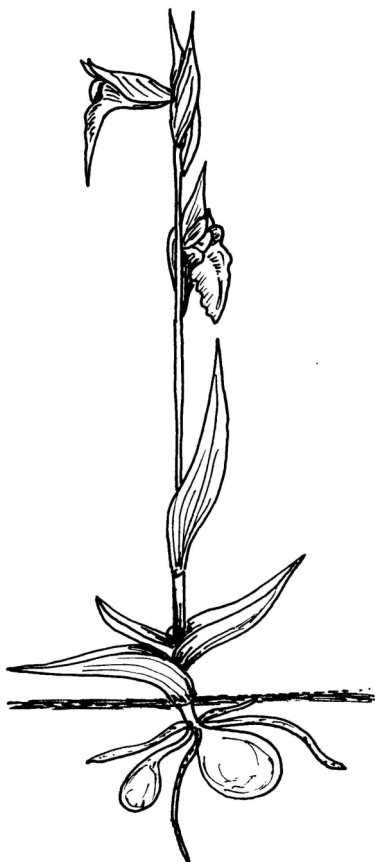


The Hardy Orchid Society *Newsletter*



No. 21 July 2001

The Hardy Orchid Society Committee is...

President: Richard M Bateman

Vice-Presidents: Paul Harcourt Davies and Norman Heywood

Chairman: Richard Manuel, Wye View Cottage, Leys Hill, Ross-on-Wye, Herefordshire, HR9 5QU

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Membership Secretary: Nick Storer, 17 Orchard Close, Lymm, Cheshire, WA13 9HH

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Ordinary Member (publicity): Simon Tarrant, Bumby's, Fox Rd., Mashbury, Chelmsford, CM1 4TJ

Ordinary Member (Newsletter Dist.): Bill Temple, Primrose Cottage, Hanney Rd., Steventon, Oxon, OX13 6AP

Ordinary Member (Seed & Fungus Bank): Ted Weeks, 74 Over Lane, Almondsbury, Bristol, BS32 4BT

Co-opted Member (BOC Rep.): Richard Nicol, 1364 Evesham Rd., Astwood Bank, Redditch, Worcs, B96 6BD

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Cover illustration: *Serapias lingua* by Carol Dash

From the New President of the HOS

Richard Bateman

I am of course delighted to accept the Presidency of the Hardy Orchid Society. Being Keeper of Botany at the Natural History Museum brings many responsibilities that fall under the broad banner of administration. Such roles need to be carefully categorized, as some are distressingly onerous whereas others bring much pleasure and fulfillment; I am confident that being HOS President falls into the second category, especially given the exceptional organizational efficiency of the Society officers.

Hopefully, despite being spread exceptionally thin, I can prove to be a little more than a mere figurehead. The most obvious role that I can play is to continue to attempt to summarize recent discoveries in orchid biology, both by myself and my collaborators and by other research groups worldwide. There is much fascinating information currently emerging from both morphological and DNA-based studies about the precise relationships of orchids, how they originated, how they speciate, and how they co-evolve with pollinators on the one hand and mycorrhizal fungi on the other.

In addition, my presence on other society councils (for example, the Linnean Society and the Systematics Association) and my links with specialist orchid societies in Europe and North America could also help to improve the flow of information in and out of the HOS.

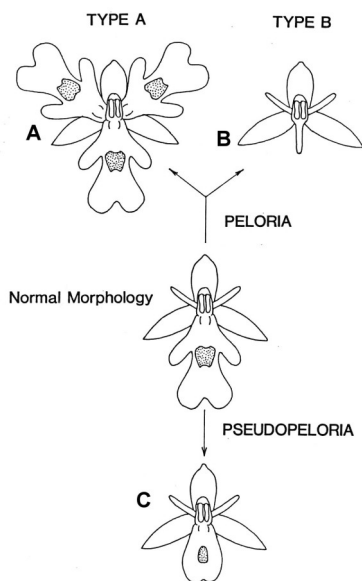
What is more certain is the considerable contribution already made by the HOS to my own research area. Many DNA specimens provided by several HOS members have been crucial in maximizing the thoroughness of my recent work on evolutionary relationships in the Orchideae (summarized in recent issues of HOS Newsletter) and in the Neottieae (intriguing stories yet to be presented to the Society). Observations on their development, ecology and distribution have been equally valuable. Now I am requesting help with a rather different set of observations regarding peloric and pseudopeloric floral mutants (see below).

It has heartened me to see how the fruits of the labours of myself and my collaborators have on average been received with more open and communicative minds by the 'amateur' community than by the smaller and perhaps more competitively-inclined band of 'professionals.' If any perjorative flavour remains in the often abused term 'amateur,' it must surely be in imminent danger of extinction in the face of the notable contributions to science, horticulture and conservation made by active and growing organizations such as the HOS.

Survey of floral mutants in terrestrial orchids

As a further example of potentially widespread research collaboration, Dr. Paula Rudall (RBG Kew) and I are currently working on a project surveying floral mutants in orchids, expanding a small project that I first published 16 years ago (*Watsonia* **15**: 357–359, 1985). These terata fascinated Darwin and his contemporaries, who felt that they offered genuine insights into evolutionary processes. However, most twentieth century botanists were so focused on their own interpretation of Darwin's theories, emphasizing imperceptibly small morphological changes, that they viewed terata as mere curiosities. Fortunately, in the twenty-first century, molecular developmental geneticists are beginning to use mutant forms to understand the DNA-based mechanisms that underpin the evolution of well-defined groups such as orchids.

In my 1985 paper I distinguished three types of floral mutant: In type A peloria, the two lateral petals are replaced by additional labella. In type B peloria, the labellum is replaced by a third lateral petal. In pseudopeloria, the labellum is replaced by a structure resembling a fourth sepal (obviously, this can be difficult to separate from type B peloria in species where the lateral petals and sepal resemble each other). All of these descriptive categories remain applicable, but it has become obvious that mutations of the column are also of great evolutionary interest. (See also colour photos in centre pages. Ed.)



Existing records of floral mutants are good in orchids relative to other flowering plant families. This may be because the flowers of most species are striking and very precisely and predictably organized into a recognizable symmetry. However, we believe that it also reflects the large number of careful orchid enthusiasts who examine orchids in the field and the glasshouse. We would therefore be interested to hear from anyone who has observed teratological orchid flowers in sufficient detail that they can be assigned to one of the above three categories. We cannot promise rapid replies or comments, but a summary presentation at a future HOS meeting is an obvious key goal of the project!

Note from Ed. If any member can help Richard with this new line of research, they should contact him direct:

Prof. Richard M. Bateman, Head, Dept of Botany, Natural History Museum, Cromwell Road, London SW7 5BD

Report of the 9th AGM of the Hardy Orchid Society Sunday 6th May 2001 at Horticulture Research International, Wellesbourne

Adrian Blundell reported on the growth of the Society during his three years in office. The newsletter has developed from an A4 copy to a booklet including colour. Adrian feels that the Society now has a strong presence in the horticultural world. The Committee have carried out their jobs well and it is hoped that their efforts will be continued. Tony Hughes thanked Adrian for his hard work as Chairman.

The Treasurer, Tony Beresford, reported a small increase in income and a reduction in expenditure over the last financial year. A good reserve is held and the Society is in a comfortable position, although colour inserts in the newsletter and production of publicity posters will increase expenditure next year.

Nick Storer, Membership Secretary reported that at the end of March 2001 there were 380 paid members. 45 members have not renewed, but 70 new people have joined. Members were thanked for renewing. The majority of new members are joining after visiting the website, although a number are applying using the publicity leaflet. There are now ten members from North America and about 50 European members - an International Society!

Alan Dash, Conservation Officer, invited offers of help with the projects that are on hold due to the Foot and Mouth Disease situation. The projects include relocation of Wasp and Bee Orchids from a road verge, relocation of Bee Orchids in Northamptonshire, in the autumn or next spring and relocation of more White Helleborines in Oxfordshire. Alan reported that the *D. fuchsii* relocated last year have established and some plants have flowered. Bill Temple can provide more information on this project.

Tony Hughes was thanked for his work on the website development and Tony requested help and a possible under-study for management of the website. Requests were also made for committee members to fill posts that would become vacant at the next AGM. These include the Secretary, Meetings Secretary and Newsletter Editor. Anyone interested was asked to approach the current committee members or Richard and to consider under-studying for a year to become familiar

with the job. Anyone who wishes to help committee members with tasks was invited to come forward.

President	Richard Bateman
Chairman	Richard Manuel
Vice Chair	Vacant
Secretary	Sarah Marks *
Treasurer	Tony Beresford *
Membership Secretary	Nick Storer *
Meetings Secretary	Colin Clay *
Show Secretary	Doreen Webster
Conservation Officer	Vacant
Newsletter Editor	Moira Tarrant *
Ordinary Member, Newsletter Distributor	Bill Temple *
Ordinary Member, Fungus Bank	Ted Weeks *
Ordinary Member, Publicity	Simon Tarrant *
Ordinary Member, BOC Rep	Richard Nichol *

The new Committee is listed below:

Committee members marked * were re-elected to their posts.

The post of Vice President was accepted by Norman Heywood and Paul Harcourt Davies - both members who have made a significant contribution to the Society.

The autumn meeting will be on Sunday 4th November at HRI, Wellesbourne. Ideas for other locations in other parts of the country were invited and the Wisley Potting Shed was suggested.

Following the AGM, Alan Dash and Adrian Blundell gave workshop talks on horticultural techniques. Alan has written an article on this, which appears in this issue.

Michael Lowe, a botanist with an interest in Mediterranean orchids showed slides demonstrating the range of taxonomic variance in some species in the

Mediterranean region, and debated the reasons for this. Michael, who works as County Ecologist in Co. Durham also described his very interesting practice of using a suitable hay crop to re-seed bare verges produced during road-building schemes.

Publicity Posters

Simon Tarrant

As Publicity Officer for the Society, I have designed and produced a range of A3 posters to promote interest in hardy orchids and in the Hardy Orchid Society.

So far 7 different designs have been produced to a common house style, and it will be possible for any combination of them to be used together to fit available space. Each poster contains the words "Hardy Orchids" in its title, and I have created separate A4 headers naming the Society. I've used a mix of photographs and diagrams, and to keep the design simple and uncluttered I haven't credited the contributors whose work has been used. Nevertheless I am very grateful to them all. We also decided that the only point of contact we wanted on the posters is the Society's website, so there are no personal names or phone numbers, etc.

Each poster is laminated for durability, but they are flexible enough to be rolled up so they can be posted in a tube. It is hoped that they will stand repeated use, but their cost is low enough to cope with the odd misadventure.

I distributed a number of sets of posters at the AGM to members who have been able to display them at different venues, including the RHS/Three Counties Spring Gardening Show in Malvern, and the AGS Summer South Show in Wimborne. I'm actively seeking further volunteers to take sets of posters to major events where you know display space will be available, and from which you can retrieve them afterwards for re-use. Membership leaflets are also available.

If you can help, please contact me by post (address inside front cover) or e-mail me at s.tarrant@virgin.net.

Topics covered by the posters:

1. "Join the Hardy Orchid Society" - a general introduction to the Society
2. "Hardy Orchid Life Cycles" - descriptions of the life cycles of different genera
3. "The Beauty of Hardy Orchids" - photographs of various orchids
4. "Talking about Hardy Orchids" - more on the Society and its Newsletter and website
5. "Growing Hardy Orchids" - basic hints on orchid growing
6. "Hardy Orchids Close Up" - scanning electron microscope images of seeds and seedlings

7. "Hardy Orchid Hybrids" - photographs of hybrids and their parents.

HELP!

Richard Manuel

At the AGM in May I stated that the society is very much in need of new talent on the committee. Due to the 'three year rule' (Rule 12) next year we will lose, sadly, the services of three very important members of committee who must be replaced. These are: Secretary; Meetings Secretary, and Newsletter Editor. We hoped that at least a couple of members would offer their services, or at least ask us about one or other of these posts, but no one did.

This society can only survive and thrive if more members take on some responsibility for the running of it. If the 'usual suspects' are left to do all the donkey work, and no new blood comes onto the committee, the society will stagnate and eventually fade away.

So come on. Surely out of 350 odd members there are three or four who are keen enough on the success of the Society to help out. Remember, harking back to Rule 12, you only have to do it for three years! If you want a newsletter next year; if you want meetings next year; and if you want a committee (only two meetings a year) to organise these things, please offer to help. If you want to contact me, or any other committee member to talk about it, please do so; there is no need to commit yourself straight away.

HOS Plant Show, 2001

Tony Hughes

With no less than 57 superb pots of orchids on the benches, this year's 13 competitors (a new record) put on a magnificent display. Not only did the plants look really spectacular, but the huge range of species aroused considerable interest. Most classes were well supported, apart from the *Dactylorhizas* which didn't manage to flower in time this year.

I suppose it was quite appropriate that our new Chairman, Richard Manuel, should demonstrate his skills as a grower – the superb condition of his plants brought him no less than 6 first prizes, many of which were won against stiff competition. But the greatest accolade for "Best in Show" went to Doreen Webster for a pot-full of *Cypripedium henryi*, extremely well covered in flowers. But her joy was short-lived – within an hour she was elected Show Manager!

Our new venue proved ideal, with plenty of room for both exhibits and spectators, and even space for a photographic "studio" so that all the winning plants could be

digitised for display on the website. Our thanks go to Colin Clay for sorting out all the facilities, to all the exhibitors for their lovely plants, and to Norman Heywood our judge who managed to make so many difficult decisions in such a short time – and no-one complained!

(Photos of some winning plants appear in the centre colour pages. Ed.)

No	CLASS	FIRST	SECOND	THIRD
1	3 pots British	R. Manuel <i>Orchis morio</i> <i>Ophrys fuciflora</i> <i>Ophrys sphegodes</i>	-	-
2	3 pots Europ.	B. Tattersall <i>Orchis laxiflora</i> <i>Dact. insularis</i> <i>Ophrys cretica</i>	I. Rodgers <i>Serapias lingua</i> <i>S. lingua (ex Mars)</i> <i>S. strictiflora</i>	P. Titleboam <i>Orchis boryi</i> <i>O. anatolica</i> <i>O. papilionacea</i>
3	3 pots non-Eur.	D. Webster <i>Calanthe tricarinata</i> <i>Cyp. parviflorum</i> <i>Pterostylis curta</i>	-	-
4	1 pot British	R. Manuel <i>Aceras anthrop.</i>	J. Haggard <i>Anacamptis laxi.</i>	P. Titleboam <i>Aceras anthrop.</i>
5	1 pot Europ.	C. Clay <i>Orc. pap. grand.</i>	L. Copas <i>Orc. papilionacea</i>	N. Storer <i>Orc. pseudo-laxiflora</i>
6	1 pot non-Eur.	D. Webster <i>Cyp. franchettii</i>	R. Manuel <i>Cyp. tibeticum</i>	A. Dash <i>Cyp. fasciculatum</i>
7	1 pot <i>Dactylo.</i>	-	-	-
8	1 pot <i>Orchis</i>	R. Manuel <i>Orc. papilionacea</i>	D. Webster <i>Orc. militaris</i>	C. Clay <i>Orc. ustulata</i>
9	1 pot <i>Ophrys</i>	R. Manuel <i>Oph. iricolor</i>	K. Ballard <i>Oph. cretica</i>	P. Titleboam <i>Oph. helenae</i>
10	1 pot <i>Serapias</i>	B. Tattersall <i>Ser. olbia</i>	N. Storer <i>Ser. lingua</i>	J. Haggard <i>Ser. parviflora</i>
11	1 pot <i>Cypripedium</i>	D. Webster <i>Cyp. henryi</i>	B. Tattersall <i>Cyp. fargesii</i>	P. Titleboam <i>Cyp. tibeticum</i>
12	1 pot 'other'	R. Manuel <i>Gennaria diphylla</i>	N. Storer <i>Platanthera chlor.</i>	S. Newton <i>Calanthe discolor</i>

Does DNA Reveal All About The Evolution Of Terrestrial Orchids?

Part 3

Report of a talk by Richard Bateman

Note from Ed.

The first half of this part of Richard's talk was reported in the April 2001 Newsletter. A complete evolutionary tree was also included as an insert.

Coming to *Neotinea* we find that *N. maculata* now has some former *Orchis* species in its group. Although the terminal branches of *N. (Orchis) tridentata* and *N. (Orchis) commutata* are short, the former is diploid and the latter is tetraploid. The result of the re-classification is that the British Isles now has two representatives of this group – *N. maculata* (Dense-flowered Orchid) and *N. (Orchis) ustulata* (Burnt Orchid). (Fig. 6)

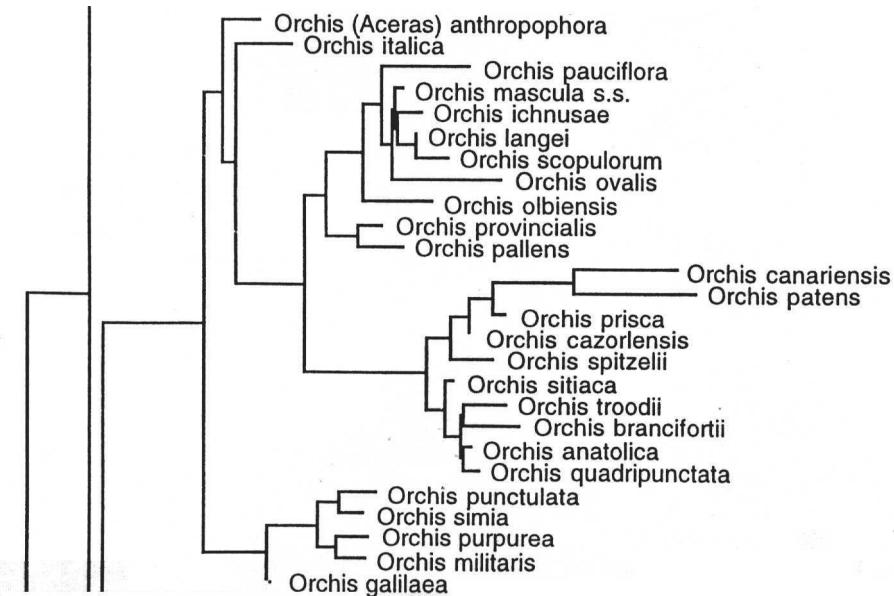
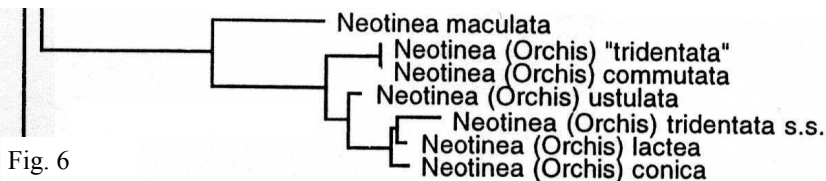
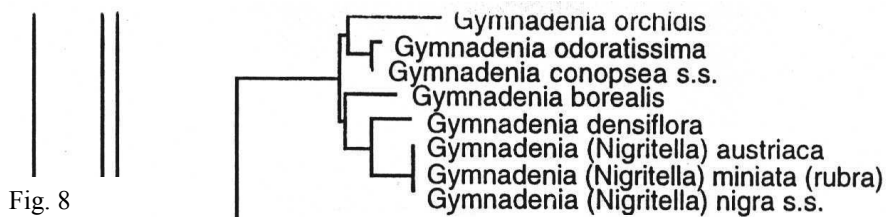


Fig. 7

Following the *Neotinea* group we have the now depleted *Orchis* group, to which *Aceras anthropophorum* is added. This means that we now have five members of this group in the UK. This work has also shown that *O. provincialis* and *O. pauciflora*, which have similar yellow flowers, have very distinct sequences and are therefore examples of parallel evolution, probably an adaptation to attract similar pollinators. In general, it is clear that morphological characteristics such as size and shape of the labellum and spur can change readily among closely related species. (Fig. 7)

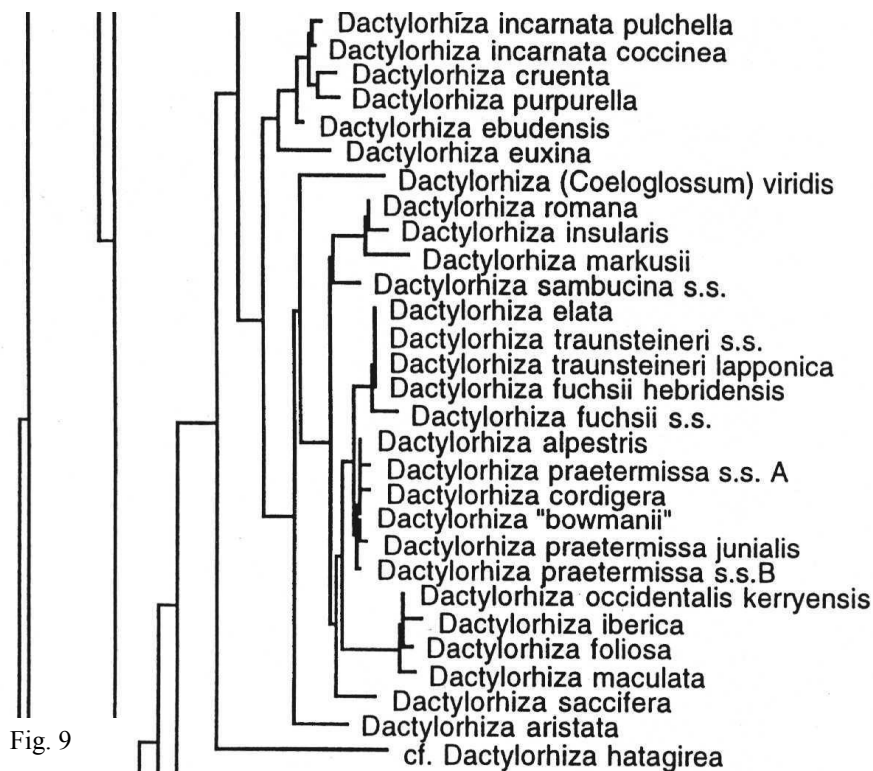
The next group, *Gymnadenia*, includes the former *Nigritellas*, which are characterised by short or non-existent terminal branches. In this '*Nigritella*' resembles the *Serapias* and *Ophrys* groups. *Gymnadenia densiflora* and *G. borealis* are however confirmed as separate species. This new classification explains the presence of the bright red hybrids between species of *Gymnadenia s.s.* and '*Nigritella*', which can be found fairly easily when the two species appear together in good numbers. *Neolindleya* (*Gymnadenia*) *camtschatica* has been removed from the group and placed near *Amerorchis* and *Galearis*. (Fig. 8)



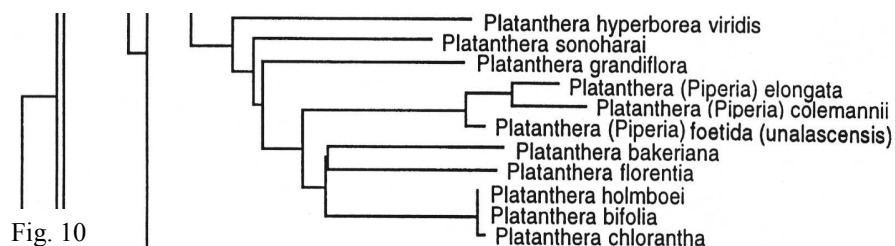
Dactylorhiza is the next group, the most primitive members of which are probably *D. euxina* and *D. incarnata*, this group now includes the Frog Orchid, *D. (Coeloglossum) viridis*. Some members of the group are well differentiated, but others have very short terminal branches. (Fig. 9)

The *Platanthera* group is expanded by the inclusion of *Piperia*. At present many of the American *Platantheras* have not been sequenced by Richard's group so it is not possible to comment on terminal branch lengths. (Fig. 10)

The ITS sequencing has also shown that *Traunsteinera* and *Chamorchis* are closely related, which was quite a surprise to me, given their distinct morphologies. *Herminium monorchis* is in the *Habenaria* group, and *Gennaria diphylla* is very distinct and at best only distantly related to other European representatives of Tribe Orchideae. The basalmost group of the subtribe Orchidinae, including the Turkish speciality *Neottianthe cucullata*, is exclusively Asian. Encompassing other relatively poorly known but attractive Himalayan genera such as *Amitostigma*,



Ponerorchis (plus the doubtful *Chusua*) and *Hemipilia*, the group will require some taxonomic revision once molecular sampling is more complete.



Conclusions

Work is still in progress but to date evolutionary trees have been generated using ITS nuclear DNA sequences from most of the widely recognised species of Orchidinae and from a good subsample of Habenariinae.

ITS has proved very informative about relationships among species but is only a rough guide to actually delimiting individual species. If sampling of species is reasonably complete, long terminal branches indicate full species (including some morphologically cryptic species; e.g. *Gymnadenia*), but short branches can indicate either (a) very recently evolved species or (b) previous false recognition of species; this distinction can only be tested using data from other DNA techniques, allozymes and/or morphometrics.

ITS resolves the relationships of most genera of Orchidinae, but not *Serapias*, *Nigritella*, derived *Ophrys* or tetraploid species (due to hybrid origin through allopolyploidy).

The relationships of species and genera shown within the 11 major groups are accurate, but relationships among some of these groups is less clear, even when chloroplast DNA sequences (trnL) are used in conjunction with ITS sequences. This suggests that there may have been a rapid initial evolutionary radiation of the Orchidinae.

The 11 major groups are broadly consistent with natural hybridisation patterns. Some major groups are delimited by changes in chromosome number, and others by morphological transitions such as changes in tuber development.

Many other morphological characters, such as the size and shape of the labellum and spur, and various pigmentation characters (including flower colour), are evolutionarily plastic; they change readily among closely related species, often showing convergence towards similar pollinators.

The new monophyletic classification of the Orchidinae requires the transfer between genera of only about 11% of all species: *Anacamptis*, *Neotinea* and *Gymnadenia* are greatly expanded and *Orchis sensu lato* is greatly reduced. *Aceras*, *Barlia*, *Coeloglossum*, *Comperia*, *Nigritella* and *Piperia* are lost. The new classification should provide a strong framework for future European orchid publications that is both usable and evolutionarily consistent.

The evolutionary tree that combines ITS and trnL sequences, and includes a range of Asiatic genera, suggests that the Orchidinae originated in SE Asia, subsequently migrating (and speciating as they migrated) in three directions: (a) West into Europe, (b) Northeast into Siberia and North America and (c) Southwest into Africa. However, an African origin from a plant resembling *Stenoglottis* or *Brachycorythis* also remains possible, a hypothesis that will be tested by further sampling of Asian and African Habenariids.

I am sure that I am not the only HOS member looking forward to Richard's next talk, which will probably concern neottiods (Helleborines and their relationships). The talk to the Society will be incorporated into a paper scheduled to appear in the first 2001 issue of the Journal of European Orchids (AHO).

Richard Bateman's talk was reported by Bill Temple. Bill is happy to answer queries on this summary at bill@wtemple.f9.co.uk.

If you want to help in this exciting work, details of further taxa required appeared in Newsletter 19, January 2001.

Getting Started - the Basics of Hardy Orchid Cultivation

Alan Dash

Great news - the Society is expanding with ever more new members. Many ask for information on cultivation basics – hence this summary article.

Sources of Information.

There's nowhere better to pick up the information on cultivation of terrestrial orchids than the **Hardy Orchid Society Newsletter**. Generally it is suggested that new members acquire back issues of the Newsletter and all of the below could, no doubt, be found with a search through previous issues.

So top on the list of information to start is membership of HOS – its Newsletter – and even better (if you can) get to some of the meetings. It's the discussion with like-minded people and the cross fertilisation of ideas that this brings about that really is invaluable. Not only that, but most of us have an interest in all aspects of these plants – holidays to see them, photography, conservation and so on.

Other sources of information:

National Pleione Report (incorporating Hardy Orchids) – an annual newsletter / bulletin with excellent articles not only about Pleiones. Contact Paul Cumbleton, 881 Oxford Road, Tilehurst, Reading, RG30 6TR.

Alpine Garden Society – bulletin, shows, local groups. Some of the members of the AGS grow orchids. There are many classes in the AGS shows for orchids. Many of the 'travelogue' articles in the quarterly bulletin mention good areas for orchid hunting on holiday. Two articles in particular are interesting from the cultivation angle: Dr Tom Norman's article in Bulletin 57(2), June 1989 – The Cultivation of European Tuberous Orchids and Robert Mitchell's article in Bulletin 61(3) Sept. 1993 – Dactylorhizas from Seed.

Books

Generally relatively small sections on cultivation techniques but useful books include:

Hardy Orchids - P Cribb & C Bailes - Timber Press (may be currently out of print)

The Genus *Cypripedium* - P Cribb - Timber Press

The Genus *Pleione* (2nd Edition) - P Cribb & I Butterfield - RBG Kew

Travel. Get out and see the orchids in their natural environment and apply what you see to cultivation.

Cultivation techniques

1. Open ground. Care will be needed to select suitably hardy and amenable species. Also preparation of the soil to 'open up' the soil structure and take steps to ensure that the soil either does not dry out in summer or ensure that it does stay relatively dry in winter may be necessary depending on the types of orchid grown.
2. Raised beds. Can be filled with a compost / growing medium of your choice. They can also be lined to retain moisture or made free draining for drier winter quarters.
3. Troughs and containers. Most flexible of all. Pots can be moved to better conditions, can be taken to shows. Development of roots can be checked from time to time and propagation by division is made easier.

Plant pots / containers

Clay vs. plastic. Whatever suits you – clay pots can look more attractive, are more porous requiring a little more watering – plastic pots are cheaper, lighter etc. Ideally you choose one type and stick to it so that you can get used to one type for watering management (in reality you are bound to end up with a mixture of both types anyway!)

Size matters. What you're aiming for is a root environment that is as constant and stable as possible. A relatively large pot helps maintain stable root conditions. Even with small orchids pot sizes of less than 4 inches diameter can make it awkward to manage the watering.

Equipment

Cold frame. Very useful to keep out the worst of our British wet winters. Plastic lined (with some drainage holes) and part filled with sand allows plunging of the pots for those stable root conditions. Some are against plunging because of the risk of spreading water-borne diseases. Soil-warming cables (thermostatically controlled) in the plunge may seem excessive but could be sufficient to extend the range of plants you can grow without having to build a greenhouse.

Cold greenhouse (or 'Alpine House' – plenty of ventilation). Staging or plunge beds within a greenhouse give plenty of scope for creating the conditions to grow

most of the orchids we deal with. A thermostatically controlled fan heater allows for the greenhouse to be frost-free. Good clean glass in winter for as much light as possible in our northern latitudes. Shading required for the greenhouse April - September.

Access frame. Kind of half way between cold frame and greenhouse. Can be very useful for growing orchids (although I've never had one – I envy the results of some growers who do).

Plants to try

Dactylorhiza praetermissa Southern Marsh Orchid

This British native is adaptable to pot or open garden culture. Nearly all the *Dactylorhiza* genus are equally amenable.

In pot culture a deep pot, at least 10 inches deep should be filled with a compost that retains some open structure even when wet. I recommend equal portions of commercial soil-less compost, commercial soil-based compost and sharp alpine grit. Plants will tolerate and grow stronger if fed whilst there is top growth (April - September) with up to half strength fertiliser of any description (Phostrogen, Tomato fertiliser, Maxicrop Seaweed extract or really any commercial fertiliser). Partial shade and full sun will provide equally good results as long as the soil does not dry out in summer. Although they are marsh orchids they will not react well to boggy conditions in the confines of a pot – just moist is fine. In the winter (as you would expect from a native) they are completely hardy but I would suggest some glass cover (cold frame or similar) because sometimes wet conditions followed by complete freezing of the pot will damage the tubers and the new roots forming underground.

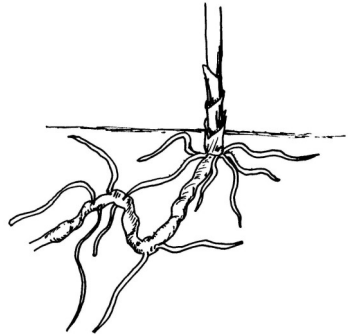
Open garden culture is most successful if there is some openness to the structure of the soil. Heavy soils should be opened up by inclusion of humus, grit and possibly drainage (raised bed) but remember that they shouldn't dry out during the summer. The pH of the soil is not critical – in the wild they grow in alkaline conditions but in cultivation I understand them to be successful in acid soils as well.

One of the big benefits of the *Dactylorhizas* is their ability to produce more than one tuber per year. Indeed most full size tubers will (if fed) produce two flowering sized tubers for the following year. Division can be done in late winter / early spring when the previous year's tuber will be shrivelled. The new plants will easily divide from each other but there will be a considerable growth of roots which you need to take care not to damage when dividing and replanting. My own preference / suggestion is to divide at flowering time or soon after (July / August). Next year's tubers are already formed and can be twisted off the current year's tuber and potted up. At this stage there are very few of next year's roots on the new tubers thereby reducing risk of damage. The added benefit is that the current year's tuber can be repotted and is likely to produce a further one or two small tubers in the following 3 or 4 months.

Epipactis palustris Marsh helleborine

Absolutely stunningly beautiful orchid (in miniature). A fine sight when seen flowering in the dune slacks of Devon or Wales or anywhere it is seen in quantity.

Again the dual benefits of being amenable to a variety of conditions as well as increasing the number of its shoots every year (from a rhizome this time not a tuber). The rhizome will 'run' producing next year's shoots some inches from the previous year's. In a pot, the shoots then tend to be produced all around the edge of the pot as the rhizomes run round and round.



Epipactis palustris rhizome
by Carol Dash

A gritty / sandy soil suits the rhizomes – something like grit : John Innes : soil-less compost at 2:1:1. Hardiness is similar to the *Dactylorhizas* in that they are native and very hardy but will not appreciate being wet and then frozen solid in a pot. Repotting should be done at least every other year so that the rhizomes don't become too entangled and run around the outside of the pot. The repotting and splitting can be done in the autumn or spring. Theory states that the sugars in the rhizome are evenly distributed in the autumn making this the best time but in my experience doing the job in the spring is just as successful.

In the open garden a gritty part of a rockery in full sun can be very successful. Make sure the plants don't dry out in summer and also take care to keep the slugs and snails off the emerging shoots and flower buds in spring / early summer.

Bletilla striata Hyacinth Orchid

Handsome orchid flowers (that unfortunately sometimes don't quite open fully) above very attractive pleated lanceolate leaves.

These have been quite common in the bulb trade sold as dry tubers - not the best way to buy them! Trying to coax them into healthy growth from this source is a challenge that often results in failure - much better to buy them in growth.

Once a few points are understood about their growth cycle and their natural habitat they become (with a little care) a reliable genus to grow.

This time the storage organ is a pseudobulb. One pseudobulb will give rise to more than one for the next year. In fact the plant behaves almost as if it were a rhizome and next year's shoots can be a number of inches away from the previous year's.

In the wild they invariably grow in alkaline substrates. *Bletillas* will grow in acid soils but will be better in alkaline ones - heavily alkaline.

The pseudobulb and root growth does not start until the leaves are nearly fully expanded and the flowers are formed. It is this factor that makes it difficult to establish those dry packet bought specimens in the winter. It also makes the time for division and repotting May - around flowering time.

The soil structure is best kept loose allowing the root system to grow quickly and the pseudobulbs to spread. A loose leaf litter type soil is ideal. If growing in pots they should be big and deep.

The plants are bordering on hardy. In milder parts of Britain the plants should do well outside if planted deep - six inches plus. This way the earliest shoots appear above ground a little later and are less likely to be frosted and the rhizome is protected from really freezing weather in winter. To be safe it makes sense to grow in large pots and keep from being heavily frozen in winter.

With a little thought to these points *Bletilla striata* can become quite a large flowering clump in just a few years.

As far as I understand the notes above are applicable for all of the *Bletilla* species and hybrids except *Bletilla formosana* which is not as hardy and should be kept a few degrees above freezing in the winter.

Serapias lingua Tongue Orchid

This member of the tongue orchids benefits from reliably producing more than one tuber per year (see cover illustration). The result can be seen in wild populations where the same genetic form of the orchid can form substantial flowering carpets with hundreds of individuals.

This is a good introduction to the mediterranean orchids. It will need some protection during its winter growth period (September - May). A gritty compost of John Innes : grit at about 1:2 is suitable but probably even better if you can incorporate some leaf mould and / or shredded leaf litter.

The ovoid tuber should be potted up in July - August in the compost mixture with its top at surface level and then a 1 to 2 inch layer of grit added on top. The top layer of grit helps to prevent rotting of the stem in the growth period (collar rot). The shoot will reach the surface in September / October. No water is needed until this stage. After this, the compost should be kept just moist throughout the growing period until flowering in May. At cold periods in our winter it may only be necessary to water every few weeks. During the winter they will need plenty of light and should be kept frost-free. Plants will withstand some frost if the compost is not too wet and the leaves are dry but until you have a surplus of tubers to try outside I would suggest the frost-free method! Feeding isn't necessary - but on the other hand, some weak feeding won't hurt and might just benefit slightly.

A cold greenhouse with a thermostatically controlled fan heater gives the kind of conditions required.

In April - May, at flowering time, the water can be withheld until the following September. Tubers can be harvested from the dry compost or left in situ. With good culture you may get 3 tubers per flowering-sized plant.

In common with the mediterranean orchids, these are summer dormant and need no water at all between May and September.

Others to consider:

Orchis morio (Green Winged Orchid). Those of British genetic material will be hardy and can be kept similarly to a mediterranean orchid with winter / spring growth but do not need to be pampered as much. Tubers shouldn't dry out completely in the summer.

Australian orchids. The best bet here for starters are the colony forming Greenhoods, such as *Pterostylis curta*. A good introduction to the Australians. Composts should be open (gritty or sandy) and decidedly acid. A common addition to composts is 'buzzer chips' (small chips of softwood that are produced by the action of chain saws). These aren't necessary but give an indication of the open acid composts required. I use a compost based on equal proportions commercial soil-less ericaceous compost and alpine grit with a covering of pure grit to prevent collar rot. Full light, just moist and just frost-free conditions (as in the mediterranean orchids) are suitable.

Cypripediums. Not really the choice for beginning – but – hey – all beginners are up for a challenge! If tempted, I'd offer a few words of advice. Buy a healthy looking plant in growth. Where possible, buy in flower so that you know you like the flower form. It may be expensive but it's far more likely to be successful. Try and look for a hybrid. This way you can be confident that it has been grown from seed and not collected from the wild. There also tends to be significant hybrid vigour making the hybrids better garden and pot culture plants. Also, in general, the American species such as *pubescens* and *parviflorum* tend to be the most amenable to cultivation.

Growing medium should be low in organic matter and very free draining. As a starting point try alpine grit : perlite : John Innes at 45% : 45% : 10%. Cool humid growing conditions with very little direct sunlight (only early in the morning and late in the evening). Weak liquid feed (up to a quarter recommended strength - preferably less) every watering but occasionally washing through with water only. Winter accommodation should be consistently cold (aiming for 1 - 4 deg C) and covered from our winter wet. A sand plunge cold frame to the north aspect of a building or high wall is suitable for both winter and summer. Fluctuations in temperature can be evened out to some extent by insulating the cold frame on all sides and over the plants in winter.

Pests and Diseases

The two main pests to control should be familiar to most gardeners.

Slugs / snails. Can severely damage new shoots and flowers of all species - especially the most beautiful, most expensive, this year's show plant etc etc! Slug

baits and traps and keeping your plants off the ground in a greenhouse should help to reduce the menace.

Aphids. These can build up quickly in the greenhouse especially in the spring. Keep an eye out for the first signs and then quickly treat the infestation with whatever your favourite greenfly killer is (mine is 'Polysect').

These are the pests to look out for. There are other nasties including fungal and viral diseases but by only buying healthy looking specimens you should avoid these. Hopefully we could have another Newsletter article updating us on fungal and viral diseases in the not too distant future.

Chemical Warfare

Richard Manuel

Those of you who were at the Society's Spring Meeting may recall a lively discussion on the use of chemicals to control orchid pests and diseases. Some members even volunteered to write in and tell of their experiences on the subject, so that we could all share their knowledge. Well, one member has written to me so far, so this note is just to start the ball rolling. There are plenty of other members with very useful knowledge of pesticides - what works against what, what doesn't damage orchids, availability, usage, etc. So please, write in and tell us about it!

We would all like to use biological controls against things like aphids, vine weevils, and so on, but for those orchids that grow during the winter these are not much use because the good bugs only operate at summer temperatures. And in the summer we all have our greenhouses wide open for best ventilation, so they all fly away. As far as I am concerned the major threat to my orchids is aphids, because they can spread viruses, as well the debilitating effect they have on plants. I have used two of the easily available artificial pyrethrins against them: **Bug Gun** is good but **Polysect** is even better because it not only kills aphids on contact but the residues on the leaves prevent re-colonisation by the insects, although it is not systemic. Use of Polysect at the recommended strengths seems to have no bad effects on my plants. With things like *Ophrys* and *Orchis*, which have a rosette of flat-lying leaves, the grower has to keep vigilant throughout the whole growing season: every time the growing area is visited turn up a few leaves and look for the little beggars, they are not often discernible from above. Small colonies are easily dealt with - always spray under the leaves, lifting them as necessary. But if you are lazy and leave things alone for a couple of weeks, even during cold weather, the bugs can spread at an alarming rate and soon become a major threat. So don't relax!

Norman Heywood, our new Vice President, writes of two products that he uses:

"I use a fungicide twice a year, applying it by dousing the compost whilst the plants are dormant, and again at the beginning of the year before the plants come into growth. Thus you have sparkling clean new tubers. Of course, the old tubers, rotting away, provide a perfect environment for fungus and bacteria. Do not forget that the wintergreen species need treating earlier than the rest, before they come into growth. The chemical is **Cryptonol**, which comes in a 5 litre can, is very expensive, and, I suspect, no longer available. It is a trade product and appropriate health and safety measures for spraying have to be observed.

We all seem to have a moss problem to a greater or lesser extent, and again regular treatment is better than trying to control it after it has got a hold. The chemical we use is **Diazinon** Liquid, again in a 5 litre can. Use it as a douse once a year roundabout the end of January."

Unavailability of fungicides is becoming quite a problem: as soon as a good one is found it is taken off the market because it is 'unsafe'. We all know that fungicides are potentially harmful to people (because fungi are more closely related to animals than to plants!) and so we all take great care in our use of them. But this perpetual nannying by government departments, whose competence has been well demonstrated by their handling of BSE and Foot & Mouth, is just becoming unnecessary interference in the affairs of people who do know what they are doing.

If you have any comments on the above, or notes on other chemicals, please send them to the editor, who will publish them as a letter, or to me, and I will put them together into another article.

Alpine Garden Society Summer South Show - Silver Award

Report from Carol Dash

June 2nd saw an enthusiastic turn out for the Summer South AGS Show at its new venue in Wimborne Minster, Dorset. The plants on show were of very high standard and included several orchids - *Dactylorhiza*, *Calanthe* and *Cypripedium*. There was a particularly fine *Cypripedium kentuckiense* shown by Kath Dryden. In the morning our president Richard Bateman gave a lecture on Orchid evolution and classification then in the afternoon Orchids by Post gave an informal workshop on growing Hardy Orchids. Many Hardy Orchid Society members were there for the day.

The Hardy Orchid Society also received a Silver Award from the AGS for its educational display. The display included *Cypripediums* and *Dactylorhizas* grown by Alan Dash plus the wonderful posters created by Simon Tarrant. The posters and display were a good advertisement for the Society and generated interest from the visitors.

Seed & Fungus Bank

Ted Weeks

Please can I thank all members who participated last season in the donation of seed to the Seed and Fungus Bank. Can I remind members to set and collect seed from any Hardy Orchids they grow and send any surplus seed they may have to Ted Weeks, 74 Over Lane, Almondsbury, Bristol, BS32 4BT.

An up to date Seed and Fungus List will be available later in the year.

Back Issues of the HOS Newsletter

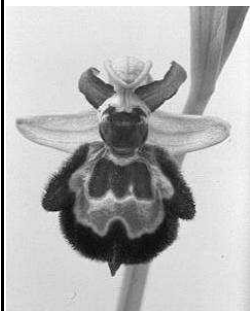
Copies of all issues of the Newsletter are still available from the Newsletter Editor. A full contents list appears on the HOS website: www.drover.demon.co.uk/HOS

Copies are £2.50 each or £8 for four, including p&p.

BUT copies of issues 8 to 14 inclusive are still available to members at the sale price of £1 each.

Contact the Newsletter Editor by post or by e-mail at m.tarrant@virgin.net

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 01600 890644, email richard@orchis.co.uk

WESTONBIRT PLANTS

Bulbs for Autumn 2001

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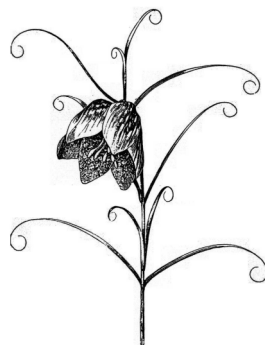
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Type A Peloria Floral Mutation

Type A peloria in the Fly Orchid (*Ophrys insectifera*). The two "antennae" normally present in this flower, which is beautifully adapted to pseudocopulatory pollination by solitary wasps, have been replaced by additional insect "bodies" due to a suspected simple mutation. Photographed in Hampshire by Richard Bateman.
(x 4)



Pseudopeloric Floral Mutation

A pseudopeloric individual of the Greater Butterfly-orchid (*Platanthera chlorantha*), where the lip has been replaced by a much broader structure resembling a sepal. This plant had previously been published in error as a presumed intergeneric hybrid between *Platanthera chlorantha* and the Small-white Orchid, *Pseudorchis albida*. Photographed in Scotland by Robin Bush. (x 4)



Class 11 *Cypripedium henryi*
Doreen Webster
'Best in Show'



Class 10 *Serapias olbia*
Barry Tattersall

HOS Plant Show, May 2001



Class 1 *Ophrys fuciflora*
Richard Manuel



Class 5 *Orchis papilionacea grandiflora*
Colin Clay

HOS Plant Show, May 2001