes can be thought of as cultivar groups within *P. lagenaria* and could be labelled *P. lagenaria* Liz Shan grex or *P. lagenaria* Lassen Peak grex, respectively.

Julian M. H. Shaw

(Julian can be contacted at the following address:

Julian M. H. Shaw, RHS Orchid Registrar 2 Albert Street, Stapleford, Nottingham, NG9 8DB UK. E-mail: Orcreg@rhs.org.uk)

Orchid site lost

It is with regret I have to report the loss of another orchid site. It was always a pleasure to drive to the atomic science research site at Harwell in Oxfordshire, where *Ophrys apifera* always grew in reasonable numbers. Alas, last time I visited I was greeted by the sight of utter devastation, for this site is to be used for building a new super duper science project for producing X-rays. No doubt those responsible will trot out in the name of conservation that they have removed the topsoil to be planted elsewhere to preserve the *Ophrys*. I am at a loss to understand how they think this will work; *Ophrys* start growing in autumn, produce the new tuber in April, flower in June and then the old tuber dies. A site employee told me that work started in February – that is, in the middle of the growing cycle, so my guess is that little will be saved. Also, the local rabbit population now has less area to feed in and had eaten all the available vegetation down to the ground. After searching for an hour I found no sign of orchids. I will not be going back.

George King

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.

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

Grex Name	Parentage	Registered By	Year
Calleva	<i>P. pleionoides</i> x <i>P. yunnanensis</i>	R. Kretz	2002
Clermont	<i>P. Berapi</i> x <i>P. confusa</i>	R. Kretz	2002
Eastfield	<i>P. Zeus W einstein</i> x <i>P. Novarupta</i>	S. James	2003
Feng Shui	<i>P. Tongariro</i> x <i>P. Charlie Chan</i>	M. Hazelton	2002
Forbidden City	<i>P. Hekla</i> x <i>P. Shantung</i>	M. Hazelton	2002
Harlequin	<i>P. Tongariro</i> x <i>P. Shantung</i>	S. James	2003
Lhasa	<i>P. Britania</i> x <i>P. Eiger</i>	S. James	2003
Mandalay	<i>P. Tongariro</i> x <i>P. Quizapu</i>	S. James	2003
Melbury	<i>P. formosana</i> x <i>P. Litton Dale</i>	R. Kretz	2002
Siuslaw	<i>P. yunnanensis</i> x <i>P. Soufriere</i>	R. Cavender	2003
Tiantan Park	<i>P. limprichtii</i> x <i>P. Firecracker</i>	M. Hazelton	2002
Trask	<i>P. Soufriere</i> x <i>P. Keith Rattray</i>	R. Cavender	2003
Umpqua	<i>P. scopulorum</i> x <i>P. bulbocodioides</i>	R. Cavender	2003
V idky	<i>P. bulbocodioides</i> x <i>P. x barbarae</i> *	K. Redshaw	2003
Xanadu	<i>P. formosana</i> x <i>P. Surtsey</i>	M. Hazelton	2002
Yaquina	<i>P. Soufriere</i> x <i>P. aurita</i>	R. Cavender	2003
Y iheyuan	<i>P. formosana</i> x <i>P. Trazu</i>	M. Hazelton	2002

Two other new hybrids have been described in a German magazine, but the breeder has not as yet chosen to register them. They are:

P. limprichtii x *P. chunii* (See *Die Orchidee* 52(3): 334)

P. chunii x *P. yunnanensis* (See *Die Orchidee* 53(2): 255)

**Pleione x barbarae* Braem. Although initially treated as a synonym of *P. grandiflora* in Cribb & Butterfield, *The Genus Pleione* 2nd ed. 97,

100 (1999) it has since been recognised as a natural hybrid, see *New Plantsman* 8(3): 144-145 (Sept. 2001); *Orch. Rev.* 111(1249): 25, fig. 25 (Jan. 2003); Other synonyms for *P. x barbarae* are *P. 'Pink grandiflora'* hort.; *P. harberdii* Braem; *P. mohrii* Bream and *P. moelleri* Braem

New Hybrid Genera

Few attempts have been made to cross pleiones with other orchid genera to make intergeneric hybrids. The only successful one known to have been achieved is a cross with a *Bletilla*. The name *Pleionilla* has been assigned for such crosses, as described below. The only other attempts that may have been successful have been with *Coelogyne*, though it is uncertain if the offspring were truly hybrids. The name *Coelione* has been assigned for any such crosses. Julian Shaw, Orchid Registrar, gives the following information on these names:

Coelione [*Coeln.*] J.M.H.Shaw **nothogen. nov.** = *Coelogyne* Lindl. x *Pleione* D.Don. Br-gp. 13. Note: Ian Butterfield has synthesised hybrids assignable to this nothogenus several times, but not registered any grexes. The flowers were small and unattractive, and there was some suggestion that they may represent halpoids. This line of breeding has since been discontinued and no plants are available for study. However, this nothogenus is published to provide a name for such crosses and to make a permanent record available.

Pleionilla [*Pl.*] J.M.H.Shaw **nothogen. nov.** = *Bletilla* Rchb.f. x *Pleione* D.Don. Br-gp. 13. This hybrid is known to have been raised in Australia, (*editor's note: and also in the United States*) but no grexes have yet been registered.

This Year 's Contributors

Jan Berg is an amateur grower living in the Netherlands. His first *Pleione* was given to him about forty years ago. He enjoys doing his own hybridising and some of his hybrids are registered by the RHS.

Paul Cumbleton has been your editor on the *Pleione* Review for three years, having taken over from Peter Bradbury after the 2000 issue. I grow both species and hybrids of *Pleione* and also am producing my own hybrids. The first of these flowered this year!

Charles Ellwood is an amateur grower who fell for *Pleione* at a mixed plant show a decade ago when he first met flowering *P. forrestii*. He decided to try to build up a collection of the available species, ignoring the hybrids. Then he visited the national collection in spring and now grows a range of species and hybrids.

George King is an amateur grower whose interest started over forty years ago. His main passion is the warm *Paphiopedilum* hybrids, but stumbling on *Ophrys spruneri* on holiday triggered an interest in hardy orchids which ultimately led him to pleiones.

As a child, **Gunther Kleinhans** admired a picture of blooming *Pleione formosana* in a German gardening catalogue. Later, as a teenager, he bought a bulb for around one pound. It never flowered, but he has been in love with pleiones ever since.

Martin Hazelton lives in London and has grown pleiones since 1964. He enjoys hybridising and his first cross, *P. Alishan*, was registered in 1979. Since then he has registered another 28 hybrids.

Don't forget The *Pleione* Website at

www.pleione.info

Back Cover: Display pot of *Ponerorchis* - see article page 18

