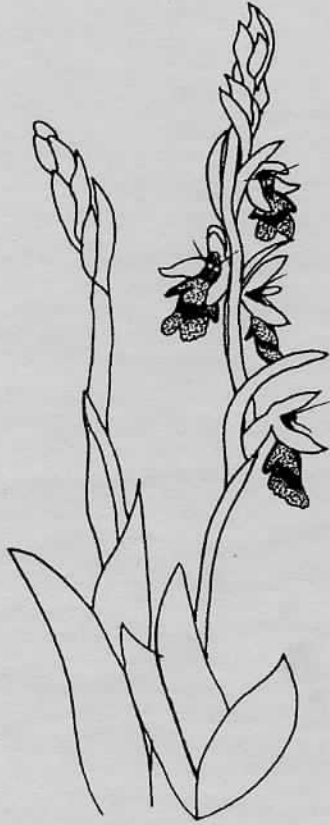


# *The Hardy Orchid Society* *Newsletter*



No. 9 July 1998

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Cover drawing: Ophrys insectifera by Sarah Marks.

## COMMITTEE MEMBERS

President: Paul Harcourt Davies (Newly elected), Fernhill, Llanquian Road, Aberthin, Cowbridge, South Glams. CF7 7HB  
Chairman: Adrian Blundell (newly elected) 30 Crommere Road, Shrewsbury, Shropshire.SY2 5HX - also seed & fungus bank.  
Vice-Chairman: Trevor Marks, 83 Ladysmith, East Gomeldon, Salisbury, Wilts, SP4 6LE  
Secretary: Richard Manuel, 45 Thorncliffe Road, Oxford, OX2 7BA  
Treasurer: Mrs Christine Cook, 15 Weald Rise, Tilehurst, Reading, Berks, RG30 6XB  
Membership secretary: Norman Heywood (newly elected), New Gate Farm, Scotchey Lane, Stour Provost, Gillingham, Dorset. SP8 5LT  
Show secretary: Tony Hughes, 8 Birchwood Road, Leigh Sinton, Malvern, WR14 1LD  
Assistant show secretary: Mrs Kath Dryden, Berries, 30 Sheering Lower Road, Sawbridgeworth, Herts, CM21 9LF  
Newsletter secretary: Mrs Carol Dash, Lower Lakes, Suckley Knowle, Whitbourne, Worcs. WR6 5RH  
Conservation officer: Alan Dash, address as newsletter secretary.  
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Ordinary member:(Newsletter distribution) Bill Temple, Primrose Cottage, Hanney Road, Steventon, Oxon, OX13 6AP  
Co-opted member: (newly elected) Moira Tarrant, Bumbys, Fox Road, Marshbury, Chelmsford, Essex. CM1 4TJ.  
Co-opted member: (newly elected) (BOC Representative) Richard Nicol, 1364 Evesham Road, Astwood Bank, Redditch, Worcs. B96 6BD

EDITORS NOTE : As you can see there were several new elections at the recent AGM and these are listed opposite. I would just like to extend a vote of thanks on behalf of the members to all our retiring committee members - who incidently have taken up other positions within the society - for all their hard work during their period of office.

## CHAIRMAN'S ADIEU

12 April 1998

Paul Harcourt-Davies

I have always detested the personalised letters which come from various book clubs and other organisations with news of prize draws. Equally, a letter to "Dear Fellow HOS member" seems unfriendly and distant when I know and count so many people within the Hardy Orchid Society as valued friends. Please then excuse the lack of names - I am as usual doing my well-known impersonation of the legendary Dipteran Musca ana-caerulescens before disappearing to Italy for Three weeks.

Much as I would love to be at the AGM on 2 May 1998 the opportunity to make a few pennies and thus allow my children to revise for their A-levels and GCSE's rather than feel an obligation to take to the streets and sing is one I have to seize. This is prime tour time for me and I have to be out and about during that 'window of opportunity'.

It does not seem very long ago that I received notice of my elevation to Chairmanship. No watching for light or dark Papal smoke this time, Joyce Stewart had been offered the chance of great things with the RHS and anticipated a heavy work load. Ergo, it fell to the Vice Chairman to take on the mantle. There was an element of irony since the first role had come by default. I promised Norman Heywood that I would help in any way I could when he spoke to me about setting up the society.... It could have been a poisoned chalice but it never has been.

I have enjoyed watching the society grow and have delighted in the warm-hearted camaraderie and free exchange of ideas which are the hallmarks of our meetings both formal and informal. Long may that continue, for the society is one free of pretension, though the erudition and expertise of many members is breathtaking. Knowledge is worn lightly and I must say I have always admired that tendency. In any group with an esoteric interest there will be some odd characters but I feel in the HOS the emphasis is more on 'character' than 'odd'.

Any society depends on the energy of its membership and although one acknowledges that it is inevitable that a small group provides leadership, secretarial and other roles, I would like to feel that there will be a steady flow of volunteers and an element of 'recycling' as people take a 'rest' before,

perhaps, lending their talents in some other role. It has been a pleasure and privilege to chair meetings of colleagues on the 'committee'. Their efforts cannot be underestimated - I know they have your thanks but I would like to record my personal gratitude too. I have every intention of remaining involved with the society - it is far too great an interest of mine - and will offer my help wherever anyone perceives that I might be able to add something.

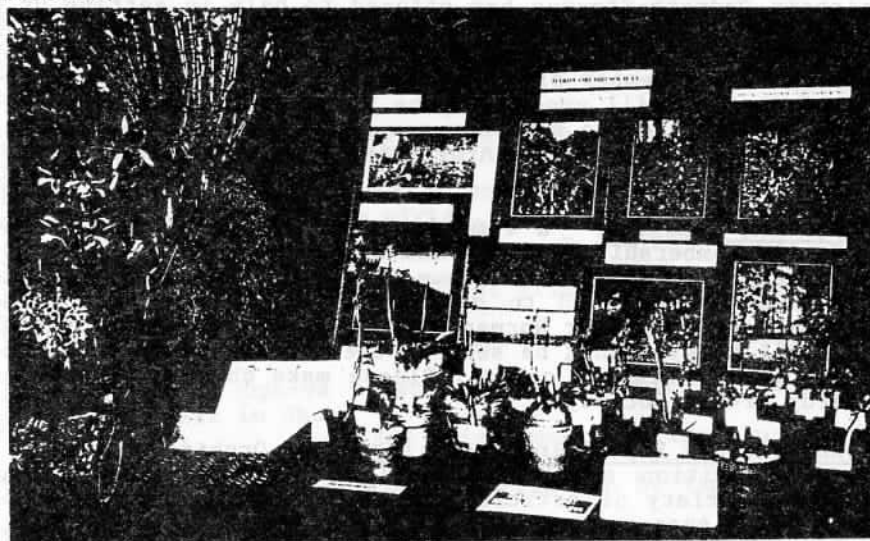
Over the past two years I have organised and led two tours for society members, the first to Cyprus and the second, this year, to Crete where we found 37 species of wild orchid and numerous species of birds of prey. As always this was not a gathering of monomaniacs but of people with an interest in what grew and flew around them.

From October some of you are aware I am expanding my involvement in specialist tours and working with two colleagues under the "Hidden World" banner. I was nearly forced to abandon this years trip for reasons which many of you know. Bloody minded determination won the day and we went, much, I think, to everyones delight. To run a tour means considerable planning and time has to be set aside. If the tour does not run, that is wasted. The larger the party the better the rates we can get because of group bookings. What I cannot and will not do when leading any group is run risks - we use reputable airlines, good accomodation and eat locally to sample something of the country. Yes, you can get a charter and self catering cheaper and this is something that some will naturally prefer. If it goes wrong (as I have seen on many occasions) then I, for one, want a good responsible agent (as we had this time) to make sure everything runs smoothly. Next year, it will make sense for me to offer my trips more widely and thus keep prices down - several trips will be dedicated to orchids and there will be an appreciable reduction for those HOS members who have travelled with me previously.

This society is entering an exciting phase with its new-look journal and I hope that we can go on embracing that "wide-church" we do because a range of views and approaches is so valuable with capricious things such as orchids whether one is interested in looking for them, growing them, photographing them or sorting out their relationships with one another.

I wish my successor every success, will offer any help I can and am sure that they will recieve the warmth and goodnatured cooperation which has so often been accorded to me and, for which I take this opportunity to thank you. This time it is by letter - I shall ask my successor to indulge me for a few minutes at a later meeting so that I can thank you in person.

We were delighted to learn that the Society has won a Silver Medal at the London Orchid Show (RHS) on 6-7th March 1998. The display included a photographic illustration board of some of the conservation projects in which the Society has been involved with a wonderful display of members cultivated plants in front. The photographs of the result showed it to be very impressive and worthy of the Silver medal! As well as being a good representation of the range of interests of the Society the display also attracted many new members. (Indeed this plus recent adverts placed in the AGS bulletin have raised the membership to over 300). So - thanks go to those members who set up and "manned" the display as well as sending plants. We are looking for volunteers to help with next years show so if you can help in any way please contact a member of the committee.



Original photograph of the display by Rosemary Hill.

Dates for your Diary:

A reminder of the Newbury Orchid Show which will have a "hardy" section as usual. This newsletter may just reach you in time - the Show is 28-29th of June. A display table will be present to represent the Society. Well worth a visit.

Later in the year - the Autumn meeting of the HOS will be held at the HRI Wellesbourne, near Warwick, on Saturday October 31st. This is a new venue for the Society so please support the meeting and find out what it is like. More details will be produced in the October newsletter.

Please remember that there will be a Photographic competition again at this meeting - so get snapping. This year as well as prints, we hope to have the facility to show a few slides for each member and possibly discuss them all together.

It was also suggested that it would be of interest and use to members to see and hear about orchid sites/reserves close to other members i.e. to learn about new areas other than our own. So hopefully at a future meeting we can organise for several members to give short resumes of their local sites - please let Richard Manuel know if you would be willing to participate in this - it doesn't have to be long.

Unfortunately there are no planned field trips for this year in this country. (A report on the recent Field trip to Crete will appear in a newsletter in the near future). However it is hoped that a trip to Kent and one to Dorset will be organised for 1999. If you are willing to organise a field-trip in your area please contact Norman Heywood (address on inside cover).

Alaistair Redpath-Stevens has offered to help in setting up a HOS Web site. Exactly what this will contain we are still formulating and any suggestions or offers of help are welcome. Please contact a member of the committee in the first instance. More information will appear in the Newsletter as and when. It was very encouraging to see many new members at the May meeting and we hope they found it interesting and enjoyable - if not let us know!

SUBSCRIPTION REMINDER - a reminder that subs fell due at the AGM. Family membership is £9.00 and single membership is £6.00. These rates have remained the same. If you have just joined and are unclear if you need to pay again yet please contact the membership secretary, Mr Norman Heywood (address on the inside cover). All money should be sent to the treasurer Mrs Christine Cook (address on inside cover). Please make cheques payable to the Hardy Orchid Society.

#### NATIONAL PLEIONE REPORT incorporating Hardy Orchids

The 1998 edition should be available from early June and includes a variety of articles on Hardy Orchids. If you would like a copy please write to:

Mr. Peter Bradbury, 72 Blind Lane, Bourne End, Bucks. SL8 5LA. The cost of the report is the same as last year, that is £3.25 for UK including postage or £4.25 overseas including postage.

If you would like to contribute to the report for next year please contact Peter. All contributions are welcome.

#### ANNUAL SHOW

Tony and Diana Hughes

If the world were perfect, we wouldn't have clashed with two AGS shows - but it isn't, and we did! Nevertheless, we still had a fine collection of excellently grown plants, adding greatly to the interest of the day. I'm sure that many of us went away with plenty of ideas and a determination to have a go at some of the more spectacular varieties on show. A big thankyou to the eight members who brought such lovely exhibits,

and also to Norman Heywood for judging - I think most of the eight are still speaking to him!

Congratulations and the trophy for "Best in Show" went to Richard Manuel for his pot of Mirror Orchids, a delightful little group of plants, all in superb condition. Congratulations should also go to Ian Rodgers who, with only four entries, scooped three firsts and a second. Who could fail to admire his charming little Donkey Orchid?

The non-competitive display had only four items, but thanks must go to Rosemary Hill for bringing along her photo album of 'Cretan puzzles' for us to identify. Several members rose to her challenge to name the plants - but were the results unanimous? or correct?

WINNERS are as follows:

Class 2. - 3 pots Native European - 1st prize won by Ian Rodgers with 3 Serapias.

Class 3. - 3 pots Non European - 1st prize won by Ian Rodgers with 3 Pterostylis.

- 2nd prize won by Carl Hardwick with a Cypripedium japonicum and a Cyp. formosanum plus a Pleione chunii

Class 4. - 1 pot Native British Orchid - 1st prize won by Carl Hardwick with Coeloglossum viride.

- 2nd prize won by Colin

Clay with Orchis morio

Class 6. - 1 pot Non European - 1st prize won by Alan Dash with Cyp. henryi

Class 8. - 1 pot Orchis - 1st prize won by Richard Manuel with O. morio.

Class 9. - 1 pot Ophrys - 1st prize won by Richard Manuel with O. speculum (best in Show)

- 2nd prize won by Adrian Blundell with

O. strausii.

Class 10. - 1 pot Serapias - 1st prize won by Ian Rodgers with S. strictiflora

Class 11. - 1 pot Cypripedium - 1st prize won by Alan Dash with Cyp. margaritaceum.

- 2nd prize won by Adrian

Blundell with Cyp. franchetii

- 3rd prize won by Alan Dash

with Cyp. tibeticum

Class 12. - 1 pot of any 'other' - 1st prize won by Peter Corkhill with Calanthe striata (Syn Sieboldii)

- 2nd prize won by Ian

Rodgers with Diuris Pioneer 'Big Ears'.

## SEED AND FUNGUS BANK

A reminder to set and collect seed from any hardy orchids you may grow. Techniques for packing seed and storage appeared in Newsletter 2 page 11. A list of seed and fungi available to members will be ready later in the year and further details will appear in the October Newsletter. Please send all donations of seed to Adrian Blundell at 30 Crowmere Road, Shrewsbury, Shropshire SY2 5HX.

## ORCHIDS IN SICILY

After the AGM, Richard Manuel gave us an illustrated talk on his recent visit to Sicily - of which the following is a brief summary (by Carol Dash).

The holiday began in the North of the Island near Palermo towards the end of April 1997. The weather was appallingly cold, windy and wet and the orchids were mostly only just coming out. Access to Sicily and then around the island itself was not as easy as with most Mediterranean destinations and should not be attempted by the faint hearted! Much of the island is mountainous and roads are often steeply winding and slow. Many of the previously recorded sites in the Palermo area had been degraded or were unfindable. Some sites were heavily grazed.

One of the best areas in the North was the Forest of Ficuzza, which is a huge area of dwarf trees spread over a large hillside. It is very open and light and so full of orchids. Some areas are fenced as it is grazed. Ophrys bertolonii were common in the forest as were some very large, colourful forms of Ophrys tenthredinifera. Ophrys pallida, a pale form similar to fusca, and which is probably endemic to Sicily, occurs in the deeper shade of the woods. Also in this region were Ophrys garganica and Orchis lactea - the latter being fully out at the time of the visit. Cyclamen repandum were plentiful in the forest and formed beautiful pink carpets under the trees and on the banks. Dactylorhiza markusii a yellow flowered orchid and also another speciality of Sicily/Sardinia and Corsica area, grows in the wetter areas of woodland. Another yellow flowered orchid, Orchis provincialis, grows alongside it. These were just coming out at the time. The Orchis italica - that well known orchid landmark - were not yet out in Northern Sicily. A tiny Orchis which was however just coming out, was O. brancifortii a small form of O. quadripunctata, and another endemic to Sicily and Sardinia.

The next area visited was just north of Agrigento - with approx. 10-12 species being found growing in the wire baskets of limestone rocks holding the banks back, under Eucalyptus trees, by the roadside.

East of Gela towards Siracusa, in the South East of the Island, was the Passo Pantanelle, approx. 80m above sea level. In contrast with the North of the Island many of the orchids

were over here but there were some good areas on the hillsides by the road. Ophrys lunulata another speciality of Sicily occurred in this area. Further South-east is a large plateau of limestone with steep wooded gorges. This area is sparsely populated and access even harder than in the rest of Sicily. The Ferla area to the West of Siracusa was found to be very variable for orchids with some areas very rich and others heavily grazed. Ophrys incubatia was a small but startling flower. Other local specialities included Ophrys oxyrhynchus with its green sepals.

Other orchids found frequently included Orchis papilionacea and O. italica plus nice forms of Ophrys lutea and small dense mats of Ophrys speculum. Serapias were also common including a local form of S. vomeracea. An interesting point to note was that the O. italica plants seen all had plain unspotted leaves. Ophrys candica with its rich pink sepals was also found as were several Ophrys hybrids - which were not always easy to pin down.

Map used - Touring Club Italiano 1:200000, Sicilia. Ed. note - our thanks to Richard for braving the wilds of Sicily to be able to bring us this talk! The super photographs (despite all the rain) he showed us are an incentive to visit the island despite his grim comments on getting around.

## ORCHID CONSERVATION: FACTORS AFFECTING DISTRIBUTION AND ABUNDANCE OF PYRAMIDAL AND FRAGRANT ORCHIDS ON CHALK GRASSLAND.

After lunch Helen Scott from the Durrell Institute of Conservation & Ecology, University of Kent, gave us a very interesting talk on her PhD project so far. Helen is using 4 areas of chalk grassland to study the factors affecting the Pyramidal and Fragrant Orchids growing at these sites. The sites all include plentiful populations of these two orchids, the main study site being at Porton Down, Wiltshire. The study is aided by the Environmental Change Network being established at Porton and so being able to supply data on climatic variations over a long period of time.

Many aspects will be considered in determining what factors are important for site management for these orchids. At present Helen is gathering information on mycorrhizal fungi associated with germination of seed from the 2 study species. Some fungi associated with growing plants have been extracted from plant roots in the field. These have then been cultured on fungus isolating medium and window-plates until pure cultures have been obtained. In the case of the fungi associated with germination - seed has been placed in 60µ plankton netting which is then mounted in a plastic 35mm slide mount. This is then attached to a marker and placed in the soil under moss. The slides can then be taken out and repeatedly checked under the microscope until seeds can be seen to be swelling and fungal hyphae can be seen between the seeds. With a September "sowing" the seeds were swelling by February this year (with a much wetter winter) whereas last year most of the seed

desiccated. Once germinating the seed can be pressed onto agar and grown out until a pure culture of the fungus is obtained.

Since all mycorrhizal fungi look very similar on an agar plate the intention then is to type the fungal DNA using a sample PCR-SSCP analysis. This is an accurate method of DNA analysis but the sample used is still very small. However it is hoped that it will be possible to identify and type all fungi isolated and compare results between species. There are obviously plans to run seed germination experiments in the lab also using the newly isolated fungi.

It is hoped that through these molecular techniques it will be possible to give an indication of mycorrhizal specificity and provide an aid to site management with the fungus in mind. Lack of a certain fungus may also provide a link to declining populations. Also the molecular analysis could provide a tool for determining whether a site is suitable for an orchid re-introduction programme.

Helen's project looks very interesting and we hope to be able to keep you updated with its progress and results.

Following this we had a series of short talks by members of the society on various aspects of orchid cultivation:

#### CYPRIPEDIUMS by Carl Hardwick

Cypripediums are cool growing Northern Hemisphere plants with a modified lip to trap pollinating insects.

When growing seedlings Carl pots them up in a mixture of 45% seramis, 45% perlite and 10% leaf mould or pine duff. The seedlings are placed in the greenhouse with plastic bags on until the summer. This keeps the seedlings humid. The 3-4 year old Cyp. reginae are the fastest growing seedlings and are now approaching flowering size, the rest of the species are very slow growing.

With adult plants the new growth is very tender to water and sunlight. Carl has found that it is best to plunge each pot to water it rather than watering from the top since the later can encourage rot. In winter the plants stand in a sand cold frame with 6" of pine needle mulch on top and a plastic cover over the top. The pine needles are cleared off to a thickness of 1" in mid-March. The alternative to this is to fridge the plants during the winter but care must be taken that they do not start to shoot too early and turn yellow. They are kept in large pots to maximise space for roots and minimise damage to newly purchased plants. During the growing season the plants stand in a shaded greenhouse with the attempt being made to keep the temperature between 50-60'. Carl repots his adult plants every year. They are potted into a mixture of chicken grit, Seramis and perlite plus approx 10% organic matter. Some have extra lime or flint grit depending on their individual requirements. All have a collar of dry grit around the neck.

Cyp. acaule needs acidic rainwater only. It can have more moss incorporated in its compost, however it is very prone to rot in

the winter and so must be kept very dry then. Cyp. japonicum also likes an acid humus rich mixture as it is a woodland species. Cyp. tibeticum likes extra lime chips in its compost and like all the macranthum types need to be watered from below to avoid neck rot. Cyp. margaritaceum is very difficult to water and Carl grows it through a thick layer of pine needles and waters from below to avoid rot on the leaves. A lot of air movement over the plant is also important. By July the leaves seem to harden off and be less prone to rot, from whence it can be watered from the top. It becomes one of the last species to die back, usually continuing growth well into October.

A liquid feed with low K, such as Chempak African Violet fertiliser, is used at half strength every 3rd or 4th watering. A fungicide such as Benlate (withdrawn) or Nimrod-T is used on new bare rooted Cyps. and also on any with any suspicion of rot.

(Ed. note see Peter Corkhill's letter later in the newsletter which summarises some of the discussions following Carl's talk at the AGM concerning the use of fungicides in Cypripedium cultivation - please pay particular notice to the safety point before using such a regime).

#### SEEDLING WEANING: Alan Dash and Adrian Blundell

Having an appropriate fungus present at the time of weaning does help prevent the seedlings being overcome by bacteria or pathogenic fungi. However, weaning seedlings at the 'normal' time of year is also very important, so all efforts should be made to follow seasonality. In the case of Dactylorhiza seed which is germinated with fungus, following a 'winter' in the fridge for 3-4 months the protocorms can then be planted out into unsterile compost in the spring. The young seedlings need to be kept warm and humid and will grow away well. In the case of Ophrys, grown in sterile flask they can then be planted into sterilised soil to which an appropriate fungus has been added. In this case the fungus seems to aid the growing of the young seedlings without being involved in the germination of the seed. In comparison Ophrys seedlings placed simply into unsterilised soil often rot off. The fungi are added to the sterilised soil only a few hours before the tubers are planted out. Soil can be sterilised in roasting bags in the pressure cooker or oven baked. Less vigorous fungi are used for this procedure, e.g. Al7 or T&M.

In the discussion following, Richard Manuel pointed out that he keeps his Ophrys/Orchis in flask for a year longer (i.e. 2 years) and then plants out the good sized tuber with a shoot in February. At this stage they are kept cool and usually root well without any need for fungus to be added to the compost.

## SOME THOUGHTS ON CULTURE MEDIUM STERILIZATION

Kath Fairhurst

I was very interested in Peter Revell's article in the last Newsletter. The initial temperature of the medium to be autoclaved will be very significant, as it will take a lot of heat to bring a few cc's of liquid from ambient to 121 C, but a very great deal less to raise it from simmering. At one time I regularly bottled tomato juice using the pressure cooker (following a method I found in a cookbook). As long as hot bottles were loaded with boiling juice and put into an already simmering pressure cooker, it only took 1 minute at 15psi to achieve a reliable sterilisation of volumes of around 300cc - which leaves me thinking that my present 20 minutes at 15psi for orchid medium is probably a vast overkill.

I now use the microwave for the tomato juice, again loading a hot bottle with boiling juice, but the lids must be sterilised separately by keeping them in boiling water. The bottles are left with a good inch of headroom and processed one at a time bringing the surface of the juice just to the boil several times and then very quickly putting the lid on.

This method should work for medium in honey jars but I think petri dishes would have more problems. Microwave heating is very uneven and sterilising liquid depends on effective convection, which I suspect would be inadequate in a shallow, wide layer. Also as the medium in the hot spots comes to the boil the pressure in the petri dish will suddenly go up and blow the top off. Would the modern plastic petri dishes withstand the heat anyway?

For years I've been sterilising medium in bottles of up to 2lb size with 1" medium depth in the pressure cooker, using the same process as the tomato juice method, i.e. pre-boiling the medium in the microwave, pouring and immediately pressure cooking for the conventional 20min at 15psi. I have found this to be entirely reliable and an extra advantage is that the pressure cooker can be taken to the sterile workbench and unloaded with little risk of contaminating the outside of the bottle badly, whereas using the microwave method the bottles will need bleach sterilisation before putting into a sterile environment.

Water for sterile use is safer brought to the boil before autoclaving too, particularly if reverse-osmosis is used and the water stored before use. The storage container will probably be contaminated with green algae, which I've found to be one of the most resistant organisms.

On sterilizing tools. I can't see the problem with using aluminium foil, so long as it is done up loosely enough to allow steam penetration. However, there are other ways - I use

a boiling-tube with a loose plastic lid which started life as a film can. Steam penetrates easily and the tube will take quite a bundle of slim tools. For more substantial tools, laboratory spatulas, old stainless steel cutlery and the like, it is possible to find a couple of old glass food bottles which will slot together in a similar way.

In view of the tomato juice experience, I am tempted to cut my autoclaving times down substantially and see what happens, keeping the bottles on one side for at least a week before use. Does anyone fancy doing the necessary experiments to establish the practicalities of microwave sterilization for orchid medium? I'd be interested to hear the results.

Postscript: Just before departing for a fortnights holiday I made up two pressure cooker loads of bottles. For one half the bottles and contents were brought to the boil in the microwave, then capped and put in a simmering pressure cooker, then processed at 15psi for 2 minutes only (I use an electric hot plate and so the residual heat maintains pressure for quite a few minutes after turning off). The remaining medium was brought to the boil in the microwave and a boiling water sterilised lid put on.

Three weeks later, the pressure cooker bottles are still apparently sterile (though an algal contamination is slow to show up) while the microwaved medium now shows a white bacterial film developing around the edge. Perhaps it needed more thorough boiling in the microwave. The medium is intended for epiphytic orchids and does contain banana, a known bacterial risk, which is not usually used in media for temperate terrestrial orchids.

Microorganisms exist which can resist comparatively brief periods above 100°C but they are probably unlikely to be encountered in orchid culture media.

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## CULTIVATION OF MEDITERRANEAN ORCHIDS - PART 2

Richard Manuel

### Potting Composts

In their native haunts around the mediterranean, orchids are most commonly found in soil formed by broken down limestone. This is a reddish clay known as "terra rossa" which has a very fine texture and when baked in the summer sunshine, sets as hard as concrete. Mimicking such a compost for orchids in pots is, however, not a good idea as within the confines of a pot such a clay will not allow proper drainage or aeration of the roots. In nature this occurs by a more or less constant flow of water over the roots and the activity of natural soil organisms. Other soils in which orchids flourish range from almost pure calcareous dune sands, acidic sands under pines

with quite a high organic content, and "ordinary" woodland type soils which consist largely of leafmould of various types and ages. Nor is it uncommon to find orchids growing in crevices or holes in limestone rocks with the barest minimum of organic material to provide nourishment!

Perhaps surprisingly, all the mediterranean orchids I have grown do well in one basic compost, with only a small adjustment for the very few lime intolerant species. This compost is similar to the Basic Compost given by Cribb and Bailes (Hardy Orchids, 1989) whose recipe is as follows:

3 parts (by volume) loam  
3 parts gritty sand or 6 mm. size grit  
2 parts leafmould  
1 part pine bark  
Hoof and horn at 10 ml. per 10 litre

Many growers use a simple mixture of John Innes No. 2 and coarse grit at about a 50 / 50 ratio. This is, of course, much easier than mixing your own but also less fun and, for the reasons given below, less satisfactory.

My own preference is for a C & B type recipe but I add sharp sand to the basic mix at the rate of 1 to 3 parts to combat any clayey-ness of the loam, and some calcareous grit or broken shell. So the following formula has evolved over the years:

2 parts loam  
3 parts leafmould or broken leaf (see below)  
3 parts 2 to 5 mm. grit  
1 to 3 parts sharp or grit sand  
1 part limestone grit / poultry grit  
1 part fine pine bark  
Blood, fish and bone at 10 ml. per 10 litres

This mixture, of course, is never quite the same from batch to batch. The constituents depend to an extent on what is available at the time. So within certain broad confines, the actual content of the compost is relatively unimportant. What really matters is that it has the right characteristics. Basically there should be a certain amount, but not too much, of organic material - soil, leafmould, bark etc. and a fair amount of grit and / or sand - I reckon at least 50% - to provide good drainage and perhaps a supply of trace minerals. I am not yet sure that the additional calcium from limestone or chicken grit is absolutely necessary, but the orchids grow in it quite happily and it ought to help buffer the naturally increasing acidity caused by decomposition of the organics in the mix.

I like this compost because when fresh it is loose and open and the surface layer dries quickly, so that the emerging new

growth does not find itself encased in wet soil with the attendant risks of rotting. After a couple of months of watering the mix breaks down noticeably, becoming much more soil like as it releases nutrients (particularly the leafmould). By this time the orchid stem has hardened off and is much more resistant to assault from rots. By the end of the growth cycle most of the fine soil elements gather at the bottom of the pot, below the new tuber, leaving a gritty top layer around the plant which dries off quite readily once watering ceases. This progressive decomposition is the reason why plants must be repotted in fresh mix each year.

This is, of course, far from the last word on compost mixes - there is plenty of room for improvement and fads and fancies will always change. My own feeling is that if one could obtain a suitable fine neutral or slightly calcareous grit, say 1 to 3 mm. size, and a good coarse fibrous loam (the really difficult part) and use these at say a 55 to 45 ratio, this would make a good but simple compost. Of course there are many various commercial potting composts, some of which are undoubtedly suitable, given added grit. It would be interesting to hear from members in different parts of the country, what they use and with what success.

#### Ingredients

It is worthwhile elaborating on some of the goodies used to make composts, as certain materials mean different things to different people.

Loam. The best stuff is obtained from rotting down old moist turves under a black polythene sheet for a year or more. The resulting soil can be rubbed through a 1 cm. (3/8 ") sieve to get rid of lumps and stones. A good alternative is mole hills from grazing meadows or parkland, preferably over a calcareous rock substrate. The only problem with this is determining that it has not been sprayed with weedkiller or other chemicals - and do get permission, not all park keepers are sympathetic! Try to avoid loam that is at all clayey, but if you can't, be prepared to use lots of sand to keep it loose.

Leafmould. This comes from the bottom layer of leaf litter in old woodland and consists of thoroughly rotted dead leaves - rotted enough so that they smell pleasant and have a loose fluffy texture. Mould from beech or oak is best; other types of leaf tend to rot down too fine and too rapidly.

To this rotted mould I like to add an equal amount of unrotted broken beech leaves, those which form a layer just beneath the newly fallen leaves in early winter. These take a little longer to release their nutrients than the leafmould and thus maintain the supply a little longer. Both leaf constituents should be rubbed through the 1 cm. sieve to get rid of large lumps, rocks, coca cola cans, etc. I use broken leaf extensively and,



although the resultant mix seems very coarse, it soon breaks down and the orchids seem to enjoy it. I like to collect leaf and mould during periods of hard frost, when it is dry, so that any nasties like slugs and snails will have gone down deep in the soil to keep warm, and will not be waiting in ambush in the mould. If you are paranoid about introducing nasties in this way (and you should be!) try cooking the mould in a clear polythene bag in bright sunlight, then putting it in the freezer for a couple of days, then repeating the process.

Grit. A good neutral "alpine" grit is probably best, in the 2 to 5 mm. size. Limestone grit is an excellent additive but only use well weathered stuff from screes or old quarries. Sometimes the bagged limestone at Garden Centres has been freshly mined and can be strongly reactive and very unkind to plant roots.

Sand. This just fine grit with a particle size of 1 mm. or less. I use it in sufficient quantity to counteract any clayey-ness of the loam. Nowadays you can get "Gritsand" which is mostly sand but additionally contains various sizes of grit up to about 6 mm. "Sharp sand" nowadays seems very little different from ordinary beach sand; I remember once being able to get sharp sand with the consistency of brown sugar - marvellous stuff it was, but can you get it anywhere now?

Bark. This material is useful as a filler (though it is getting rather expensive) and is a longer term source of organic nourishment than leafmould. However, it has several drawbacks. Many suspect it of harbouring pests, although I can't say I have found this myself. But when fresh it contains nasty chemicals, particularly phenols which are there to protect the living tree from invading micro-organisms and epiphytic growth - in other words they are biocides - and orchids don't like them. The only way to get rid of them is to soak the bark in several changes of water for a couple of weeks. If you don't do this you risk condemning your plants to a premature death or at least severe damage to roots.

"Composted bark", obtainable from any garden centre, is another extremely variable substance. It can look and feel superb, but often is not. I would not recommend it without knowing just how it is composted, as chemical decomposition may leave nasty residues which will require leaching out by soaking. Can anyone enlighten us?

A word about mycorrhizal fungi. Whilst they are important for seedling growth, most adult tuberous orchids seem to grow independent of them, for most of the year at least. So there is no need to make any special arrangements for the fungus, such as including some of the old compost in the new. Orchids are tough cookies and know how to look after themselves; all you have to do is provide the right conditions for them and they will grow.

Finally, if you are serious about your orchid growing, test the pH of each batch of compost you make - you may be in for a surprise! The easiest way to test is to soak a sample of compost in distilled water, then measure the pH of the liquid against its original pH. An expensive meter is not necessary for this, modern pH coloured test strips are quite accurate enough. If distilled water is not available, use clean rainwater. A neutral pH of around 7 is fine; few mediterranean orchids demand a positively alkaline soil reaction, but one or two do seem to prefer it on the acid side, around say pH 6. But whatever you use as a compost, its management is as important as its constitution, and I will go into this next time.

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#### DACTYLORHIZA CULTIVATION AND PROPAGATION

Alan Dash

"I don't grow them - they're not enough of a challenge...too easy" Anon. - overheard comment at a recent HOS meeting.

This subject (written about before in the newsletter - see newsletter 1.) I hope deserves a revisit with some of my comments and experiences of growing plants from this genus over the past few years.

#### Composts

Pretty tolerant really. I use something approximating to: Loam based compost (John Innes 2): Peat based compost: Grit at around 1:1:1 to 1:1:2.

#### Feeding

When in topgrowth (April - July) monthly quarter to half strength fertilisers I have found to be safe and help to bulk up the new tubers for next years plants. I tend to use 'Maxicrop' seaweed or Tomato fertiliser. Dactylorhizas appear to be more tolerant of these artificial fertilisers than many other terrestrial orchid genera. Keep plants moist - not sodden. Large pots help.

#### Asexual propagation. 'Division / Splitting'

Dactylorhizas tend to form more than one tuber per year. In a few years sizeable clumps can result. These clumps look great and natural but if you try to split or propagate them you'll find a mass of intertwined tubers that will take great care and patience to separate. The recommendation is therefore to divide every year or possibly every other year. Division can probably be done with care at any time from late summer through to spring.

#### Spring division.

Those that have grown *D. foliosa* or *D. elata* in their gardens have traditionally tended to split up clumps in the spring. At this time of year the old tubers from last year's growth have

shrivelled and the current year's tubers tend to fall away easily (along with some substantial winter root growth). Take care not to damage roots in replanting.

#### Summer division.

I am now (fairly) convinced that this is the right time to do the job. In late summer at or just after flowering Dactylorhizas are at their most dormant. New tubers have formed either side of the old tuber. There is very little or no root growth on the new tubers. New tubers are twisted off at their attachment to the old and are then replanted or potted up. The old tuber with its mass of roots should still look fairly healthy. Pot this up as well (or tip it back into its original pot with its original compost) and you should benefit from the production of a further set of one to three small tubers that will develop from dormant buds on the old tuber. Pot these up individually during the winter / spring. The benefits of summer division are that the root development on the new tubers is nil to slight (so there is little chance of damage) and, I believe, that you increase your stock more rapidly. The down side may be that you are disturbing the plants when they still may look attractive and that the new tubers may be difficult to detach from the old (be brave and twist 'em off).

#### Winter Growth

Perhaps surprisingly, Dactylorhizas put on significant growth during the winter - its just that it all happens underground. The new tuber in July / August has no roots but by August roots are already appearing at the top. Root development continues during the autumn and winter and the apical shoot elongates and develops. One event noted by Robert Mitchell (personal communication) is that the tuber will wrinkle / concertina to a certain extent at the 'neck' having an equivalent effect to a contractile root. An adaptation presumably to keep the wild plant at a favourable moisture level in the soil.

In contrast to the opening quote, I would strongly recommend the plants of this genus for virtually anybody to grow - they are beautiful and spectacular in flower, they increase in number and you can easily grow them in your garden border as a herbaceous perennial or in a patio tub.

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### CULTIVATION OF CYPRIPEDIUMS

- part 4

This continues our series of articles by Peter White

#### Cypripedium flavum

Very closely related to Cyp. reginae but is of limited Eastern origin and is known from only 2 locations in Asia. The species differs from Cyp. reginae in having a pale yellow flower, otherwise the shape of the flower and vegetative

characteristics are incredibly similar. I have recently obtained Cyp. flavum var. speciosum which I have yet to flower, it will be interesting to see what the differences are - if any!

The compost must be well aerated and perfect drainage is essential. The two-tier system and general cultivation techniques described under Cyp. cordigerum would also be ideally suited to this species - although a small amount of leafmould added to the top layer does not seem to do any harm with this species.

#### Cypripedium formosanum

Cyp. formosanum hails from the island of Formosa - now Taiwan - off the south China mainland and is very similar and closely allied to Cyp. japonicum but the sepals and petals are of pale pink with darker pink spotting at the base. This plant is easily recognised even when not in flower by the pair of opposite fan-shaped pleated leaves at the top of a fairly short stalk, the single flower, up to 4" in size, is produced well above the leaves.

As it is one of the least hardy of the Cypripediums it must be protected from severe frost and long bouts of freezing conditions but even so, it still requires a cold winter dormancy, with temperatures perhaps down to a minimum of +2'C. Dormancy techniques described under Cyp. cordigerum would suit this species but extra protection would be essential to guard against freezing. If there are only one or two plants in the collection and this requirement cannot be met then the answer may be to remove them from the pot and place them in a plastic freezer bag, or Polythene box, with Sphagnum moss or moist perlite or Seramis, and put the lot into the salad box of the fridge. Temperatures of +3/4'C would be quite satisfactory, although care must be taken to ensure the contents do not dry out.

I used to find this species to be a bit of a problem and lost plants through bud or stem rot under the surface. By using the two-tier system (slightly modified) I managed to overcome these problems. For the compost in the top layer the coarse grit is exchanged for Seramis. For the bottom layer, it can be peat based with leafmould, plenty of coarse grit and perlite or Seramis for good drainage - these days I use all oak leafmould in favour of peat. If peat is used, extra leafmould in the bottom layer and a small amount in the top layer would be very useful as in nature they are found growing in leaf litter in shaded woodlands, which of course would suggest that light shade is required for growth in cultivation.

If growing conditions are to its liking it will soon form large clumps and would certainly compete with Cyp. reginae as the most elegant in the genus. The pH would need to be below 7.0 as Cyp. formosanum prefers a slightly acidic background to its growing medium.

Cypripedium guttatum

Spotted Lady's Slipper

A small woodland species growing to about 9". It is fairly widespread from Russia, across Northern Japan and into Alaska and North-western Canada. It is usually a single-flowered species but may often produce 2 under good cultivation.

A large pot is required because of the wandering habit of the rhizome. It covers a large area and will soon produce many stems if conditions are to its liking. Compost can be 6:2:2 of Seramis:fine bark:sterilised beech leafmould, with a neutral pH. This seems to suit this species well but being a woodland species it may prefer slightly more beech leafmould. Care has to be exercised over the feeding of this group, as the roots are very sensitive to fertilisers - organic is probably the best. I prefer something like Hoof & Horn as there is less likelihood of root damage with this type of product. A gentle sprinkling of dried blood at the beginning of the growing season would provide a quick source of nitrogen to help boost the initial growth - the same is true of all Cypripediums.

A natural hybrid exists between this species and Cyp. yatabeanum that goes under the name of Cyp. x alaskanum which is apparently found on both the North American mainland and the offshore islands.

Cypripedium henryi

A rather small flowered species from China, not unlike Cyp. calceolus (to which it is closely allied) but it does not share the corkscrew petals of it's larger relations. The sepals and petals are green the lip yellow. In cultivation the flowers usually appear around April or May.

Care must be taken when feeding this species as it is one of those that the roots will burn quite easily - the same treatment used for Cyp. guttatum, above, will help reduce this problem. If this problem does persist with any of the sensitive species then fertilisers may have to be done away with altogether. This does not usually present a problem as a good covering of suitable leafmould will usually suffice. The same growing conditions as Cyp. guttatum will also suit this species.

Cypripedium himalaicum

Very similar and closely allied to Cyp. macranthum and should be treated as such in all respects (see later).

Cypripedium japonicum

Allied to Cyp. formosanum and vegetatively identical except for the coloration of the flowers which in this case the sepals and petals are pale green with light pink spotting at the base.

Slightly more hardy than Cyp. formosanum but otherwise can be grown the same way. Cyp. japonicum, however resents

disturbance, so repotting and/or dividing should only be undertaken when really necessary.

Peter White's article will continue in forthcoming newsletters.

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LETTERS

From the Newsletter secretary;

Thankyou to those of you who sent me suggestions for a definition of MESIC. This was rather a testing question since not only did a response imply that members do actually read this section of the newsletter (always gratifying to know) but also required a degree of, shall we say, lateral reading to know the source and therefore the context of the word 'mesic'. It was of course from Phillip Cribb's "Cypripedium" book. At the time of writing the previous newsletter this book was newly aquired and I was constantly being plagued by demands of "What does MESIC mean?" by my better half.

The most logical/likely suggestion was sent in from a computer version of the Collins English Dictionary as: "mesic plants; of, relating to, or growing in conditions of medium water supply". Sounds about right - not too much, not to little, mesic in fact!! Anyhow I am happy with that - thankyou.

By the way I only had 2 responses so perhaps not many of you read this section after all.

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CYPRIPEDIUMS AND FUNGICIDES

Peter Corkhill

Anyone who attempts to grow Cypripediums will sooner or later encounter the problem of pathogenic fungal infection which can sometimes strike a plant that has been growing healthily for a number of years or affect newly obtained divisions sending up their new buds for the first time. Buds or shoots rot off at the base and if unchecked the infection spreads throughout the remaining rhizome and root system. Good culture using free draining composts and a collar of pure grit around the buds can help prevent this happening but what can we do with a plant that is already affected other than bin it?

Three years ago I was lucky enough to make a short trip to Germany to visit Cypripedium growers and learnt that it was then current practice, after trimming off decaying sections of rhizome and roots to soak what remained in a fungicide cocktail for up to 12 hours, immersing the whole plant before repotting in clean compost. The mixture recommended per litre of water was 0.5g Benlate powder and 1.5ml of Previcur-N solution. Benlate, contains benomyl a multi-purpose systemic fungicide which has been banned for horticultural use for some time now following litigation in USA involving cases of birth defects in newborn infants. Previcur-N is another broad spectrum fungicide, containing prothiocarb, marketed by Manfred Meyer and recommended for use against soil born fungal agents. Before Benlate became unavailable I did use this method on a plant of

Cyp. calceolus suffering from complete collapse and it is still alive today.

I report on the practice not to recommend it to you, as it breaches the current safety regulations at least twice, but to point out that by dipping/immersing in a broad spectrum fungicide can sometimes bring a prized plant back from the brink and is probably worth a try as otherwise the plant is doomed anyway. What can we use and stay within the law? I am not sure! Adrian Blundell has mentioned the use of Nimrod-T as a possible alternative but this chemical is normally not available to amateur growers. We need to search the shelves of our local stockist for a broad spectrum systemic fungicide which is available to amateur growers and can be used as a drench or dip, then trial its use and report back.

Safety note: all fungicides are potent chemicals which have an effect in biological systems at very low concentrations and some are carcinogens. Always read the instructions, store in a safe place and use the correct protective clothing especially when handling the concentrates. When a chemical is removed from sale on safety grounds, gardeners are normally given a limited period to use up old stocks before even the possession of the chemical becomes an offence. This period is normally 12 months. It is also an offence to use chemicals for a purpose which is not listed on the label such as using a spray as a drench or in combination with other chemicals.

#### UNUSUAL RECORDS

Anon.

Readers of "British Wildlife" for December 1997 will have noted, under the Flowering Plants report, the recent occurrence of 3 species of Serapias in England. A small colony of S. parviflora was found in Cornwall in 1989 and persisted for a few years. It is thought that this was a natural occurrence with seed probably being blown in from northern France, where the species occurs regularly. The second note concerned a single plant of S. lingua which turned up in one of the Orchis laxiflora sites on Guernsey a few years ago; but the reporter apparently overlooked the established colony of this species in a field somewhere in Devon. Last year two plants of S. cordigera flowered in a chalk pit in East Kent, apparently having grown from seed from cultivated plants grown in the area, originating from N. Spain. The report also mentioned a rather dubious record from 1918 of S. neglecta on the Isle of Wight but there is no authentication of the identification of that plant, which was dug up.

Apart from general interest I've mentioned these records because they are just the sort of thing that this Society should be searching out and reporting. There must be many more 'erratic' occurrences of non-native orchids in this country, not to mention sightings of native species beyond their known range. It only takes a short note or letter to communicate such knowledge to the Society at large. And it is surely not beyond any member to submit the occasional report on the native

orchids in their own region, to add to the interest and variety of subject matter in this newsletter.

All contributions (preferably typed) for the newsletter should be sent to the Newsletter secretary at the address printed at the front of the newsletter by the 1st of the month prior to the publication month. The newsletter is published quarterly in January, April, July and October.

Any drawings or illustrations for the newsletter would also be appreciated - though we have not yet progressed to colour I am afraid so line drawings are most applicable. Please note that articles and letters may be shortened for publication and that views expressed in this newsletter do not necessarily reflect the views of the Hardy Orchid Society. Back copies of the Newsletter can be purchased from the Newsletter secretary for £2.50 per issue or £8.00 for 4 issues, cheques should be made payable to the Hardy Orchid Society.

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