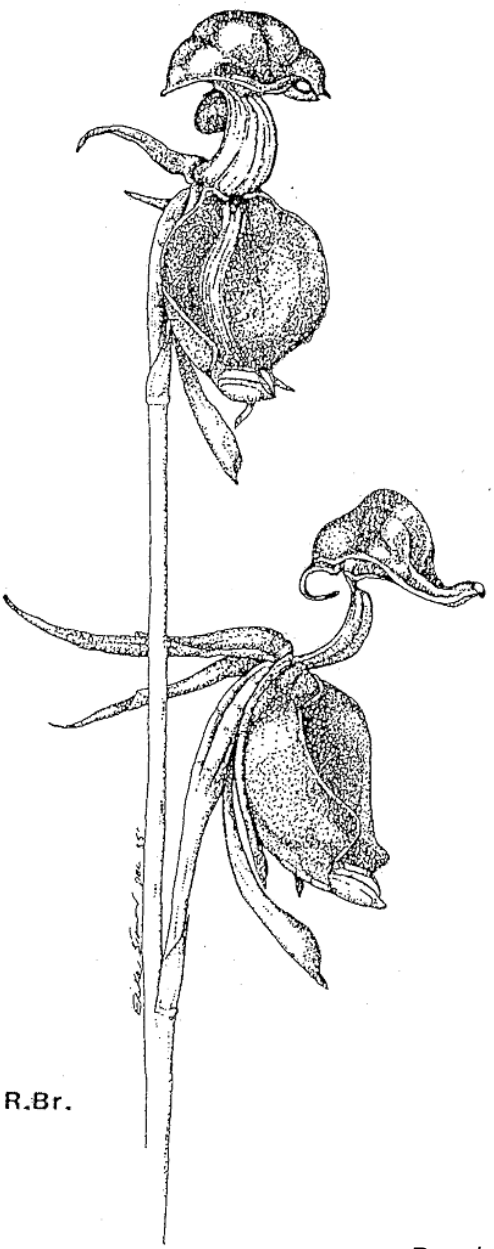
# NATIVE ORCHID SOCIETY

# of

# SOUTH AUSTRALIA INC.

JOURNAL



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# NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA INC.

THE NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA PROMOTES THE CONSERVATION OF NATIVE ORCHIDS THROUGH CULTIVATION OF NATIVE ORCHIDS, THROUGH PRESERVATION OF NATURALLY-OCCURRING ORCHID PLANTS AND NATURAL HABITAT.

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NEXT MEETING TUESDAY 28 July, 1987 at 8.00 p.m.
St Matthews Hall, Bridge Street, Kensington

SPEAKER
Mr John Hunwick will speak on Conservation

LAST MEETING Les Nesbitt addressed the meeting on the basics of successful terrestrial orchid culture. For a summary see page 57.

HELP TABLE
1. A pair of *Pterostylis vittata* plants which are always diminutive in stature, whose flowers rarely ever open and whose upper leaves are forked were diagnosed as being infected by a virus

2. A pot containing several different genera of orchids rescued from a building block in the Kuitpo area were presented for identification. Several were confidently identified to species level, the remainder were resolved to 'either ' or' status.

3. A different slant was presented by Roy Hargreaves who demonstrated how he planted numerous spare *Pterostylis* X *toveyana* tubers in large foam containers thereby assuring accelerated vegetative reproduction to provide tubers for the tuber bank. Members were encouraged to consider helping in a similar manner where possible.

PLANTS ON DISPLAY / JUNE MEETING
TERRESTRIALS
*Acianthus fornicatus*, *A. exsertus* (green form), *Caladenia alba, Corybas pruinosus, Diuris maculata, Pterostylis* aff. *alata, P. dolichochilus, P. longifolia, P. scabra, P. robusta, P. rogersii, P. russellii.*

EPIPHYTES
*Dendrobium bigibbum* var. *compactum*, *D.* Blushing Star, *D.* Ellen, *D.* Hilda Poxon, *D.* Kim Heinze, *D.* Pee Wee.

PLANT COMMENTARY
Commentary on terrestrials was provided by Bob Bates who noted that several fine specimen pots of terrestrial orchids were on display. Ron Robjohns commented on the epiphytes noting that as usual, Hilda Poxon, probably the most continuously flowering hybrid, was a prime component in the evening display.

POPULAR VOTE

TERRESTRIAL *Pterostylis dolichochilus* grown by M Fuller
EPIPHYTE *Dendrobium* Kim Heinze grown by R Shooter

JUDGING RESULTS

| | | |
|---|---|---|
| TERRESTRIAL SPECIES | *Pterostylis dolichochilus* | M Fuller |
| TERRESTRIAL HYBRID | *Pterostylis* X tgypyggy | R Hargreaves |
| EPIPHYTE SPECIES | *Dendrobium bigibbum* | L K Nesbitt |
| EPIPHYTE HYBRID | *Dendrobium* Hilda Poxon | L Burgess |

NEW MEMBERS

Mrs. H.J. Engelhardt Mrs. B.J. Brown
Mrs. J. Irvine Mr. I. Kearney

NOSSA at the ROYAL SHOW

NOSSA has been granted an exhibition area at the Royal Adelaide Show during September 4-12. This is a distinct privilege and a wonderful opportunity to show the public what native orchids are and how they can be cultivated, and a chance to advertise NOSSA to the public. We must present a good show. See Kevin Western for details.

JUDGING CLASSES

Les Nesbitt will be conducting two Judging classes at his home on Sat 8th August and Sat. 24th October from 2 to 4 pm. Please contact Les for further details at the next meeting or by phoning 261 1550.

JUST SOME VIEWS AND CONSIDERATIONS by W Walloscheck.

During the course of the June meeting, some speakers made comments which I thought were worthy of further consideration and further comment.

To the best of my recollection they were:-

1. Use of large pots was not necessary since they require larger amounts of medium and the orchids tend to occupy the upper sections only. Smaller pots were considered to be adequate.
2. Black plastic pots absorb more heat and may be cause extra heating of medium and tubers during summer days.
3. Under natural conditions soil under the upper hardened dry crust manages to retain some moisture thus reducing tendency for dehydration of orchid tubers during summer.
4. Some natural litter used on top of soil in pots such as gum nuts and twigs may be a nuisance when repotting.

I accept that the comments were applicable to the specific cases under discussion at the time, but collectively are the very reasons which caused me to choose to use 200mm, black plastic pots with natural gum nut and twig litter on top of the pots. My reasons are as follows:-

Plastic pots do become hot during summer so I use 200mm pots , -firstly so that tubers may be sown further from the outside of the pot thus remaining cooler, and secondly, during the hot weather the surface zone of potting medium dries out and shrinks creating a crust as in natural soils and since I use no crocks the lower soil levels retain moisture, do not dry out so quickly or completely and tubers are not subject to dehydration. Further, I have used 120mm pots under the same environmental conditions and using the same media and have lost tubers because I did not moisten the pot in time. Thirdly, topping of natural litter and gum nuts were chosen originally because they were readily available and had a pleasing appearance on top of the pot. It was not until the end of the first

growing season that I realised that there were further bonuses associated with their use. During repotting, when I tried to remove the gum nuts and twigs from the top of the pots, "prior to tipping the soil into the sieve," I found that the mycorrhizal fungi had been feeding on the topping and that they had anchored the topping to the soil with their strands, thus the topping provided nutrient to the orchids via the fungi. Another point in favour of the topping which had escaped me until a naturalist friend pointed out that "mound ants" as he named them, carry gum nut and twig litter to keep their nests cooler in summer and keep only pebbles on their mounds during winter. Presumably the gum nuts and twigs act as an insulator and further, each particle would assist by providing shade thus contributing to an overall cooler environment. Considering those facts I cannot see any hazards from the use of such topping provided one has time to remove it from the surface prior to de-potting and sifting out the tubers. In writing this article I realise that the points made by each speaker were applicable to their respective situations of environment medium and cultural conditions. By the same token, the variations in those aspects, under my own conditions seem to provide a significant advantage. I hope some of the above considerations are contentious enough to stimulate some other member(s) to put their views to print also.

TUBER BANK APOLOGY by W Walloscheck

It has been brought to my attention that some of the tubers supplied from the tuber bank have not been true to label. For this misfortune I can only apologise but I can assure members that every care is taken to assure that tubers were labelled as identified by their respective donors. Unfortunately it is often very difficult to recognise and detect incorrectly identified tubers or to verify orchid species in their tuber state especially if we are not familiar with the species or hybrid involved.

*Corybas despectans* in South Australia: Really Two Species

Despite being a common and wide-spread species, *Corybas despectans* D.L. Jones and R. Nash, the coastal helmet orchid was not named until 1976, at which time it was considered to be endemic to South Australia. Since then it has been recorded as widespread along the coast of Western Australia (Hoffmann and Brown 1984) and extending to Portland Victoria. Some authors (ie Van Royen 1983) have even recorded it as growing on coastal N.S.W. (probably erroneously).

For some time it has been realised that there are both self pollinated and insect pollinated forms of the coastal helmet orchid (Bates 1983). Studies in the field during 1983 and 1985 show however that what we have is probably not one but two species.

Certainly at their extremes they are very distinct. *C. despectans* itself (the type form), is very depauperate (the flowers facing into the leaf), the labellum somewhat tubular and never expanding much, a dull purplish colour, the dorsal sepal being only 2 to 3 mm wide. The flowers are short-lived and self-pollinating.

At the other extreme is a coastal helmet orchid with flowers twice the size of *C. despectans*, the labellum is flared out widely, not facing into the leaf, contrasting crystalline white and purplish, the dorsal sepal up to 9 mm broad forming a neat hood over the flower which is not self-pollinated. Although this plant favours a more protected site (ie the inland side of coastal dunes)

it can be found growing with *C. despectans* even to the extent of overlapping colonies, the two retaining their distinctive appearances, with the larger form keeping its flowers open after those of *C. despectans* have withered.

Don Voigt showed me a colony of the "new species" in Esperance in September 1981 and Ron Heberle showed me a colourful form of the same near Albany, in September 1984. As in South Australia however the self-pollinated *C. despectans* is more common and widespread. The new species has been collected in South Australia from the Southern tips of Eyre and York Peninsulas and on Kangaroo Island; it probably also occurs in the South East. Of interest was the discovery of several pure green flowered colonies of *C. despectans* in Innes Conservation Park and large colonies in the Barossa Valley (from Sandy Creek Conservation Park to Nuriootpa).

David Jones who is presently collating *Corybas* for Australian Flora also believes that at least two species are involved in what has been labelled *C. despectans*.

Are there other helmet orchids in South Australia either not collected or not recognised? I believe there are!

Bob Bates

References:
Bates R.(1983) *Corybas despectans* an undersized orchid much overlooked" Journal N.O.S.S.A. 7:16
Brown A. and Hoffmann N. (1984) "Orchids of South Western Australia"
Van Royen (1983) "*Corybas*" (A Worldwide Review)

Conservation of Orchids; Real versus Perceived by Bob Bates

Recently there has been tremendous interest in the so-called 'endangered species'. Any plant 'lucky' enough to be on this list will be intensively studied and all its known locations mapped. Large sums of money are invested in buying up the sites of these populations and fencing them off. This is seen as conservation but there are many flaws in this approach.

(1) The current estimate suggests that only 50% of endangered orchid species are named. As only 50% are named the other 50% receive no protection at all.

(2) Fencing of the small areas where the recorded endangered species are known to grow usually means that either the site becomes overgrown due to lack of grazing or such a vestige of scrub becomes the home of every last kangaroo in the district. In either case the effect is detrimental to orchids. Fencing-off populations also makes them more obvious to unscrupulous collectors. I have seen the results of this within the fenced-off area all orchids are gone within a few years (although often they have increased in numbers outside the reserve).

(3) Mapping of endangered populations often leads to their locations being made public. As a part of the Study numerous visitors will be trampling around, photographing, taking collections and shifting plants. Such a Study will possibly come up with a sensible 'management plan', but what usually happens is that no-one is appointed to carry-out the suggested management plan no money is available the person doing the work is not a 'naturalist' and has no intuition for what is right. In any case even if everything is done properly the population may still not be visible due to:-

(a) its small size

(b) loss of pollinators
(c) the 'island effect', whereby isolated populations are prone to loss by catastrophe. What usually happens however is that the suggested management plan is way off mark anyway!

(4) Finally the concept of channelling money and energy into protecting specific populations of single species is just not logical. What we really need to 'protect' is our total environment. What needs to be conserved is the largest 'gene pool' of plants and animals possible. I have seen 'conservationists' celebrating the fencing of a small swamp, while nearby 1000 hectares of diverse habitat is bulldozed. A rare orchid saved while genetic diversity is reduced all around does not make good sense.

In South Australia numerous conservation parks are set up (all containing identical habitats) while nearby a dozen different vegetative types not represented in any park are destroyed. In our state at present, real conservation has taken the form of a passive approach, namely that of preventing further land clearance. An active approach would be far more practical, namely revegetating and re-afforestation. We have the capacity to make our environment far more diverse, far more aesthetic, more exciting and at the same time more productive! There should be sweeping belts of trees and shrubs linking up conservation parks to provide corridors for gene flow and replacement of fauna and flora after natural disasters such as bushfires and drought.

Can cultivation of orchids play a part in conservation? This is a difficult question. With the present state-of-the-art orchid cultivation poses a threat to many orchids.

To take a hypothetical example: a rare spider orchid *Caladenia* species Z exists as a remnant population of 500 plants. A well meaning orchid grower digs up half of these and puts them into pots without knowing anything of their requirements. The potted plants die and the wild population is reduced to a non-viable size. The species is lost.

Another example: a keenly competitive grower has plants of two endangered *Diuris*. He crosses these and the resulting hybrid is to his liking, he keeps it and gives the parent species to less capable growers who promptly lose them. In each such situation conservation would have required that the plants be left in the wild.

In a state as dry as South Australia more thought should be given to the construction of dams, lakes and wetlands (and I do not refer to the muddy holes in overgrazed paddocks). Much of this improved environment might be suitable for the re-introduction of orchid species.

Let us channel our energies into positive approaches and play down the aspects such as orchid 'rescue' digs fencing small patches of native vegetation the concept that a population of any one species is more important than a population of any other species. I would like to see more emphasis placed on conservation within our Society and more articles on Conservation in the Journal. How about it.

*Pterostylis dolichochilus* (June Popular Vote terrestrial) M Fuller

In September 1980, as very new members of NOSSA, we attended a rescue dig organised by Don Wells at Moorlands. Don found the then un-named *Pterostylis*, (which for want of another name I called *P. alata*) and very kindly gave me a small clump. I planted it as received, undisturbed, in soil from the area using

a terracotta pot which would have been well crocked, probably with pieces of limestone (seven years is too long for accurate memory). The plants have increased slowly, only flowering in the last two years. I can claim little credit for culture as the plants are still in the original pot and mix. Remembering their natural habitat I allow the plants to receive the autumn rains then put them under cover with a bright aspect once the winter cold sets in. I also put a fresh topping on the pot in summer using only *Casuarina* (Sheoak) needles. As the mallee soil is alkaline I feel pine needles may be too acidic for the plants. This species of *Pterostylis* has just been named *dolichochilus* which gives no clue to the charm and attraction of these small plants. Truly, I feel the botanists have a lot to answer for!

*Dendrobium* Kim Heinze - (June Popular Vote Epiphyte) by Reg Shooter

That spidery green and brown species, *Dendrobium tetragonum* has certainly made an impact on Australian native orchid hybrids over the years and *D.* Kim Heinze is no exception. It is quite an advanced hybrid having as parents *D.* Blushing Star (*D.* X *suffusum* x *D. tetragonum*) crossed with *D.* Hilda Poxon (*D.* speciosum x *D. tetragonum*), *D.* X *suffusum* being a natural hybrid between *D. kingianum* and *D. gracilicaule*. Therefore we have two infusions of *D. tetragonum* and of *D. speciosum*, *kingianum*, and *gracilicaule.* (Effectively resulting in genetic composition of 50% *tetragonum*, 25% speciosum, 12 5% *kingianum* and 12.5% *gracilicaule* genes.)

On examining the plant in flower we find recognisable contributions from each of the species in its parentage. *D.* speciosum has raised the flower count (there were 12 blooms on the raceme). The diffused colours came from *D.* X *suffusum* and the compact, upright. growth from *D. gracilicaule*. However by far the most dominant influence is from *D. tetragonum*, namely the somewhat square pseudobulbs, the multi-seasonal flowering habit and flower-shape and colour.

The cross was made by David Cannon and registered by him in 1982. I purchased my plant as a seedling from him in 1980. It first flowered for me in 1982 on about the third or fourth growth. This is another desirable trait derived from *D. tetragonum*, the ability to flower on very young plants. It has been flowering almost continually since then except in the very warmest months of the year.

*D.* Kim Heinze is not a large plant. *D. speciosum* does not seem to have influenced it in that direction, in fact although the plant is 7 or 8 years old it is still in a 4 inch pot and I anticipate it will remain so for a further few years.

It is grown in a shade house under 50% shade the year round, watered fairly freely in the growing months of the year - roughly October to April, with very small applications of fertiliser in that time. In the winter months it is kept fairly dry, the compost being kept just damp enough to prevent dehydration of the pseudobulbs.

The roots of this hybrid are fairly fine so the compost I use is a little finer than usual, being about 75% half inch bark and 25% seedling bark.

I can recommend *D.* Kim Heinze as a compact free-flowering native orchid hybrid that is trouble-free and easy to grow. As a post script to this article, I tell a sad story with, hopefully, a happy ending. Following the NOSSA meeting I decided to take the plant along to another orchid meeting. When I arrived at the venue, the movement of the car plus the weight of the flowers had combined to snap the stem off, but who should be at the same meeting? -

Kevin Western! Now we all know that Kevin is always looking for promising parents to hybridise with, so the spike was duly handed over and we await to see what he produces. If *D. tetragonum* lives up to its reputation it will be worth waiting for.

[As a further post script, the flower-stem had a diminutive active growing point which I am attempting to grow in flask. K Western - NOSSA Journal typist]

MASS COLLECTING QE WESTERN AUSTRALIAN ORCHIDS by Ron Heberle.

Re the letter published in the June 1987 NOSSA Journal and the exhibit of the Orchid Society of W.A. at 'Orchids 86' late September 1986.

In common with many others I was perturbed at the quantity of terrestrial orchids displayed. Enquiries have elected the information that the orchids were collected lawfully, with the owners permission from private property, that had been burnt preparatory to ploughing. The intention of the massed orchids was to reflect the super abundance of the more common species and the state of origin. There were some species displayed which may be included in a current taxonomic revision that is reputed to cover 70-80 species including name changes, reinstatements and new species. However very few of these are likely to be considered rare as most have been commonly known for at least 20 years and are quite abundant.

The writer takes the Albany Wildflower Society to task for their Annual Show and its orchid content and suggests that large bunches of orchids are on display. This may have been so 15-20 years ago. Since then just three specimens of cut stems of from 70-80 species are displayed on a tiered stand and have been collected by three members over the three days prior to the show. Each is responsible for collecting particular species thus keeping duplication to the minimum.

All flora displayed is collected legally with the appropriate authority with the emphasis on conservation. The show gives pleasure to thousands of adults and particularly children. Eastern states tourist busses call regularly and the tourists are very appreciative. If there are surplus orchids they are given to these visitors to press and take home as a souvenir of their visit.

There is a continuing conservation spin off from these shows as numerous farmers and their families have been influenced to set aside parts of their virginal bush specifically to conserve native flora and orchids. Advice is given by members of the society as to the selection of the site where the most important flora will be conserved.

In Western Australia there is very little interest in cultivating terrestrials; there is no need, orchids can be seen in their natural habitat in abundance even in the suburbs of Perth. The recently published book ORCHIDS OF WESTERN AUSTRALIA - CULTIVATION AND THEIR NATURAL HISTORY; the W.A. Native Orchid Study and Conservation Group is endeavouring to influence people to become involved.

BASICS OF TERRESTRIAL ORCHID GROWING by Les Nesbitt

POTS:- Should be no smaller than 125mm (5 inch). 225mm (7inch) squat format is recommended. Soil must not dry out during growing season.

SOIL MIX:- Must drain freely yet retain moisture in dry windy weather - I use 40% soil, 45% sand, 15% peat moss plus a pinch of blood and bone.

TOPPING:- Some form of topping is necessary to prevent erosion, it keeps leaves clean and provides a firm foundation for seed germination. I use chopped pine needles. Scrub litter or gravel are used by some other growers.
HOUSING:- Shade cloth 50% on top and sides. Windbreak to pot height. Bench on galvanised pipe to discourage slugs and snails.
FERTILISING:- Don't fertilise caladenias or non-multiplying species - colony types such as *Pterostylis* benefit from weak foliar spray monthly in the early part of the growing season.
WATERING:- Keep soil moist in the growing season (April to October) Water very lightly in summer. Pots should be almost dry.
PESTS:- Watch out for slugs, snails, grubs, aphids, thrip, and spider-mites throughout the growing season.
DISEASES:- Leaf rot - move plants under cover and keep leaves dry. Repot in summer. Virus - Destroy infected plants.
SEED SOWING:- Hand pollinate flowers. Pick pods as they dry out. Store in paper envelopes. Sprinkle seed on top of pot containing adult plants in autumn. Look for seedling leaves in August to September.

COLLECTION OF 50 AUSTRALIAN TERRESTRIAL ORCHIDS

| To Flower | Orchid |
|---|---|
| January | - |
| February | - |
| March | - |
| April | *Pterostylis revoluta* and *coccinea, Eriochilus cucullatus* |
| May | *Acianthus exsertus; Pterostylis abrupta, fischii, obtusa, reflexa, truncata* and *x toveyana* |
| June | *Pterostylis baptistii* (Old form), *ophioglossa, rogersii, scabra* var. *robusta* |
| July | *Acianthus fornicatus, reniformis; Chiloglottis formicifera, Pterostylis concinna, nana, nutans* and Nodding Grace. |
| August | *Diuris maculata; Corybas diemenicus* and *dilatatus, Pterostylis* Cutie |
| September | *Caladenia latifolia, Chiloglottis trapeziformis, Pterostylis pedunculata* x *ingens,* Joseph Arthur, Mary Eleanor, *Thelymitra luteocilium* and *nuda* |
| October | *Diuris aurea, punctata, sulphurea; Pterostylis furcata; Thelymitra aristata* |
| November | *Cryptostylis subulata; Diuris emarginata* and *brevifolia; Microtis unifolia* |
| December | *Spiranthes sinensis* |

FIELD TRIP TO WARREN CONSERVATION PARK by P. Reece 28th June 1987

Warren Conservation Park has been visited several times by NOSSA and has become a favourite park for members due to the unspoilt nature of the bushland and the rugged rocky ridges where orchids thrive. It was a sunny afternoon when 12 people met outside Les Nesbitt's nursery at Kersbrook. With Bob Bates as leader the group drove to Watt's Gully road entrance of Warren Conservation Park. After introducing ourselves we set out northwards along a rocky ridge-top. The last two months, May & June, had seen excellent rainfall in

the Adelaide Hills area and many orchid leaves were appearing from the leaf litter. Bob identified many species from their new leaves alone and was able to inform us of the characteristics which separated one species from another.

Some attractive colonies of *Pterostylis* aff. *alata* were seen in flower on the rocky ridge-tops. As there was insufficient time to take good photographs some members intended to return another day for a relaxed photo session.

A range of habitats were covered including the shaded slopes of a creek bank where the leaves of *Pterostylis curta* and *Pterostylis nutans* in flower-bud, were found; and a ridge where we found a rare colony of *Leporella fimbriata*, with a few open flowers still remaining.

The kangaroos has worn paths up and down the ridge-tops which made walking easy. We came across a clump of bottlebrush, *Callistemon teretifolius* which had found its way south from its usual habitat in the Flinders Ranges.

Everywhere we saw *Pterostylis vittata* in flower and we soon learned to recognise lone plants from their basal leaf rosettes.

The group was surprised to learn that a patch of 'green grass' was really a dense colony of *Thelymitra antennifera* seedlings. Bob (who has cultivated many such seedlings in the past, to the flowering stage) pointed out the red parallel lines that ran up the cylindrical leaf to a height of 10 to 15 mm from the ground he said that a return trip later in Spring would confirm this.

The Park offers many delightful bush settings and warrants further exploration for orchids. Perhaps a full day could be spent walking to the far and of the Park and returning via a number of different routes.

The leader was thanked for his detailed guidance, and I am sure we all learnt a little more about orchids in the bush.

Orchids seen in Warren Conservation Park:- 28th June 1987

In Flower
*Acianthus exsertus*
*Leporella fimbriata*
*Pterostylis* aff. *alata*
*Pterostylis vittata*

In Bud
*Corybas incurvus*
*Pterostylis nana*
*Pterostylisnutans*

In Leaf
*Caladenia menziesii*
*Cal.* aff. *patersonii*
*Corybas diemenicus*
*Cyrtastylis* aff. *reniformis* (late form)
*Diuris maculata*
*Eriochilus cucullatus*
*Glossodia major*
*Pterostylis biseta*
*Pterostylis curta*
*Pterostylis pedunculata*
*Pterostylis plumosa*
*Thelymitra antennifera*
*Thelymitra nuda*

TOTAL 21 species and forms
5 in full flower

PHOTOGRAPHING ORCHIDS by P. Reece

For those orchid enthusiasts who like the challenge of taking close-up shots of their favourite flowers out in the bush, the coming months promise to be a real bonanza due to the excellent rains that have fallen on the Mount Lofty Ranges lately.

With every good season it pays to keep your equipment in good repair and free from dust and grit. The age-old problem of an electronic flash failing to fire 'sometimes', will only waste your film and frustrate your efforts. Get it properly repaired or throw it away.

Close-up photography can be done using a wide range of equipment but the operator will learn more by using the simplest attachments. I started out with a standard SLR, the lens that came with the camera and a set of three extension tubes - of which I used the shortest only. This combination worked well in bright sunlight, but seemed to fail in shady bush or on a cloudy day. An electronic flash solved the problem. It increased the depth of field 2 or 3 times and since the pulse of light only lasted 1/1000 of a second it was able to 'freeze' a flower moving in the breeze.

Shadows play an important role in any good photography, showing up surface textures and the shapes of flower parts, hence they can be used to good advantage. Even the tiniest hair on a Caladenia stem will cast a shadow of its own, thus revealing its presence. A ring-flash however gives a flat field of light and is true front-lighting, there are no shadows, giving a blank face to a flower or an unbroken outline to a *Corybas* or *Pterostylis* (which can be useful).

There are 3 types of lighting ; front, side and backlighting. These are used depending on the effect we require. To obtain side-lighting, with shadow effect, the most effective lighting angle is 60 degrees. With backlighting, where an outline effect is required, the angle can be as large as 110 degrees. The lighting angle is the angle made when a line from the flash unit to the subject intersects the optic axis of the camera lens - the optic axis being the imaginary line from the subject to the centre of the camera lens. I have a manual electronic flash unit (from experience I have found that a thyristor-controlled unit tends to overexpose), which I have mounted on an aluminium arm fixed to the camera body via the same female thread as found on a tripod. With this unit I can adjust the lighting angle, while keeping the flash constant, and maintain the lens aperture at its smallest opening eg. f22 (which means I get maximum depth of field and good definition), thus giving me the advantage of exposure adjustment, allowing the use of various extension tubes and films of different ASA ratings. The camera can then be held and fired with one hand only, leaving the other hand free to hold back bushes, and adjust my subject if necessary. The three extension tubes that I use are 12, 19 and 25 mm long and when used together give a magnification of 1 is to 1 ie. a flower 10 mm across would appear on a colour slide (which is 24 mm x 36 mm) as an image 10 mm across. Detail is sharp enough to show the white hairs on the antennae of the common black house ant (which is only 4 mm long). The lens that came with the camera was a standard f=55 mm lens. The aperture range is f2 to f22.

The easiest way to learn about close-up photography is by one's own experience using manually adjustable equipment where possible. Our orchids are generally small in size, and close-up photographs can help the public really appreciate our bush treasures.

NEXT FIELD TRIP
This Sunday JULY 26th. To Flagstaff Hill Suburban Park. Meet Flagstaff Hill Hotel (car park) at 9.30 a.m.. This is a morning excursion only.