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in New Zealand

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April 1990



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Orchids

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VOL. 16 NO. 2

APRIL 1990

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Don't Be An Azadehdel!

CONSERVATION CONCERNS us all. Despite its fashionable label in certain parts of the community, it is something that orchid growers, or a least those who think about their hobby, have been conscious about for some time. The destruction of vast tracts of the Amazon rain forest, for example, must worry those who are concerned about the environment.

As orchid growers we must also think about the destruction of many orchid habitats — especially those the home of the most desirable varieties. Many of the less explored areas of the world probably contain species so far undiscovered. The recent discovery of many new *paphiopedilum* species testify to this fact.

There is a vast international trade in plants, including orchids. Much of this is organised and responsible, but there is some that is not. The recent case of Henry Azadehdel illustrates the worst of what can occur.

Azadehdel was recently imprisoned in the United Kingdom for a year for smuggling and dealing in endangered orchids. As noted by the judge concerned, the 'destruction of rare plants is not caused by over enthusiastic collectors but by cynical and ruthless commercial exploitation and trafficking for profit. If ever a trade wants discouraging it is this'. This person was caught red-handed returning through Heathrow Airport from Ecuador with a suitcase of plants, later identified as

editorial



Orchids in New Zealand
Editor:
P. C. Tomlinson
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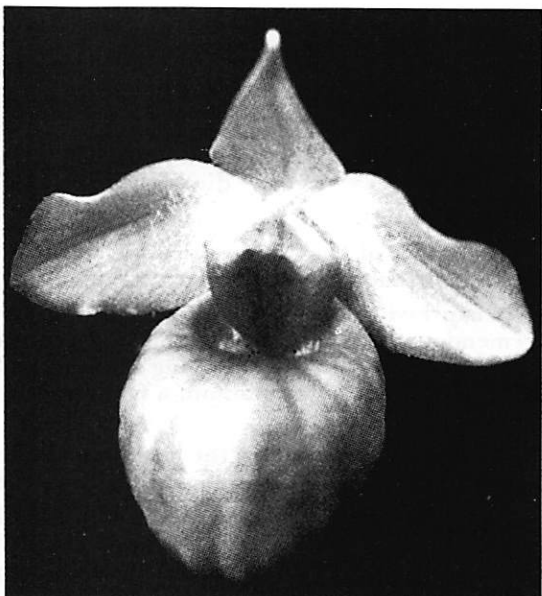
rare orchids. An inspection of his home identified more rarities. Azadehdel had apparently corresponded with botanists at a number of research institutions for many years, from where he gained snippets of information that allowed him to piece together the location of many rare species. On the basis of this information, he is said to have col-

lected orchids from the wild with 'total disregard for conservation, preservation, countries of origin, and the law, and raped beauty spots around the world of some of their most precious assets to feed his obsession with orchids and undoubtedly fatten his bank account'.

While some orchids are found over a vast natural range, there are many sought after species that are confined to small isolated niches, and the removal of many plants from such areas can be disastrous to natural populations. This can be illustrated by the case of *Paphiopedilum druryi* from the Travencore Hills of Southern India. Originally found in an area separated from the range of other *paphiopedilum*s by many kilometres. In 1974 a population was rediscovered, and the story of this event was reported in a widely read orchid journal, with specific details of the locality involved, together with an advertisement for plants. Armed with this information, other collectors visited the area, and by 1980 botanists visiting the habitat could find only three small plants remaining.

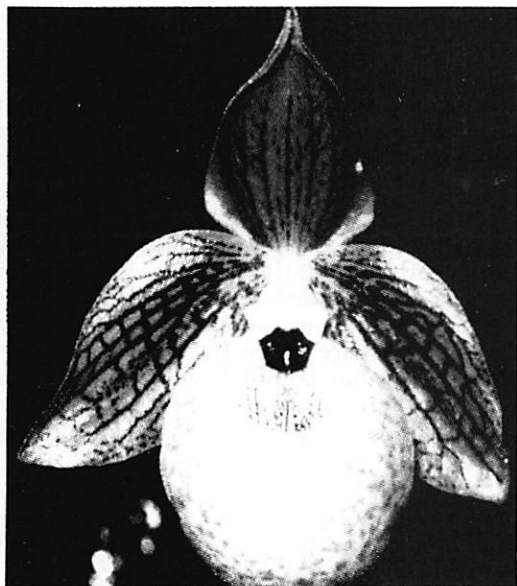
Such events make the news overseas, but even here there can be similar situations. In his book David Girven lists *Cryptostylis subulata* as an endangered species, with its specialised habitat confined to a relatively small area in New Zealand. Within a short period of its rediscovery, there were significant numbers of wild collected plants offered for sale. Overseas, the discovery of *Pahoiopedilum armeniacum* and *Paphiopedilum malipoense*, and the rapid and wide spread availability of wild collected plants must also raise questions.

Orchid exploring and discovery of new species is of interest to all growers. However, we must be



Paphiopedilum armeniacum

Both paphs grown and photographed by Keith Goodwin.



Paphiopedilum malipoense

satisfied that the plants offered for sale have been obtained in an acceptable way. The salvage of material from development areas is acceptable, but it can be difficult to identify what is legally removed, and what is not. The CITES agreement is in place to control international trade, but there appears to be ways in which this can be circumvented. The increasing practice of selling selected plants and propagating in a nursery hopefully will exert some control over illegal activity.

It is important that we remember our orchid heritage, and think of the future generations of orchid growers. We must all not be selfish, and **don't be an Azadehdel.**

VALE
Lily Crouch

In memory of a special friend and Society member LILY CROUCH who died 7th March 1990.

Eulogy for Lily Crouch, as spoken by Des Leahy at the funeral service.

On behalf of the whole orchid fraternity we express our feelings and thoughts in memory of our dear friend, Lily.

In expressing those thoughts and feelings however, we must not forget the tremendous loss suffered by Ron and the girls, Gay and Joy, with their families, and Lily's sisters living away from New Zealand. Their loss of a Wife, a Mother, a Companion, a Grandmother and a Sister must also be in our thoughts.

Many of us have known the family from back into the early 1970's, when they lived in Seaview Road in Milford, at the house named 'Linwood'.

Ron and Lily joined the North Shore Orchid Society soon after it was formed in April 1973. Only a little later Lily was elected to the Executive Committee and became a much valued assistant to Albert Blackmore in his writings for the Newsletter and Magazine.

The great failing of all serious orchid growers soon became obvious; 'Linwood' was far beyond its capacity, orchid plants were everywhere, and that is an understatement!

Then came the move to Waimauku, and that in itself presented a major logistics problem. Margaret Le Sueur, Lily's friend, tells of the help of a Milford Football team and the use of a truck. At Waimauku, an abandoned poultry farm was in itself a further major problem. Shifting the 'detritus' (to give it a sweeter name) was no mean feat, but persevere they did, and visitors will know of the excellence of the result of those hard years of work and persistence.

We first became aware of Lily around 1975, when she and Ron joined the New Zealand Orchid Society and volunteered as show helpers, always willing to assist. In more recent years the family became active and valued members of the Club out here in Waitakere.

We also had become well aware of Lily's wit and keen sense of humour, always low-key but very much to the point. Also remembered is the low-key approach to her own attainments. At the last National Show, in Wellington, on the evening before the judging, she strolled into the hall swinging a plastic shopping bag. When queried as to its contents she nonchalantly spread the bag handles, revealed was a pure white Lycaste. It was pretty obvious that whatever would beat that one would have to be the Grand Champion of the Show. History showed that none did beat it.

'Linwood' had soon become a name to be reckoned with in the orchid world, but that is not what we will remember most when we speak of our dear friend. As we go through life we inevitably come to discuss (and sometimes harshly criticise) our contemporaries, but keep this thought in your minds — Did you ever realise that nobody ever spoke ill of Lily — she will always be remembered as the person everyone liked.

Goodbye Lily and God bless you.



Lycaste Kiama
(*Macama* x *Koolena*)

Grand Champion of the Show
Second International
New Zealand Orchid
Conference. Wellington 1985

Grown and exhibited for
Linwood Orchids by the
late Lily Crouch.

Photo: P. C. Tomlinson



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concerning cymbidiums

IF THERE IS one orchid with universal appeal in this country, then it must be cymbidiums. Many societies are renowned for the 'other' orchids grown by members, but for many growers it was the cymbidium that got them into the orchid growing habit in the first place, and the genus they identify with most. While cymbidium growing may be going through a difficult period at present, at least for commercial growers, the cheapness and widespread availability of these plants will ensure their wide distribution, especially amongst those who are not traditional orchid growers.

Most of the plants in common cultivation are the advanced hybrids. These are made up of the species to varying degrees, and the study of the genetic makeup of a hybrid can be a fascinating study. *The Sander's List of Orchid Hybrids* is essential reading in this regard. From these lists, the species included and the extent to which they contribute to the hybrid, can be ascertained. A knowledge of the individual species can assist in improving culture, as the hybrid will generally show the cultural requirements of the species, in proportion to the contribution of that species to the hybrid. If cultural difficulties are being experienced, then the culture relevant to the constituent species can be tried, as sometimes the culture of one species will dominate. A knowledge of the species, their natural habitats and growing conditions, all contribute towards that pool of information that is finally

Cymbidium Feature

Cymbidiums are important in this country. Most growers started with these plants, and most retain some in their collections. There are many growers who only grow them. This months feature, written by P. C. Tomlinson, is the first of a series looking at the cymbidium species.

expressed in the successful growing and flowering of all plants.

This ongoing series is intended to widen the understanding of the main cymbidium species. I hope that all growers will find information of interest and assistance in perfecting their growing techniques.

There is a lot of information available about these interesting plants. The most authoritative is that by David Du Puy and Phillip Cribb—*The Genus Cymbidium*—but many of the older books, such as *The Orchid Growers Manual* by B. S. Williams and the *Manual of Orchidaceous Plants* by James Vetch and Sons contain much useful information. There are many regional flora which contain further information on species specific to a particular region. Many of the good orchid magazines also often contain excellent articles on the species.

In the discussion on the cymbidium species, the system of classification proposed by Du Puy and Cribb will be followed. While there may be opinions conflicting with the conclusions of the authors, their comprehensive work does create the foundation on which further studies can be completed, hopefully over the next few years, for

the benefit of all growers. The botanical system of classification does group plants having certain affinities; not only in their flower and vegetative form, but also culturally, and therefore following such a classification does have certain practical advantages. The aim of this review is not to present a botanical treatise. If such information and detail is sought then the references noted can be consulted. The aim here is to consider each species, to give a brief description of the plant and flower form, and to discuss the relevant habitat and cultural information. For those wishing to make specific specimen identification, the keys and tables included in *The Genus Cymbidium* are essential references. It is



hoped that a companion series to these articles will be published in due course, discussing the importance of each species in hybridising, both historically and in modern plant breeding programmes.

Many species have been given different names over the years since their discovery. The synonyms will be listed, but the main reference by Du Puy and Cribb should be consulted if you wish to obtain more information on this aspect of a particular plant. A full identification key of the species is published in the main reference.

The genus *Cymbidium* was established by Swartz in 1799, based on *Cymbidium* (then *Epidendrum*) *aloifolium*. There have been a number of changes to the species considered valid in this genus, with the recent study by Du Puy and Cribb being the most recent and authoritative. That study reached a number of conclusions regarding the valid species contained within the genus. Such a study forms the basis for informed comment, but good growers will develop their own opinions and conclusions based on information available, and their own experience.

It is interesting to look at an overall description of the genus, as it gives an indication of the variability that can be seen between the different species. The plants naturally grow either as epiphytes (growing on trees), lithophytes (growing on rocks), or as terrestrials (growing naturally in the ground). The vegetative growth arises from the base of the lower nodes of the persistent

pseudobulbs, which are usually produced annually, but which may persist for two or occasionally many years. The pseudobulb is usually spindle shaped, only occasionally absent in which it is replaced by a slender stem. The roots are typically thick, white, velamen covered, branching, usually arising from the base of the new growth. Up to 13 leaves are produced. The inflorescence is a raceme, densely to laxly flowered, erect, arching or pendulous. One to many flowers are produced, which are often large, showy and sometimes fragrant. The species are naturally distributed from the North West Himalayas to Japan, and south through Indo-China and



Cymbidium Ming 'Manchu'
A modern hybrid, bred from species.

Malaysia to the Philippines, New Guinea and Australia.

The genus is broken into three sub-genera and 15 sections as follows. It is not necessary to know the names of the individual sections, but as plants within each section have similar cultural requirements, the groupings can further ones understanding of the plants involved.

CYMBIDIUM SUB-GENERA AND SECTIONS

1. *Cymbidium* subgenus *Cymbidium*

- a. *Cymbidium*
- b. *Bornense*
- c. *Himantophyllum*
- d. *Austrocymbidium*
- e. *Floribundum*
- f. *Bigibbarium*

2. *Cymbidium* subgenus *Cyperorchis*

- a. *Iridorchis*
- b. *Eburnea*
- c. *Annamaea*
- d. *Cyperorchis*
- e. *Parishiella*

3. *Cymbidium* subgenus *Jensoa*

- a. *Jensoa*
- b. *Maxillarianth*
- c. *Geocymbidium*
- d. *Pachyrhizanth*

The first section *Cymbidium*, was established by Jund in 1970, containing species which are distinguished by their thick, often rigid leaves. The flower racemes are usually pendulous to arching, the scapes with well spaced flowers, which are typically cream to greenish with red or brownish markings.

genus described by the great botanist Linneau in 1753. This was based on an illustration of an Indian plant made by Rheede at the end of the seventeenth century, and which had been published in 1703. As noted by the number of synonyms, there is some confusion regarding the correct identification of this species.

This is a medium sized species, the pseudobulbs usually strongly inflated 60-90mm x 30-40mm. The 4-5 leaves are strongly coriaceous (leathery), rigid or arching, 40-180mm long. The scape is 300 to 700mm long, strongly pendulous, bearing typically 20 to 45 flowers. The individual flowers are 35 to 42mm across, lightly scented, sepals and petals pale yellow to cream with a broad central maroon-brown stripe, often with darker streaks. The lip is white or cream coloured.

1.a. CYMBIDIUM

SUBGENUS CYMBIDIUM

This, the type subgenus, comprises six sections. They are all characterised by having rather small relatively simple flowers. There is considerable variation within this subgenus with regard to the leaf morphology and anatomy, and in the structure of the callus.

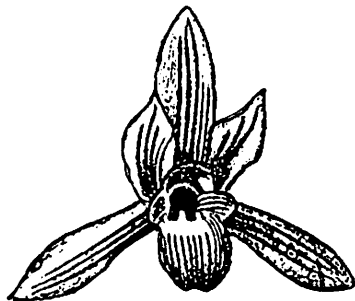
1.a.1. *Cym. aloifolium*

(L) Swartz

Synonyms

- Epidendrum aloifolium*
- Epidendrum aloides*
- Cym. pendulum*
- Aeirdes borasii*
- Cym. erectum*
- Cym. simulans*
- Cym. intermedium*

This was the first species of cymbidium known in Europe, and is the type of



Cymbidium aloifolium
(From Die Orchideen von Java
Figuren Atlas, J. J. Smith)

This species is distributed from Sri Lanka, Andaman Islands, India, Sikkim, Nepal, Bangladesh, South China, Hong Kong, Burma, Thailand, Cambodia, Laos, Vietnam, West Malaysia and Java. It is found in the forks and hollows of large branches and tree trunks usually in open forest where partial shade is provided by the leaf canopy. This species, and that following, often grows in rotting wood, and will form large clumps on dead trees where the extensive root systems grow into the rotting wood. The roots form a dense spongy mass, and this species may also produce short slender erect aerial roots which trap leaves and other leaf detritus. It flowers early to late spring.

This species and *Cym. bicolor* occur over much of the same range, but are noted not to hybridise, probably because they have slightly different flowering seasons. They also grow over different altitudinal ranges, which maintains genetic separation. In Thailand this species grows at a slightly higher altitude in the deciduous hill forests, rather than the evergreen lowland forest typical for *Cym. bicolor*, but with this reversed in the Himalayas.



Cymbidium aloifolium.

(From Du Poy and Cribb, *The Genus Cymbidium*)

1.a.11 *Cymbidium bicolor* Lindley

This species was first described in 1835. Again a medium sized species, producing pseudobulbs up to 50 x 25mm., the 5-7 leaves are 300mm long, cartilaginous, stiff and arching, 30 to 120mm long. the scape is 100 to 500mm long, arching to pendulous, bearing 5 to 26 flowers. The flowers are 25 to 45mm across, lightly fruit scented. The

sepals and petals are pale yellow to cream, with a broad weakly defined central stripe of maroon-brown. The lip is white or cream with a pale yellow patch at the base. It is distributed from Sri Lanka, India, South China, Indo-China, West Malaysia, Java, Sumatra, Borneo, Sabah, Celebes, and the Philippines. Its natural hab-

it is similar to that of the previous species.

There are three subspecies listed — *bicolor*, *pubescens*, and *obtusum*.

Cym. bicolor subsp. *bicolor* is characterised by an arching scape, a rather long pedicel and ovary, a long slender dorsal sepal which exceeds the petals by 4-5.6mm, this giving the flowers a spidery appearance. This is found in Sri Lanka and South India, being first described in 1833.



Cymbidium bicolor subsp. *bicolor*
(From Du Poy and Cribb,
The Genus *Cymbidium*)

Cym. bicolor subsp. *obtusum*

Synonyms

Cym. crassifolium

Cym. manii

Cym. pendulum

Cym. flaccidum

This subspecies often has rather broad leaves, up to 25-30mm wide. The scape is often longer than in other sub-species, and varies from arching to pendulous. The petals are spreading, and the mid lobe is papillose or weakly hairy, especially at the tips of the side lobe. Native of Nepal, North India, Sikkim, Assam, Bhutan, South West China, Burma and Indo-China.

Cym. bicolor subsp. *pubescens*

Synonyms

Cym. aloifolium

Cym. pubescens

Cym. aloifolium var.
pubescens

Cym. pubescens var.
celebicum

Cym. celebicum

This subspecies typically has narrow leaves, rarely more than 20mm broad. It has a sharply pendulous, often rather short, few flowered scape. The petals of the flowers are usually somewhat spreading. The lip is cream, mottled with maroon on the side lobes, and spotted and blotched with maroon or red-brown on the mid-lobe which is yellow towards the base. Native of West Malaysia, Java, Sumatra, Borneo, Celebes and the Philippines.

1.a.111 *Cym. rectum*
Ridley

First formally described in 1920, this species was known as early as 1902, as the plant had been in cultivation in the Singapore Botanic Garden for a number of years. It had been known in the gardens as *Cym. 'erectum'*, although this name had already been used for another species. The name refers to the upright growing scape, an unusual characteristic for



Cymbidium rectum
Detail from Du Poy and Cribb,
The Genus *Cymbidium*

plants from this section. The species was lost to cultivation for a number of years, until it was rediscovered in Sabah, first flowering again under cultivation in 1984.

It is a medium sized plant whose pseudobulbs are about 50 x 20mm. The 7 to 9 leaves per pseudobulb grow up to 600mm long, with a strong 'V' shape in cross section, strongly coriaceous, very stiff and arching. The scape grows up to 400mm long, somewhat erect or

horizontal, often pendulous in fruit, with up to 17 flowers. The individual flowers are 30 to 40mm across, lightly fruit scented. The sepals and petals are pale yellow or cream, with a broad central stripe of maroon-brown extending to the tip. The lip is white with a pale yellow patch at the base.

This species is native of Sabah, West Malaysia, growing at an altitude between 450 to 500 metres, sometimes extending to 800 metres. It naturally grows

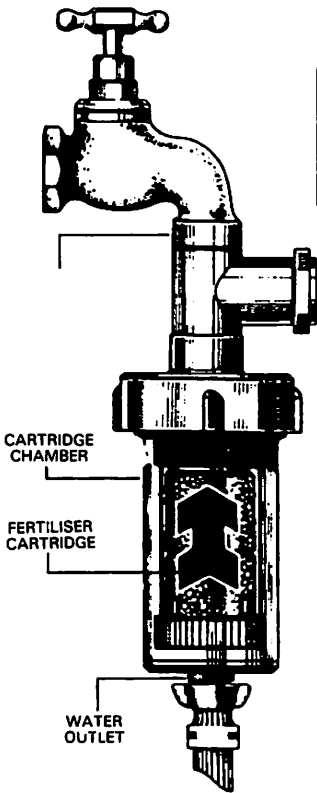
as an epiphyte in *Baekia frutescens* forest, on poor soils, usually seen on small stunted trees less than six metres from the ground. It receives only light shade, and the root system is full of biting ants which feed on the nectar exuded behind the sepals and the base of the pedicel. In return, the ants protect the flowers from herbivorous insects.

To be continued.

Answer to last month's Crossword

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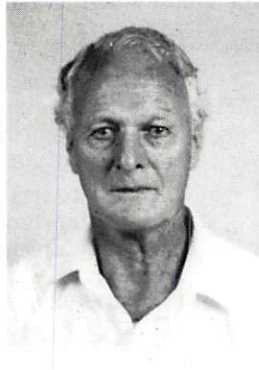
Phone 275-4963

Thelymitra matthewsii —

the Spiral Sun Orchid

THE RARE Spiral Sun Orchid, *Thelymitra matthewsii*, found growing near Genoa, East Gippsland, in 1936 by Norman Wakefield, a district school teacher and field naturalist. The description 'near Genoa' was somewhat vague, and after Wakefield was accidentally killed, there was no longer any chance of determining the orchid's exact location.

Over the years, many botanists and field naturalists, including myself, used up a lot of energy in a seemingly fruitless search for this elusive orchid. However, on 5th October 1985, 49 years after Wakefield's sighting, I was fortunate enough to discover two plants which had already flowered and the ovaries were very swollen. The distinctive coiled, spiral leaves of these plants alerted me to a 'new' find. I had been out in the bush observing the early spring orchids, and the season being a little late, I was particularly interested in finding a flowering plant of *Thelymitra pauciflora*, normally our earliest sun orchid. Then when I saw two almost 'finished' sun orchids, I looked around more closely as it seemed strange for two to be finished when the others (hundreds of them in fact) hadn't even opened. I opened one 'finished' flower and examined it. What I saw, together with the



Allan B. Peisley, a farmer in the Genoa District, East Gippsland in Australia describes his rediscovery of the species.

Brian Molloy reports the discovery of this species some three years later in New Zealand.

plant's coiled spiral leaf, left no doubt in my mind as to its identity. It just had to be *Thelymitra matthewsii*. My identification was confirmed by staff of the Royal Botanic Gardens

and State Herbarium in Melbourne, and later on I was able to provide them with fresh material as a permanent record.

Since 1985 I have found a number of small colonies, extending nearly two kilometres from my first sighting to the last. The colonies are generally very small, ranging from one or two plants to mostly around five. The largest colony I have seen had 15 plants, but only five or six were flowering at the time. It is extremely difficult trying to find these little corkscrew-like plants when they are not flowering. It is also difficult to find flowering plants when the flower buds are closed, as the plants blend into the surrounding habitat. I have found that the flowers are reluctant to open, usually only at mid-day when the sun is at its hottest, or occasionally on an overcast day if the weather is humid.

Further study has shown that in my district *Thely-*

mitra matthewsii seldom flowers before 14th September. In September 1987 I saw five plants in flower in one colony, all open together. This is the most I have seen open at the same time. The flowers are very beautiful with their bright purple petals and sepals with darker stripes, yellow, lateral column lobes, and blunt yellow anthers. The flowers are short-lived and are almost certainly self-pollinating.

I have seen only single-flowered plants, although in 1987 I noticed two plants in one colony, each having two buds to a stem. However, both these stems dis-

appeared before flowering and I presume they were eaten by rabbits or wallabies which are numerous in the area.

Thelymitra matthewsii is a slender and wiry Sun Orchid 15 to 20 cm tall. Its single green, fleshy finely-hairy leaf is broad, clasping and sometimes lobed at the base, and tapers rapidly, twisting and spiralling upwards, often, though not always, encircling a flowering stem. The latter is reddish and often flexuous, supporting two broad clasping bracts that diverge widely at their tips. The flower is quite large in relation to the overall size

of a plant, measuring 15-20 mm or more across when fully open. The ripe capsule is also relatively large and shaped like an inverted pear.

In the Genoa district, *Thelymitra matthewsii* grows on poor, sandy, gravelly sites, generally on old, unused gravel roads formed through the local bush. I am sure there are more colonies to be found, given time, patience, good eyesight, and a bit of good luck. This orchid is not easy to spot unless in full flower, or one happens to see its unique spiral leaf. ◀

Genoa, Victoria 3891
Australia



Thelymitra matthewsii
Photo: Allan Peisley

Postscript

Brian Molloy

By a remarkable coincidence, the Spiral Sun Orchid, *Thelymitra matthewsii* was rediscovered in Northland, New Zealand on 1st November 1988, three years and one month after Allan Peisley's find in Victoria, and about 100 km from its original locality on the sandhills west of Kaitaia. This orchid was described by Thomas Cheeseman in 1911, and named in honour of its discoverer, Richard Mathews. It had not been seen in Northland since 1911, until rediscovered in the North Cape Scientific Reserve by Doug McCrae who has written a short account of his find in the *New Zealand Orchid Group Newsletter*, No. 29 (1989).

I was fortunate to be with Doug and other colleagues at the time, though wandering among orchids in another part of this extraordinary reserve. When we finally came together, Doug announced his discovery in typical reserved fashion, and after a few frantic moments trying to relocate the orchid, there it was, a solitary plant with a single ripe capsule, and an unmistakable coiled and spiral leaf. I think Doug McCrae would agree with Allan Peisley that good eyesight and good luck are prerequisites to finding this orchid.

The habitat of this orchid is interesting; a small flattish site of accumulating slopewash near an abandoned serpentine quarry. The prevailing reddish clay soils are formed from weathered magnesium-rich serpentine, of volcanic origin, and are generally infertile. However, on this and other disturbed sites nearby, the soil is rejuvenated by fresh mineralisation resulting in a somewhat higher level of fertility. I suspect that Allan Peisley's sites in Victoria are similarly disposed.

Associated orchids on this North Cape site include *T. carnea*, *T. pauciflora*, a form of *T. longifolia*, and *Orthoceras strictum*; and all scattered between clumps of the Tangle Fern, *Gleichenia microphylla*.

Thelymitra matthewsii was first described from New Zealand material, and for a time was known in Australia by the later synonym *T. daltonii*. According to David Jones in his recent book '*Native Orchids of Australia*' (1988), it occurs in Victoria, South Australia, southwest Western Australia and New Zealand, but it is nowhere common. It is closely related to the variable *T. spiralis* which is confined to Western Australia. Both orchids are illustrated in Nicholls' well-known style in '*Orchids in Australia*' (1964), but there are very few published photographs of either species.

Since the North Cape plant was not in flower when we saw it, final confirmation of its identity must await inspection of its flower(s), providing it or other plants are still there. If we take Allan Peisley's experience as a guide, then the 15th September onwards seems the most likely time to be on the lookout. In the space of one year, I have been privileged to see the rare Spiral Sun Orchid in both Australia and New Zealand, and to share the thrill experienced by two observant enthusiasts. Next to the discovery of a new orchid, the rediscovery of a would-be lost one is an event to be savoured.

Botany Division, DSIR
Lincoln

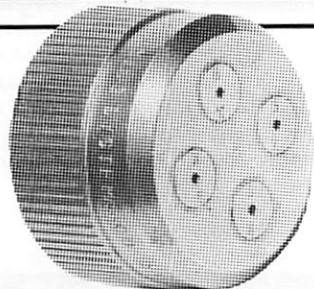
UPDATE

On the 16th September 1989, Doug McCrae and I re-visited North Cape, hopefully to catch *Thelymitra matthewsii* in flower and to confirm its identity. Sadly, its habitat had been obliterated by heavy rains during the intervening summer. We searched the immediate and surrounding areas thoroughly but could not find any plants of this elusive orchid. However, we are confident that it will turn up again, as it has in the past.

More plants have been located in Australia following Allan Peisley's find and these plants will continue to be a source of seed for dispersal to New Zealand.

For all we know, there may well be plants in other parts of Northland already, waiting for some sharp-eyed enthusiast to experience the excitement of their discovery.

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CATTLEYA CULTURE

THE CATTLEYA GROUP of orchids includes the genera *Cattleya*, *Laelia*, *Brassavola*, *Sophranitis*, other less-commonly grown genera such as *Schomburgkia* and *Cattleyopsis*, and a large number of hybrids between these easily interbred genera. Such artificial genera as *Laeliocattleya* (abbreviated to *Lc*), *Brass oelaiocattleya* (*Blc*) *Saphrolaeliocattleya* (*Slc*) and *Potinara* (*Pot.* = *Cattleya* x *Brassavola* x *Laelia* x *Sophranitis*) are commonly grown in New Zealand, and are probably second only to cymbidiums in popularity.

TEMPERATURE:

Orchids of the cattleya groups (referred to after this as 'cattleyas') are not quite as straightforward to grow as cymbidiums, as they need warmer and more humid conditions than cymbidiums. They grow and flower best in a light airy humid heated glasshouse, with a minimum winter night temperature of 55°F (13°C), but can be grown near a north or west-facing window in a living room down to 45°F (12°C) if they are grown in a very open mix that dries out well between waterings.

Allen Beu of Wellington reviews the features he considers important for cattleya culture.

From The Journal of The Wellington Orchid Society



Lc. (Grotsky's Gold x *C. mossiae* var. *reineckiana*)

GROWING MIX:

As cattleyas are strictly epiphytes (i.e. they grow on trees), their roots like to dry out completely between waterings, and some rot if this is not allowed to happen. So it's best to grow them in an open, airy mix. One that has proved excellent in the Wellington area is plain coarse (5mm-20mm) pieces of pine bark. Also, drying is speeded if their plastic pots have lots of extra holes drilled (or melted with a soldering iron) through the sides and bottom.

LIGHT:

Cattleyas flower best in bright lights, at least as bright as that needed by cymbidiums. The light should be bright enough so that they grow short, stiff,

yellow-green, leathery leaves, not long floppy dark green leaves. A new plant put in such bright light may develop sunburn spots on its leaves (which does no major harm) during the first year. However, the next year's leaves will be tougher and won't burn. Lots of direct sunshine seems to be particularly important if you are growing them in the living room—don't burn them to death!

WATERING:

The mix must drain thoroughly between waterings. Water thoroughly about three times a week during summer and once a week during winter, if the plants are in a heated glass-

house, (but less frequently in a cooler living room).

Include dilute inorganic fertiliser ('Phostrogen' encourages flowering best) in the water for about every second watering, all year round—but always water with plain water between fertilisings to wash out the salts. Slightly warmed (atmospheric temperature) water is best.

AIR MOVEMENT:

Like all other orchids, cattleyas do best with plenty of air movement. A small, silent, domestic fan is useful in a living room, and large ones are essential in a glasshouse. Air movement prevents fungal diseases.

PESTS:

Apart from fungal diseases, cattleyas are tough-leaved and so not very susceptible to insect pests or diseases of any kind. They sometimes get mealy bug inside the bulb sheaths, so it is a good idea to remove the main focus for fungal diseases. Wipe off mealy bug with a dab of alcohol or meths.

SPECIAL REQUIREMENTS:

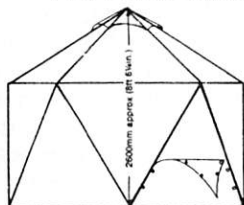
Hybrids with *Sophranitis* in their parentage (as most good red cattleyas have) like slightly cooler temperatures than the rest. Laelias don't mind lower humidity and temperatures than the others, but aren't fussy. Indoors, all should be grown above a tray of water (or wet gravel) to increase humidity. ◀



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Orchid Ramblings

There are numerous gadgets for controlling and monitoring heat, humidity, light, air flow etc, and you can really go berserk if you are not careful. The basic instruments are a mini-max thermometer which indicates how hot and how cold the temperature has been since the thermometer was last reset, and a hygrometer which indicates the relative humidity of the air. The thermometer is very useful when first setting up a glasshouse and getting conditions right, and after that it is rarely reset as long as temperatures stay within the limits. The hygrometer is also useful, mainly to give you a fright when you see how low the relative humidity can drop to when the temperature rises. Relative humidity is measured as a percentage of the moisture being held in the air compared to the maximum amount of moisture that could be held in the air at whatever the temperature is. Since the amount of moisture the air can hold almost doubles for every 11C rise in temperature, a relative humidity of 90% at 10C falls to 45% at 21C if no more moisture is added to the air. Orchids prefer a relative humidity of between 60% — 70%, so you have to figure out a way of adding more moisture to

Bob McCulloch continues his discussion from last month on his ideal glasshouse.

He discusses here the various gadgets that can be of assistance.

the air when the temperature rises, and how to get it out again when the temperature falls. A humidistat is a device which senses humidity in the same way that a thermostat senses heat, and it can be used to activate whatever you are using, say by opening a solenoid valve to allow misters to operate. Getting moisture out of the air again is more tricky, and is usually done by blowing the air out with a fan, and sucking fresh air in.

This brings us to ventilation, there should be air movement all the time, and the air should be moved by extraction rather than blowing air into the house and letting it escape through vents or leaks. The reason for this is that if a fan is blowing air into the house then there is a stream of high velocity

air, which causes draughts in some areas, and doesn't move the air in other areas. Plants in the draught don't like it at all, and languish something horrible. When the fan is used to extract air, the airflow is much more gentle and tends to come from all over the glasshouse. Another way to move the air is to have automatic vents which open when the temperature rises, and close again when it falls.

Heating can be by electricity, gas or oil. Some people have had problems with gas causing buds to fall off. Oil can be used either as paraffin heaters, which need constant attention, or burned to heat a boiler and the hot water pumped through pipes. You could even install a potbelly stove in the glasshouse, but that would need stoking at least twice a day. I use electricity which is more convenient except when the power bill arrives. Shading can also be automated by having movable blinds which are then moved to keep temperatures within limits, but I have never seen this in use. Apparently the blinds can be rotated like ventian blinds, or allowed to unroll from the top to cover the whole roof, and retracted when the temperature drops. For best effect they

Murphy's Law

should be outside the glass and a few inches above it, but I can see this causing some trouble in windy weather and perhaps that's why no one seems to use this method.

All sorts of watering systems are now available, these vary from the simple ones where you turn a tap and the plants get watered until you turn the tap off, to the ones where a controller monitors each area of the glasshouse and decides when they need watering and how much. That's the type of thing you should install this summer so that you can relax and enjoy yourself at the 13th WOC without worrying about whether your plants are being ignored by who ever is looking after them. ◀

*18 Davis Crescent
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1. When building a Glass House (Shade House etc.) If you build it twice as big as the size you first thought of, it will still only be half as big as you need it to be.
2. When tying and staking up spikes, the only spike you accidentally break will always be the spike from the plant you've been waiting years to flower.
3. When splitting a community pot or flask of seedlings, the plants you sell are the Champions, the ones you keep are dogs. If you keep the lot you have more problems with (1).
4. If you leave a plant at home at Show time (deliberately or accidentally) the plant that wins the Class in the Show is not a patch on yours.
5. If you want to transport an Orchid plant in your car, van, or any other vehicle, no matter what make, year or model (of car or orchid), the spike is always 6'' too long.
6. If you hand water the Orchid plants in your Shade House, it rains; if you don't—it doesn't!
7. No matter what simple Orchid task needs doing, before you can do it at least five others will have to be done first.
8. The only flower in your whole collection that is chewed by a slug is the one you had your eye on for a prize.
9. You can always sell a hundred of a plant you only have one of—the plants you have a hundred of—no one wants.
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There's a message in 'Murphy's Law'. I'm still trying to work out what the message is!!

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Cogito's Diary

Greenhouse Visits

PERHAPS THIS CAPTION should have read '**Fellow Fanciers**'. Every greenhouse we visit is representative of the owner's way of doing things. The amount of light, ventilation, temperature, moisture, etc. that each of us provides are interpretations of what we think is needed by the genera that we choose to collect.

Time and again I meet with dissimilar approaches that produce equal or better results than my own. Also, again and again, I experience how each and every fancier has surprising sides and abilities that go far beyond what one might expect judging by modest demeanour or remarks. Most people go to extraordinary lengths in one way or another. Nearly everybody is innovative in some particular aspect of orchid culture.

Innovation does not mean that a great monetary outlay is made.

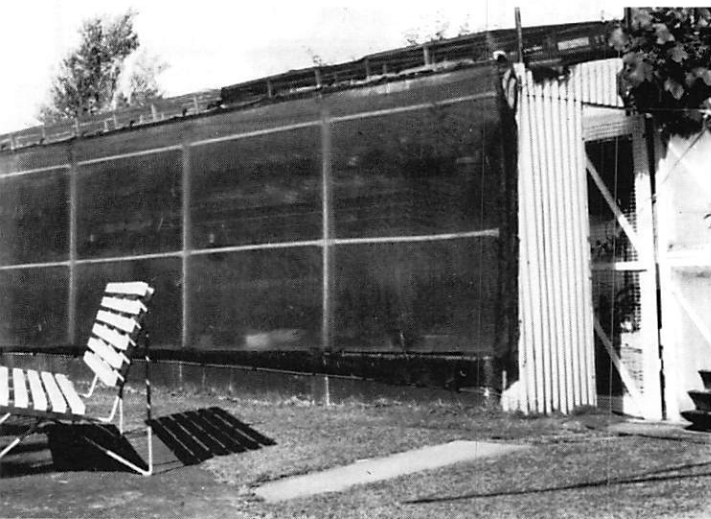


Bill Franson has been visiting. Perhaps that is why he has not been repotting! The diary continues.

6 Wedgewood Place
Hamilton.

What really matters is that a hobbyist's innovativeness culminates in good results on a budget. And that is only one reason why greenhouse visits are so worthwhile. I learn from every greenhouse visit I make, in the main, that my way of doing things is not the penultimate in orchidology. It is often quite easy to find something wrong or not up to scratch. Such findings are no less instructive than novel ideas. I usually find myself engrossed in an interesting conversation in no time at all.

Visits to other greenhouses also give one a better insight as to the scale and expectation that the owners have. Most commercial—and many hobbyist growers—are willing to do 'only so much'. Some people have an attitude of 'anything that doesn't survive the conditions that I supply . . . too bad'. Others have given up on certain genera because they are too demanding for the conditions that prevail in their setup. It behoves all visitors to respect such trends although that may be difficult at times.



Cogito's cool house Photo: B. Fransen



Inside the author's cool house.
Photo: Bill Fransen

So what's the point of bringing up the subject of greenhouse visits? In my humble opinion we can't socialize enough and we can't look at each other too hard. It is to our mutual benefit in many ways. When I walk into a friend's greenhouse and notice that he applies twice as much shade as I do (or does he?), that sets me thinking. I notice that many plants are being grown better than my own equivalents. His flowering may occur earlier or later but is of good quality. Is shade the main reason or are there other factors as well? Some of his dendrobiums **do not** flower as well as mine. Perhaps that is because of too much shade. All the same, his softcane dendrobies flower extremely well every year. Does he move them into brighter light at some stage? His plants are kept dryer than mine, I wonder . . . etc. If an exercise like that does not benefit everybody, perhaps they should be growing cabbages.

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REPOTTING FREQUENCIES

Question — How often do you re-pot your plants?

Answer — As often as necessary!

Some time ago I was admiring my *Den. margaritaceum*. It was coming into flower again. Dozens of nice buds were forming and the plant had also grown seven fleshy new shoots. When the first flowers started to open, some buds began to yellow and abort while the leaves on most canes began to turn yellowish as well. In short, the flowering this time was a total disaster. I removed all buds and flowers but the canes

started to dry out and show considerable ribbing. When asking myself why all this was happening I came to the conclusion that re-basketing should have been done more than a year ago. I had been very sparing with feeding.

When removing the plant from its basket I found it to be practically devoid of roots. This was not that surprising as it was over three years since it was last re-potted. Worse still, it was also one of the last plants to be embedded in sphagnum moss. I had forgotten about that fact. The plant now sits in conditioned 15-18mm bark which has had an extra good soak and a wash. I suspect that most orchid roots don't like contact with relatively fresh lime, dendrobiums in particular.

The plant was placed in a basket in the first place because I realised that the roots needed to dry out between waterings and needed airy conditions at all times.

This episode again brought home the need to be on guard, all the time. It is very easy to overlook the need to re-pot. Some plants go into a decline much quicker than others when that point is reached. Plants that are in coarse bark and that are allowed to dry out between waterings will last longer without re-potting than those in sphagnum moss or fine bark and not allowed to dry. The latter should be repotted in 6 - 12 months. Those in baskets, on mounts, wood, bark or punga will last longer. You have been alerted! ◀



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MERICLONES

Mericloning is a sophisticated laboratory method of inducing small sections of a parent plant to reproduce themselves vegetatively. In theory, there is no limit to the number of new plants which can be reproduced this way, and all such new plants should be identical. In practice, there are limitations on reproductive capacity, and variations can occur amongst mericlones, apparently by way of mutations occurring during the cloning process. Recently I came across a comment by W. W. G Moir, the famous orchid hybridiser in Hawaii, who put some figures on the rate of variation, which I found quite surprising.

Quoting from his own experience, he claimed that about 75% of mericlone propagations had flowers virtually identical with those of the parent plant, except for some minor differences in lip patterns and spotting; about 10% turn out better than the original; and suggested that the balance—15% can turn out strange colour segregations that make them markedly different, and by implication, undesirably so. In other words, one quarter of mericlone propagations will be significantly different from the original—some better, some worse, in roughly equal proportions.

*What is a mericlone?
John Addison discusses
this in these notes from
The Wellington Orchid
Society.*

His comments may be restricted to the oncidium alliance, although he did not say so; what he *did* say was that as a result, any award given to the parent plant should not be carried forward to mericlone propagations of it, because of the high degree of variation. He pointed out that there are some benefits in these genetic accidents; not only

are some clones better than the original, but cloning produces plants that are more tolerant of local conditions than the parent. Thus cloning successive generations of cool-growing odonts in Hawaii produces plants that will happily flower there, where it is supposedly too warm. Perhaps we should start a cloning programme for phallies which will grow in an unheated glasshouse in Wellington.

Has anyone got any statistics on the variation in mericloned cymbidiums in New Zealand? Or any other data which might confirm Moir's figures.

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A MINI-GREENHOUSE

WHAT DO YOU DO with your orchid collection when your humble abode is about 750 square feet on a section not much bigger?

Why, you build an orchid house of course. How big an orchid house was the next question. Thinking the problem over we decided a 'Walk In' structure was not the answer. What we needed was an orchid house with removable wall and roof panels so we could reach into the middle from at least two of the four sides.

The solution. A greenhouse come shadehouse measuring 2 x 1 metres x 1.5 metres high. We used 75 x 50mm timber for the base which looks like a digital figure '8', and stapled 25mm square galvanized wire mesh on top.

With 50 x 50mm timber we built the basic struc-

ture; 1 metre high walls with an 0.5 metre gable roof on top. Around the bottom of the framework we fixed plywood 250mm high. This gives some wind protection for the pots when some of the side panels are removed, as well as giving some structural strength.

The panel frames are made of 25 x 25mm timber with small triangles of plywood in each corner for support. Each panel was cross braced for added strength. There is one for each end, and 2 for each side, a triangular panel for each gable end and two long panels for the roof.

Tim and Anne Funnell deemed themselves as being fortunate in having been given an orchid. But having one invariably meant they wanted more. Therein lies the problem.



Our mini-greenhouse with all panels in place.
Photo: T. Funnell

The panel frames were covered in an opaque plastic. We mixed marix thermal but will use something a little thicker when it comes time to replace it. Black plastic strapping was fixed around the edge of each panel as a rub strip.

The orchid house sits 50mm off the ground allowing an airflow underneath. In summer we remove the two roof panels and replace them with shadecloth. The shadecloth is held down with velcro fasteners. Yes, it works. Just staple one piece to the frame and

stitch the other piece to the shadecloth. Sitting on the west side of our flat the orchid house gets sunlight from about 11 a.m. to sunset even in winter.

Just recently we put the roof panels back on for the winter. We do not have heating but the orchids don't seem to mind too much, but ventilation is required during the day, even for the winter. We got as high as 36° inside the orchid house on a recent cool day. We control ventilation by removing a gable vent, but if temper-

atures go too high some side panels come off.

Our orchid collection consists mainly of miniature cymbidiums in 2 litre square pots but we do have other genera. The orchid house holds ten to twelve pots on the floor (depending on the size of the plant) and four baskets hanging from the roof.

Our reward was the satisfaction of doing the building ourselves as well as seeing healthy plants with lots of flower spikes on the way. ◀

*804 Dufferin Street
Hastings*



The greenhouse panels are removable for access and ventilation.
Photo: T. Funnell

SANDER'S LIST

ONE OF THE notable features of orchids is the relative ease with which they cross both interspecifically (between two species of the same genus) and even intergenerically (between two species of different genera). As a result of various chemical and physical barriers¹, natural hybrids are rare but not unknown.

Man-made hybrids, however, are commonplace. Orchid hybridizing began in 1853², when John Dominy crossed *Calanthe furcata* with *C. masuca* to form *C. Dominyi*. In 1863 he made the first bigeneric hybrid, *Laeliocattleya Exoniensis* by crossing *C. mossiae* with *L. crispa*. Since that time, literally hundreds of thousands of crosses have been registered and presumably hundreds of thousands more made but not registered. W. W. G. Moir, for example, up to 1976, had made over 32,000 crosses and registered about 870 of them³.

It is obvious that some accurate recording device is needed for orchid crosses, if chaos is to be avoided. In 1946 the firm Sanders (St. Albans) Ltd., England, published a comprehensive list of all orchid hybrids that had been registered up to that time, under the title *Sanders' Complete List of Orchid Hybrids*. This work of compiling orchid crosses, started by Mr Frederick K. Sander (the 'Orchid King'), was carried on by the Sander family until 1960 when the task of registering and re-

John Haywood-Farmer introduces these important reference books.

From The Wellington Orchid Society Journal.

CORDING was taken over by the Royal Horticultural Society². The original Sander's list has been updated by addenda covering the 1946-1960, 1961-1970, 1971-1975, 1975-1980, and 1980-1985 periods. More will undoubtedly be forthcoming. Lists of newly registered crosses and corrections are published monthly in *Orchid Review* and reprinted in the *American Orchid Society Bulletin*.

How To Use The Lists

Sander's list and its addenda allow one to trace an orchid plant back to the species from which it was made and to determine whether it has been used as a parent or not. To illustrate the use of the lists we will determine the breeding and genetic composition and construct a family tree of one of my hybrids, *On-*

cidium Thelma Beaumont x *Onc.* Royal Purple.

Start with the most recent list. Each volume (except the 1946-1960 addendum) lists the genera in strict alphabetical order with the species and crosses in alphabetical order under the respective genus. The genera in the 1946-60 addendum are divided between the two volumes but not alphabetically. *Onc.* Thelma Beaumont is found on page 258 of the 1971-1975 addendum. It was registered in 1972 by W. W. G. Moir as a cross between *Onc.* Savanna La Mar and *Onc.* Stanley Smith. Similarly *Onc.* Royal Purple is listed on page 256 as a cross between *Onc. pulchellum* and *Onc.* Port Antonio registered, also by Moir, in 1973. The listing for *Onc.* Royal Purple indicates that it was crossed with *Onc. pulchellum* to form *Onc.* Roselle—but that is a digression from our discussion.

So far we have completed one level of the family tree. The next step is to look up the four names in the second level, *Onc.* Savanna La Mar (page 257), *Onc.* Stanley Smith (page 257), *Onc.* Port Antonio (page

255), and *Onc. pulchellum* (page 255). The first three are themselves hybrids, *Onc. pulchellum* is a species. Repetition of the process for all the crosses and species leads to the complete family tree shown in Fig. 1.

This plant is composed of genetic material from four species. *Onc. triquetrum*, *urophyllum*, *pulchellum* and *henekenii*. The cross itself is unnamed but probably will be in the next addendum. It is remarkable in that all the crosses were registered by one grower, W. W. G. Moir of Hawaii, and that

each of the nine crosses is listed in one addendum. Even though the breeding of this plant goes back to 1957, all the crosses in its makeup were used as parents of plants registered during the 1971-1975 period and so are listed in this addendum.

What Portion of Each Species is in the Crosses

Assign a number (always a power of 2 : 2, 4, 8, 16, 32, 64, 128, 256, 512 etc.) to the species in the cross. Because there are five levels (generations) in this case we will assign the number 32 and work everything out in 32nds. The species are all 32/32 pure. The primary hybrid *Onc. Golden Glow* is 16/32 *Onc. triquetrum* and 16/32 *Onc. urophyllum* and *Onc. Red Belt* is 24/32 *Onc. triquetrum* (8/32 from *Onc. Golden Glow* and 16/32 from *Onc. triquetrum*) and 8/32 *Onc. urophyllum*. Applying the same procedure to all other branches in the family tree gives the cross as : 8/32 *Onc. triquetrum*, 2/32 *Onc. urophyllum*, 20/32 *Onc. pulchellum* and 2/32 *Onc. henekenii*. These fractions can be reduced to 16ths or calculated as percentages.

<i>Onc. Thelma Beaumont</i> x <i>Onc. Royal Purple</i> =				
<i>Onc. triquetrum</i>	8/32	=	4/16	= 25%
<i>Onc. urophyllum</i>	2/32	=	1/16	= 6.25%
<i>Onc. pulchellum</i>	20/32	=	10/16	= 62.5%
<i>Onc. henekenii</i>	2/32	=	1/16	= 6.25%

The total for any in this cross must be 32/32; if it isn't you have made a mistake. If you encounter odd numbers and can't divide by 2, simply double *everything* in this case to 64ths.

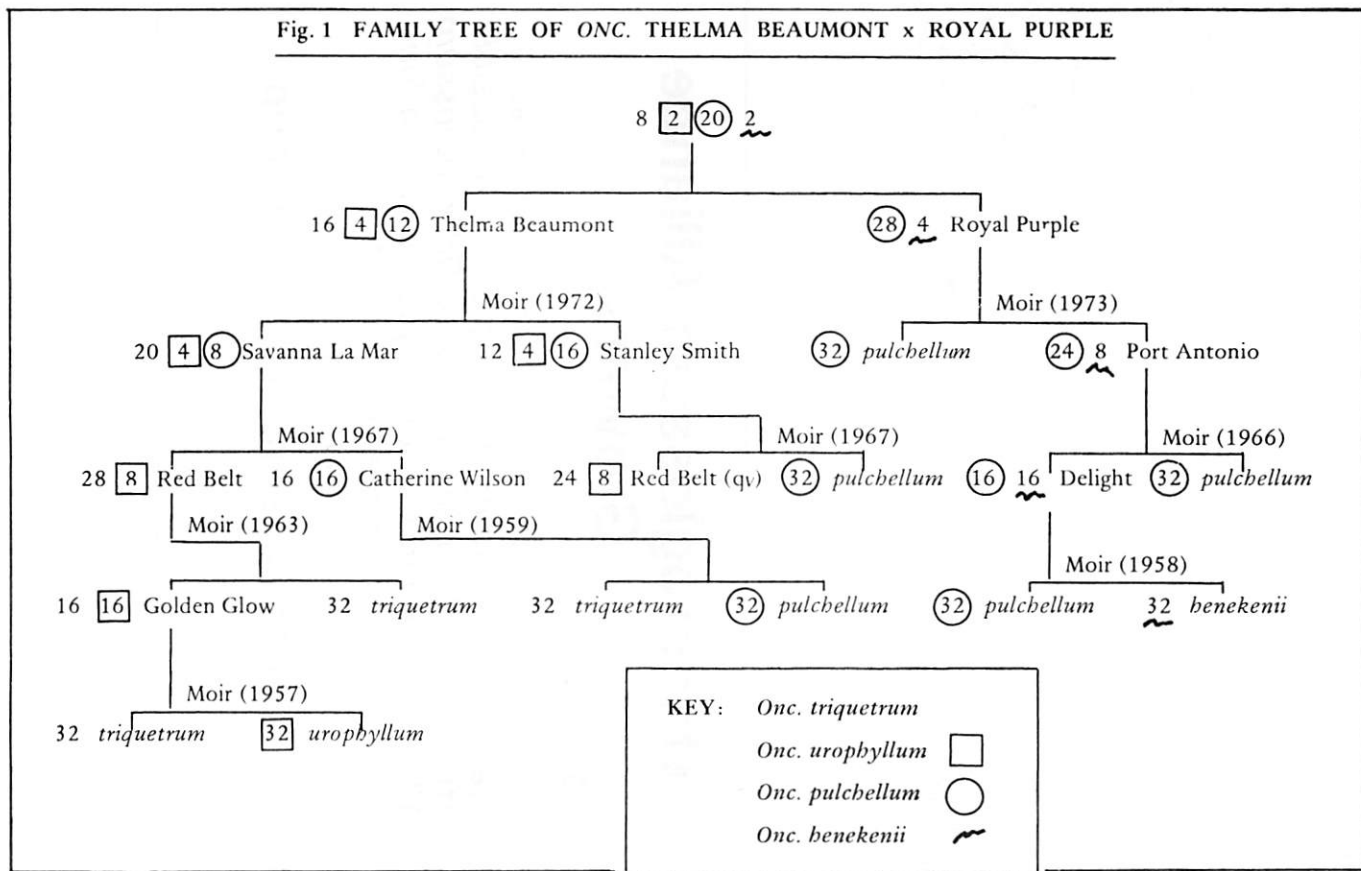
What If I Can't Find A Cross Listed?

If you can't find a cross listed in the latest addendum check it in the preceding addenda or in the recent issues of *Orchid Review* or the *American Orchid Society Bulletin*. This latter can be a lengthy task; five years of each periodical has 60 or so lists of hybrids—one of the reasons for Sander's addenda. If it isn't there it probably has not yet been registered (as was the case for *Onc. Thelma Beaumont*

x *Onc. Royal Purple* up to 1975) or possibly an error has been made. Labelling, spelling and registration errors are not unknown. Examples are the well-known parent *Cattleya Colworth* which has never been registered and whose parentage is unknown. Plants whose flowers are totally unlike the expected ones⁴, and the 1938 and 1947 registrations of *Onc. Nona*⁵ — the same name for two quite different plants (subsequently corrected).

Why Should I Use Sander's Lists?

There are several answers to this question. Our sales tables often have un-bloomed crosses and the lists can help you determine what the flowers might look like (in conjunction with a reference work like Hawkes⁶). Similarly parentage can give clues to good culture. Finally, it is fun and educational to find out the make-up of your plants and to find out when and by whom they were registered. Many of our

Fig. 1 FAMILY TREE OF *ONC.* THELMA BEAUMONT x ROYAL PURPLE

crosses have the same five or six species in them. During my very limited experience with Sander's lists I have noted the popularity of odontoglossums in the first quarter of this century and the increased popularity of oncidiums in the last 25 years. Also notable is the 42 year gap in the family tree of *Dendrobium* Yukidaruma and the great age of many of our hybrids—many of the crosses were registered in the 19th century. On this point it is

important to note that remakes of crosses are not registered so even if your plant breeding goes back a long way, your particular plant might be relatively young. Varietal names are rarely mentioned and a cross once registered retains its name for ever.

Genealogy is a fascinating subject. Many libraries have The Sander's lists (complete) and the recent *Orchid Reviews*. Borrow them to study your plants and see what tales they tell. ◀

References:

1. See e.g. C. H. Dodson and L. van der Pijl, *Orchid Flowers: Their Pollination and Evolution*, U. Miami Press, Coral Gables, Florida, 1967; A. Beu, *Well. Orch. Soc. J.*, 4, 41 (1980).
2. R. T. Nother, *Home Orchid Growing*, 3rd ed. Van Nostrand Reinhold, New York, 1970, Chapter 8.
3. Norwood K. Schaffer 'Interview with W. W. Goodale Moir', *Orchid Digest*, May-June 1977
4. F. Askin, private communication.
5. *Sander's Complete List of Orchid Hybrids*, Sanders (St. Albans) Ltd., 1946, p. 239, 1961, p. 572 and corrigenda.
6. A. D. Hawkes, 1965, *Encyclopaedia of Cultivated Orchids*.

Odontoglossum Alliance Growers

Attention:

Keen growers of the odontoglossum alliance interested in forming a N.Z. group and possibly affiliating with the international Odontoglossum Alliance based in California, please send a long stamped addressed envelope for further information to:--

Odontoglossum Alliance Group

C/- Ron Maunder, P.O. Box 2107
Tauranga

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1. Blackened tips on leaf ends—this could be caused by:
 - a. Overfeeding, especially in cymbidiums—cease fertilising and flush plant with plain water.
 - b. Excessive soluble minerals in water—have water analysed.
 - c. Leaf die-back—a fungal infection, cut off blackened area and treat with fungicide.
2. Brown or black streaking or mottling on leaves—this could be a virus infection—destroy plant or isolate.
3. Small spots on leaves, reddish brown turning black—probably a fungus infection favoured by warmth, high humidity and poor light—reduce humidity or dry off infected plants and treat with fungicide. ◀

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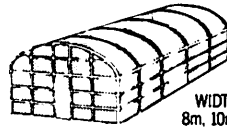
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Diary Dates 1990

May

Saturday 5th. Sunday 6th
SOCIETY: Capital City Orchid Society
VENUE: Evans Bay Intermediate School
ADDRESS: Kemp Street, Kilbirnie, Wellington
CONTACT: P.O. Box 3839, Wellington

June

Friday 8th Saturday 9th Sunday 10th
SOCIETY: North Shore Orchid Society
VENUE: Recreation Hall
ADDRESS: Bute Road, Browns Bay, Auckland
CONTACT: Secretary P.O. Box 33-493 Auckland

Saturday 15th Sunday 16th
SOCIETY: Howick Orchid Society
VENUE: All Saints' Church Hall
ADDRESS: Cook Street, Howick
CONTACT: Mr E. Pickering, 28A Churchill Road, Howick. Phone 537-1343

July

Friday 6th Saturday 7th Sunday 8th
SOCIETY: New Zealand Orchid Society
Winter Show
VENUE: Mt. Albert Memorial Hall,
 Mt. Albert.

Saturday 14th 10.00 to 5.00
 Sunday 15th 10.00 to 4.00
SOCIETY: Taranaki Orchid Society
VENUE: St Johns Ambulance Hall
ADDRESS: St Aubyn Street, New Plymouth
CONTACT: P.O. Box 635, New Plymouth

August

Saturday 3rd. Sunday 4th
SOCIETY: Bay of Islands Orchid Society
VENUE: Union Church Hall

Friday 17th, Saturday 18th, Sunday 19th
SOCIETY: Whangarei Orchid Society
VENUE: Forum North Exhibition Hall
ADDRESS: Rush Avenue, Whangarei

Friday 24th, Saturday 25th, Sunday 26th
SOCIETY: Hawke's Bay Orchid Society
VENUE: Lindesfarne School Hall
ADDRESS: Pakowhai Road, Hastings
CONTACT: Secretary 6 Tiffen Place,
 Greenmeadows

September

Monday 10th Show opens
 Sunday 16th Show closes
 Conference runs 5th — 17th September
SOCIETY: 13th World Orchid Conference
VENUE: New Zealand Exposition Centre
ADDRESS: Green Lane Raod, Auckland
CONTACT: Registration-P.O. Box 12-442 Auckland

Saturday 29th, Sunday 30th
SOCIETY: Canterbury Orchid Society

Orchid Stamps



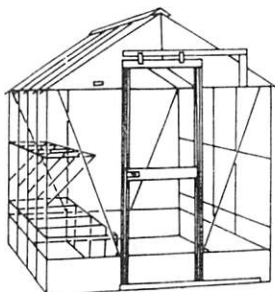
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