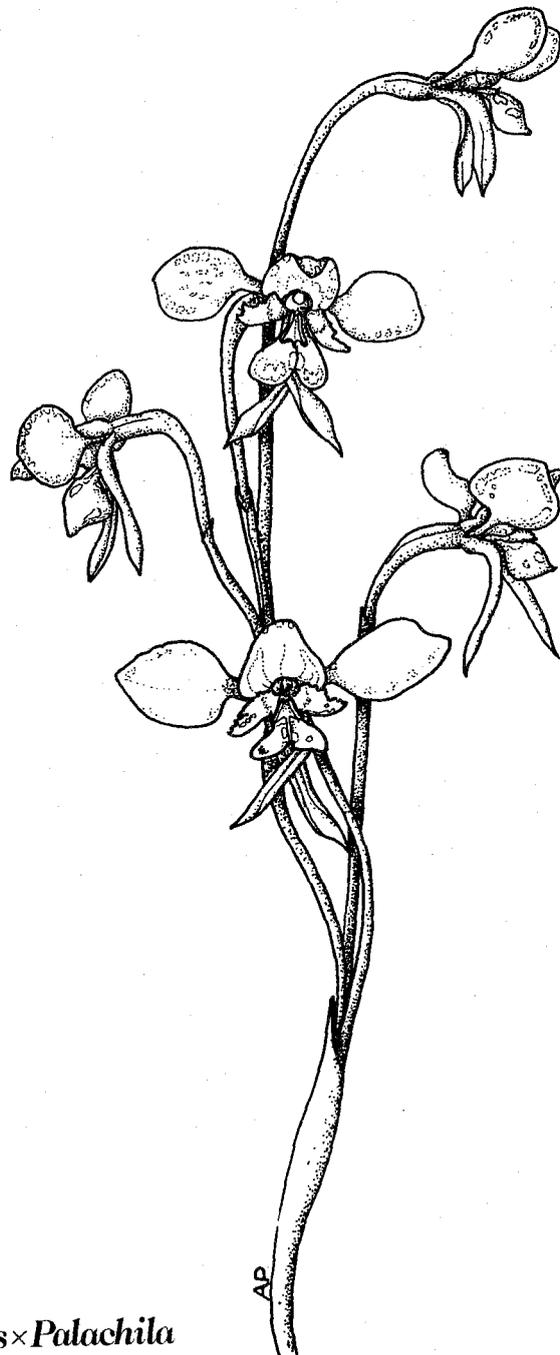


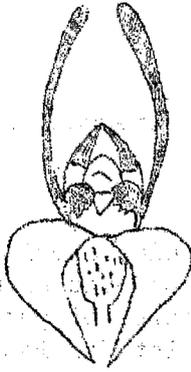
NATIVE ORCHID SOCIETY
of
SOUTH AUSTRALIA
JOURNAL



Diuris × *Palachila*

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NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA

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NEXT MEETING

When: Tuesday, 22 November, 8.00 p.m.

Where: St Matthews Hall, Bridge Street,
Kensington.

Subject: This is our last meeting for 1983.
Members are requested to bring a few of
their interesting slides - we will also have a
potting demonstration. As usual at our November
meeting we have a special supper. Members are
asked to bring a plate please. Coffee, tea and
cordial will be provided.

TRADING TABLE

Due to the strong demand we have decided to
purchase more D. Hilda Poxon seedlings. These
should be available at our next meeting.

NEW MEMBERS

Mr and Mrs R.H. Blight	Mr K. Cahill
Mr and Mrs D.M. Gardner	Mr C.G. Dond
Mrs J. Huxtable	Miss H. Rapp
Mr K.R. Shipway	Mr M.R. Thomas
Mr G.H. Tippins	Miss K. Winkle

LAST MEETING

Our last meeting proved to be very stimulating
to the budding plant breeders amongst us. Dr
David Sparrow started off by telling us plant
breeding has been described as crossing the best

Last Meeting (contd.)

with the best and hoping for the best. David is actually a breeder of barley but many of the principles apply to ornamentals.

Some of the points he touched upon were:

Variation in character is important for plant improvement and recombination of different attributes leading to new varieties is plant breeding.

Sources of Variation

Natural, the range depends on distribution and evolution of a species. Evolution is the response to environmental selection pressure.

Induced mutation - irradiation, mutagenic chemicals treatment. Produce genetic changes affecting height, flower colour and form, etc.

Breeding methods. Life cycle but particularly form of reproduction determines appropriate method.

Self fertilised. All plants of a variety will have a similar homozygous genotype.

Cross fertilised. In nature, the varietal population is a mixture of different heterozygates. Normal cross pollination maintains the mixture.

Vegetative propagation. No genetic change.

Crosses between species provides possibility of unique gene combinations or the transfer of genes - often disease resistance into the species to be improved.

Improvement of a species through breeding on a range of scientific disciplines and a strong genetic base.

Manipulation of single genes - disease resistance - can be quite precise. But selection of the best combination of characters requires in crop plants large scale testing for yield and quality. Objective judgement is backed by the knowledge and experience of the breeder who knows his crop.

Yield can be measured objectively other attributes (flower form and colour are a personal judgement for the breeder.

(This condensed report was written from notes supplied by Dr Sparrow.)

We are indebted to David for his illuminating address and, judging by the number of probing questions asked, it was a resoundingly successful evening.

HISTORY OF SOUTH WESTERN AUSTRALIA'S TERRESTRIAL ORCHIDACEAE R. HeberleJOHN SEPTIMUS ROE, 1797-1878Surveyor and Colonial Explorer, Botanical Collector

John Septimus Roe was another of the original Swan River settlers. As Surveyor General he explored the country throughout the South West region, sending specimens to George Bentham and Sir William Hacker. He was a fellow of the Linnean Society. Ten species of flora, including one terrestrial orchid, were named in his honour.

Caladenia roei Benth., Fl. Austral. (1873).

OUR DISAPPEARING ORCHIDS

R. Bates

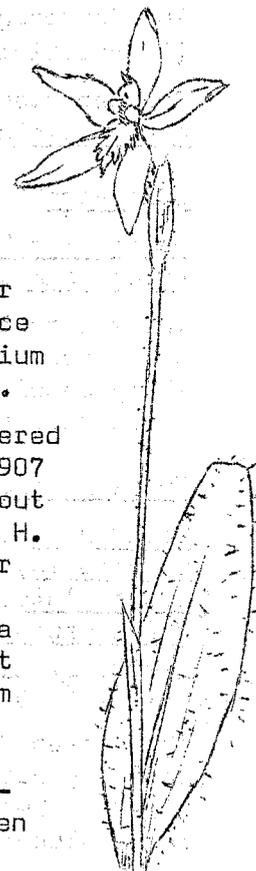
Caladenia latifolia

Back in the late sixties when I first became interested in the native orchids of the Adelaide Hills I was able to find many large colonies of the pastel pink flowered Caladenia latifolia in and near the Hills: in sandy soils at Tea Tree Gully; north of Williamstown; near Ashbourne and at Aldinga Scrub. There were also colonies in rocky places such as Para Wirra, Eden Hills, Mt Crawford and Mt Barker. All these colonies and others have now either disappeared or been reduced to just a handful of plants. This disappearance prompted me to check the collections at the Adelaide Herbarium to see just how widespread C. latifolia was in earlier days.

I found that R.S. Rogers collected both pink and white flowered forms around Blackwood and at the Belair National Park in 1907 and he noted in 1910 that they were common thereabouts. About the same time a Mr Errey collected them at Waterfall Gully, H. Gunter found them at Hope Valley and J.M. Black could gather them "by the armful" in the sand dunes between Brighton and Glenelg and Ernest Ising made collections from Dinglebedinga and Jankalilla. Harold Goldsack was able to find them about Coromandel Valley in 1932 and Murray Rohrlach collected them near McLaren Vale in 1967. Altogether there were two large folders of some forty collections from the Adelaide area at the Herbarium so they were apparently quite common in a variety of habitats from coastal dunes to narrow gorges and even mountain tops.

Of course some are still there and I have noted three distinct forms - widely expanding pink, delightful white and self-pollinated pink. Do you know of any colonies of C. latifolia in the Adelaide Hills?

(Illustration from H. Goldsack's "Orchids of the National Park and Wild Life Reserves".)

C. latifoliaTUBER BANK 1983

The December Journal will publish a list and details of this season's tubers available to members. To enable this list to be as accurate as possible information of species and numbers members are prepared to donate are requested. Only information is required at present, collection will be arranged next month.

All species are required, even the most common. Tubers are used to supply members, for growing on, raffle prizes, trading table, sales

at shows and swapping with other societies all over Australia. These activities help to raise money for the club's running expenses. No donation is too small, any number will be appreciated.

Contact:

D. Wells
86 Pitman Road
Windsor Gardens. 5087
Phone 261 6030
or at monthly meetings.

ON THE BENCH

The Commentaries were given by G. Nieuwenhoven (epiphytes) and R. Bates (terrestrials).

Popular plants were Sarcochilus hartmannii, grown by Don Wells, and Caladenia dilatata (large Adelaide Hills form), grown by R. Bates.

Epiphytes:

Dendrobium beckleri, D. monophyllum, D. racemosum, D. "Ella Victoria Leaney" (ruppianum x kingianum), Sarcochilus fitzgeraldii and Sarcochilus hartmannii.

There were two pots of this last and the commentator noted that the plant with large leaves and few small flowers had probably been grown in very shady conditions while the other with small leaves and many large flowers would have received plenty of light.

Terrestrials:

Caladenia dilatata (3), C. patersonii, C. hastata (2 flowered), Diuris brevifolia, D. sulphurea, D. brevifolia x D. sulphurea, D. brevifolia x D. pedunculata, D. punctata (3), Caleana major, Monadenia bracteata, Elythranthera brunonis, Mictoris atrata, M. unifolia, Prasophyllum patens, P. gibbosum, Pterostylis boormanii, Pt. biseta, Pt. rufa, Pt. affin gibbosa, Pt. "rufa group species", Thelymitra crinita, T. fuscolutea.

Those seen for the first time were Caladenia hastata (rescued from the ALCOA refinery site Portland), Monadenia bracteata (a South African species naturalised in Western Australia), Prasophyllum gibbosum and Thelymitra crinita (a large blue-flowered species from Western Australia).

Also on display were two flasks of Pterostylis coccinea seedlings grown in symbiotic culture by Kevin Western.

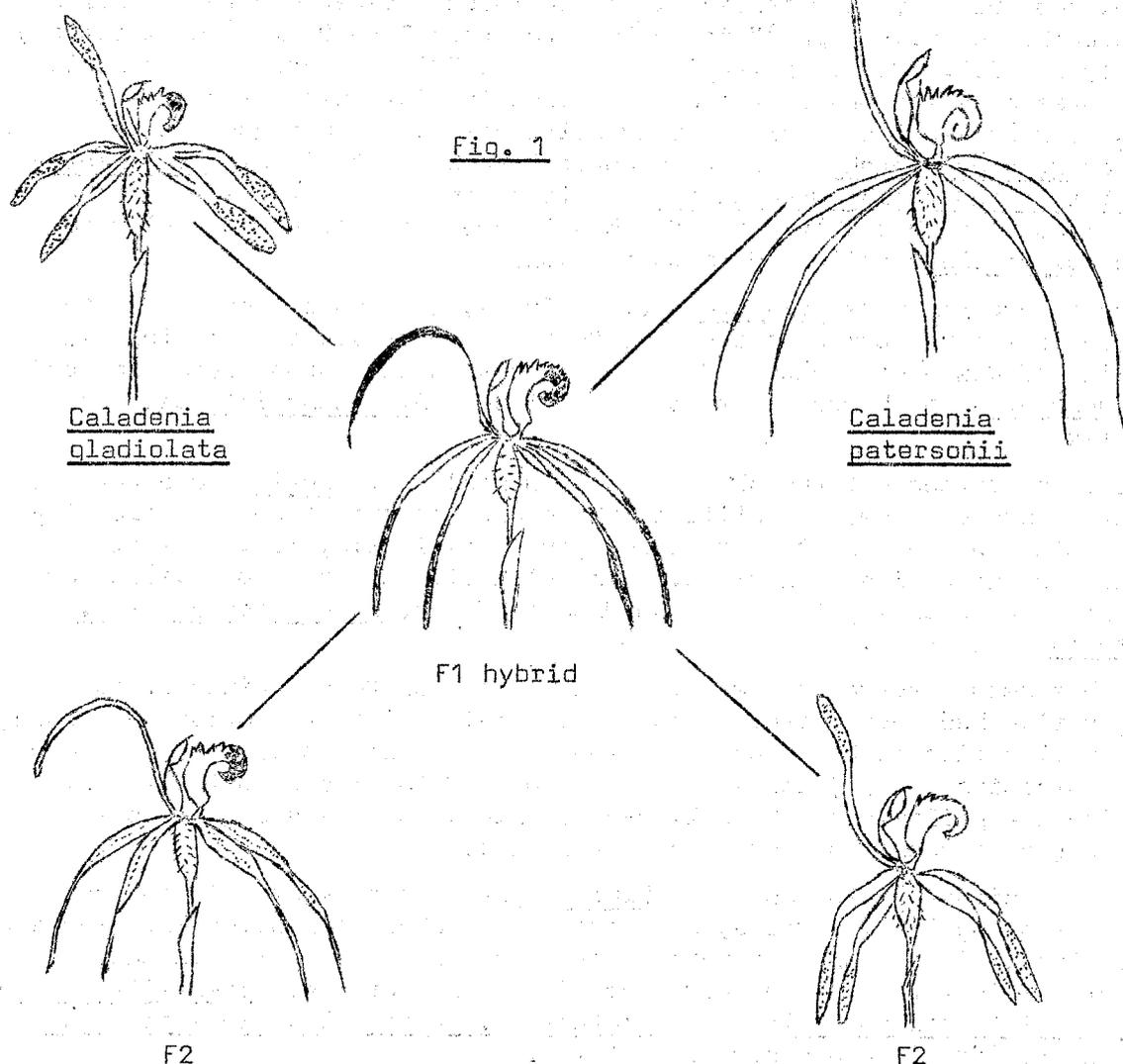
CALADENIA GLADIOLATA x C. PATERSONII: The natural and man-made hybrids compared; variation in the F2 generation. R. Bates

The natural occurrence of C. gladiolata x C. patersonii from near Wilmington in the southern Flinders Ranges has been discussed previously (Bates 1976, 1980). Plants of this hybrid have been grown by the author since 1977, as have plants of the two parent species. Hybrid seed was obtained in September 1977 by transferring pollinia from C. patersonii onto C. gladiolata and also the reverse. Seed was germinated in pots the following year using the method explained in Bates (1979), i.e. by sowing around plants of the parent species. Seed germinated in August 1978 and the hybrid plants were repotted separately in January 1979, i.e. the C. patersonii ♂ x C. gladiolata ♀ in one pot and the C. patersonii ♀ x C. gladiolata ♂ in another.

The man-made hybrids flowered in 1981 and each year since. Plants in each pot showed similar variation and it was noted that they were indistinguishable from the natural hybrid (see Fig. 1.). Flowers had the red and green colouring of C. gladiolata but were paler, the sepals and petals with narrower but darker clubs. C. gladiolata has a powerful perfume but the C. patersonii from the Flinders Ranges does not and none of the hybrids has ever been perfumed.

Caladenia gladiolata x C. patersonii (contd.)F2 Generation

Flowers of the natural hybrid were selfed in September 1977 and the first seedlings were produced in August 1978. These were separated in February 1979 and first flowered in August 1982. Six flowers were produced, all similar to the F1 hybrid. In 1983, however, four additional plants flowered and these were different in that the flowers lacked any red pigmentation and were shorter segmented, more like the C. gladiolata in shape but in colour resembling C. patersonii. There was no actual reversion to either parent and once again no flowers were perfumed.



Material of all forms mentioned has been lodged at the State Herbarium and photographs taken.

References:

- Bates, R., "Mt Remarkable National Park", The Orchadian, 5:77-78 (1976).
 Bates, R., "How I Grow Caladenia patersonii", NOSSA Journal, 3:5-6 (1979).

FIELD TRIP TO BELAIR RECREATION PARK - 17.9.83

R.J. Markwick

Light drizzle on the morning of 17 September had given way to a cool but sunny afternoon by the time 17 people (including one enthusiastic youngster) had gathered at Belair Recreation Park to view two naturally occurring putative orchid hybrids known to grow within its confines.

We did not need to move far from the car park near Old Government House to locate flowers of the first, a putative hybrid between Diuris pedunculata and D. longifolia, with both of the supposed parents flowering nearby. The first record of this plant (known to the author) is attributed to W. Harris in "A New Diuris", appearing in The South Australian Naturalist, March 1955. Here, mention is made of four plants found on 18 September 1954 which undoubtedly were of the same origin as those observed by us. The December 1956 edition of the same journal carried an article entitled "Orchids found in 1954 and 1955" by A. Jeffries, which included a reference to a "Diuris sp. (probably D. polymorpha)" found "not far from Farm Oval" (our location) as early as 1952. Jeffries mentioned the 1954 "discovery", but apparently it was pressed specimens of the plants found in 1952 which were sent to H.M.R. Rupp of New South Wales for identification. Rupp suggested that they could be D. x polymorpha Messmer, however Mark Clements in his Preliminary Checklist of Australian Orchidaceae considers this plant to be a taxon of uncertain status, probably part of a hybrid swarm involving the polymorphic species D. maculata Smith and another taxon.

Messmer's specific name polymorpha (many forms) was chosen because of the great variation in form of the plants found at Mount Victoria in the Blue Mountains of New South Wales. Rupp observed that the larger forms approach D. pedunculata, which would not be surprising if D. pedunculata was the other taxon.

It has been pointed out (notably by David Jones) that Diuris are a very complex group because they are still in the course of evolution. To classify a plant with confidence it must be changing very little, i.e. it must be at or near the end of its evolutionary line with little variation evident because it is genetically fixed. According to Jones, D. pedunculata x D. longifolia is sterile.

Diuris has been observed to be pollinated by two different kinds of fast flying native bee (Hymenoptera) and can be divided into two groups according to the pollination method adopted by the flowers, viz. where nectar (apparently containing a drug) delays the departure of the insect until the glue attaching the pollinia to the pollen-area dries, and where conspicuous markings (are thought to) act as an attractant.

Numerous specimens of the putative Diuris hybrid were located in the more open areas along Jubilee Drive, each exhibiting characteristics intermediate between those of the supposed parents of which many were noted in the immediate vicinity. Other orchids seen flowering here were Thelymitra antennifera, T. luteocilium, Caladenia dilatata, C. leptochila, Glossodia major, Acianthus reniformis and Microtis unifolia.

A little deeper into the Park along Saddle Hill Road, in a totally different environment, we stopped to examine flowers of the second putative hybrid, this time between Pterostylis curta and Pt. pedunculata. Here, in a shaded fern gully, it grows in a single colony surrounded by literally hundreds of each of the supposed parents, and is a classic intermediate retaining the broad and twisted labellum exhibited by Pt. curta.

Field Trip to Belair Recreation Park (contd.)

Bob Bates has been observing this colony for several years, and together with J.Z. Weber of the State Herbarium has published a paper "A Putative Hybrid between Pterostylis curta and Pt. pedunculata (Orchidaceae) from South Australia" in the Journal of the Adelaide Botanic Gardens 6(2):197-200(1983). Here, it is theorised that: "As there is little morphological variation in the hybrid plants and they all grow in one dense colony it is probable that the population derived from a single hybrid ancestor by cloning. The hybrid generally produces 2+3 tubers annually." . . . "None of the putative hybrid plants have yet observed to produce seed."

Bob has observed two species of fungus gnats (Mycetophilid flies) visiting the Pterostylis spp. here. Although both visited the hybrid, neither was seen to transfer pollinia. Owing to constraints imposed by the relative sizes of the insects and the respective flowers, it is possible only for the smaller of the two flies to transfer pollinia from Pt. pedunculata to Pt. curta. Its smaller size would seem to prevent the reverse occurring, while the larger fly is too big to enter the galea of Pt. pedunculata.

Apart from the hybrid, this area is remarkable for the superb Pt. curta growing in uncountable numbers amongst the grass and maidenhair ferns. Pt. nana (wetlands form) was also observed flowering in the same habitat.

To round off the day we proceeded up Melville Gully Road to the flora area where, in addition to plants seen flowering elsewhere, we encountered a single stunted plant of Pt. plumosa with a deformed flower.

To protect the exact location (which is an unfortunate necessity) we will record only that somewhere in the Park we encountered several dozen plants of Pt. cucullata in a small area where it had not been observed before. This occurrence represents an extension to the range of a colony known to lie nearby. For many present, although the hybrids were of undoubted botanical interest, the chance discovery of this very rare taxon was the highlight of the day.

Orchids Seen:In flower

Acianthus reniformis
Caladenia dilatata
C. leptochila
Diuris longifolia
D. maculata
D. pedunculata
D. pedunculata x D.
longifolia
Glossodia major
Microtis unifolia
Pterostylis cucullata
Pt. curta
Pt. nana
Pt. pedunculata
Pt. plumosa
Pt. curta x Pt. pedun-
culata
Thelymitra antennifera
T. luteocilium

Basal leaves

Caladenia menziesii
Microtis unifolia

Seed pods

Acianthus exsertus
Corybas sp.
Diuris maculata
Prasophyllum
Pterostylis longifolia
Pt. nana

Past flowering

Corybas sp.
Eriochilus cucullatus

In bud

Caladenia dilatata
C. leptochila
C. reticulata
Calochilus robertsonii
Glossodia major
Microtis unifolia
Thelymitra antennifera
T. luteocilium
T. nuda
T. pauciflora
T. rubra

SEARCH AND RESCUE - AVENUE RANGE AREA

During the long weekend of the 8th October some dozen or so NOSSA members, plus friends and children travelled down South East to the Avenue Range locality to rescue whatever orchids we could, before goats were turned onto the property.

On the Saturday we met at Avenue, had lunch, then set off a few more kilometres to the 40-acre site. Within two minutes of arriving there wasn't a head to be seen amongst the thick scrub, bracken, mosquitoes, etc., etc., plenty of posteriors, but no heads. This was the "norm" for the rest of the weekend.

In typical Bob Bates fashion, he went through the place like the proverbial Bondi tram, and after about thirty minutes of arriving, reported having located seventeen varieties of orchids. How he does it I don't know. I am not sure of the varieties collected (approximately 20 I believe), but I am sure the Society can be extremely proud of the camaraderie and helpfulness of its members - it's a wonderful asset to have. It was not uncommon to hear a call of "Here's some Thelymitras, or Caladenias, or Pterostylis - does anyone want some?". Even when we arrived back at the Kingston Caravan Park there was a general "Here take some of these" swaps going on.

Our special thanks must go to Don Wells and his charming wife Babs, also our Secretary, Roy Hargreaves. They are incredible. Nothing is too much trouble for them from the naming of orchids for "rookies", giving away tubers, to the arranging of a barbeque on the Sunday night followed by a "movie" slide evening. (The "movie" part was supplied by the evening breeze blowing the "white" sheet screen.)

Altogether an educational, wonderful and enjoyable weekend.

P.S. I must take my mosquito repellent next time.

FOR WHAT IT MAY BE WORTH

K. Western

This article has been written for the sake of passing on some practical experiences which I have gained through experiment, luck or persistence. In it I hope to cover my lighting cabinet in which the flasks of seedlings seem to be thriving and a recent success in germinating seeds of Sarcochilus hartmannii on seven varieties of three basic media formulae.

In my opinion there are three major requirements of a lighting cabinet:

- (1) Sufficient light for growth of plants with the on/off cycle controlled by a 24-hour timer.
- (2) Warmth to provide incentive for plants to grow during our cold winters.
- (3) To avoid overheating by the light source during summer.

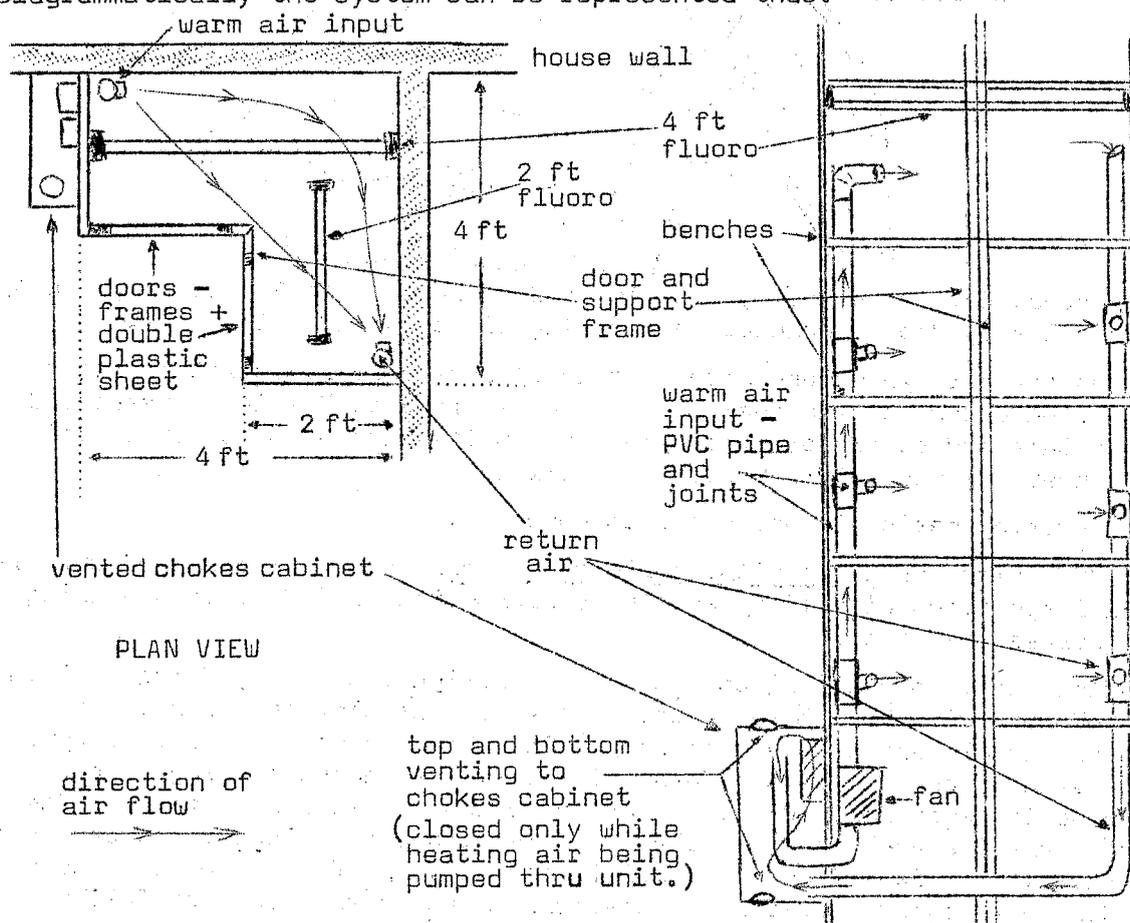
With those considerations in mind, together with a "guesstimate" that I would need about 40-50 square feet of bench area for flasks, I elected to build a cabinet to fit in the corner of a hobby-room within my house and to have it comprise storage space above and below the lighting shelves with four levels of lighting shelves, each of 12 square feet.

For What It May Be Worth (contd.)

The lighting shelves are 380mm (15") apart which, after some height has been lost to structural and mounting timbers plus the depth of the fluorescent lamp housing, the distance from bench top to fluorescent tube is about 230mm (9"). The benches are made of $\frac{1}{2}$ " chipboard painted brown on the top side (to minimise reflection into media and on to the roots - several experienced "flaskers" believe that medium darkened by the addition of about 0.5% charcoal have promoted root growth). The underside of the benches and interior end and back walls have been constructed of veneered and stained chipboard perimeter frames with horizontal centre reinforcement struts and are lined inside and out with clear plastic sheet for insulation.

Each level has 1 x 4ft fluorescent tube and 1 x 2ft fluorescent tube (the benches are "V"-shaped). Each fluorescent lamp housing has the starter intact within, but the chokes have been removed. Reason: they give off quite a lot of heat - instead they have been mounted remote from the lighting benches to prevent overheating of benches and flasks in summer. The remotely mounted chokes are housed in a sub-cabinet on the lower outside end wall of the main cabinet - the heat they generate is ducted into the cabinet during winter and recirculated by a thermostat-controlled fan - (actually one of the wife's old hair dryers without the elements switched on). During summer and in winter, when the light box has reached temperature (72°F or 22-23°C) the fan cuts out, convection is avoided by the plumbing circuit employed and the "choke cabinet" is vented top and bottom to prevent the chokes from overheating.

Diagrammatically the system can be represented thus:

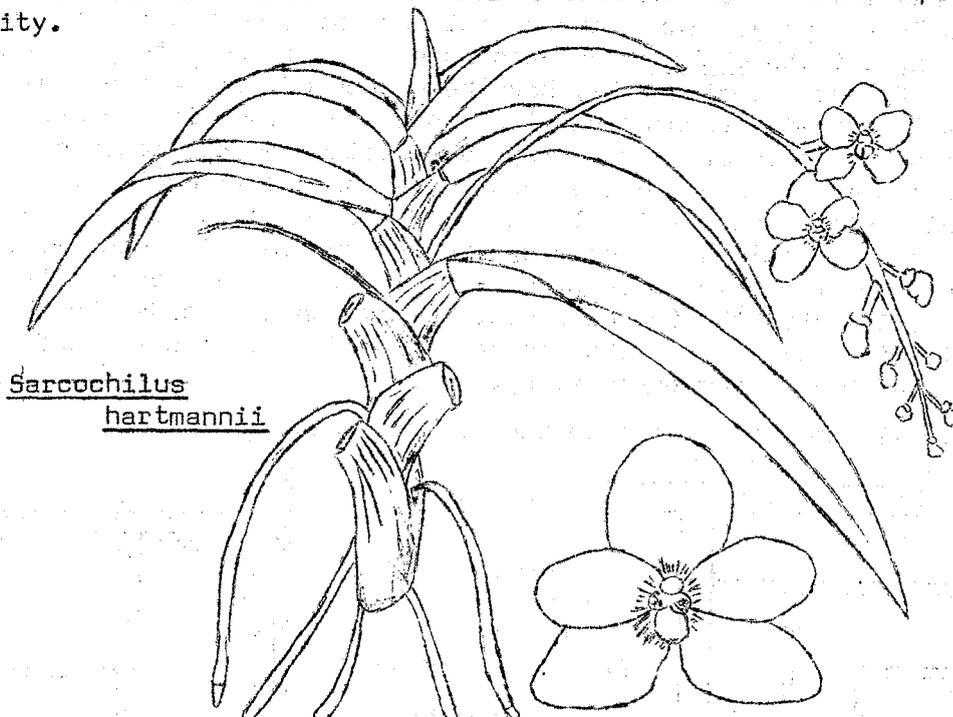


(to be continued in the next journal.)

Sarcochilus hartmannii

This has a range from the Hastings River in north-eastern New South Wales to the McPherson Ranges in southern Queensland, although some authorities extend this to the Atherton Tablelands in northern Queensland.

S. hartmannii is lithophytic and is normally found growing on rocks, sometimes forming large masses but usually in small clumps, however, it occasionally grows on trees. It varies in its habitat from bright sunny positions on cliff faces, above 600 metres, to shady seepages. It must be remembered, however, that this is an area of high summer rainfall and in late summer and autumn has considerable cloud cover with accompanying high humidity.



The leaves, 4 to 9 per stem, from 10 to 20cm long, 1 to 2cm across, are thick, fleshy, deeply channelled and slightly twisted at the base.

X Racemes are 6 to 25cm long with 5 to 25 flowers usually spaced at first then crowded towards the apex. The flowers are 2 to 3cm in diameter and have petals and sepals of glistening pure white with deep maroon or crimson spots near the base, though sometimes all white.

The flowering period is September to November.

In 1979 a clone of Sarcochilus hartmannii "Kerrie" was awarded AM/AOC. It was a large plant with 16 spikes and approximately 320 flowers measuring 31mm across the petals.

It adapts well to cultivation and is not difficult to grow, doing well in a shadehouse with 60-70% shade and a good air circulation. I have it growing and flowering in a plastic pot in a bark, charcoal and polystyrene foam mix and would suggest underpotting rather than overpotting. Good drainage is essential. Other growers recommend shallow baskets or rafts about 8 mm of stag-horn fern fibre as this allows the plant to spread more naturally. It likes to be kept moist (not wet), prefers a humid atmosphere and does not object to regular year-round ($\frac{1}{2}$ strength) doses of foliar fertiliser.