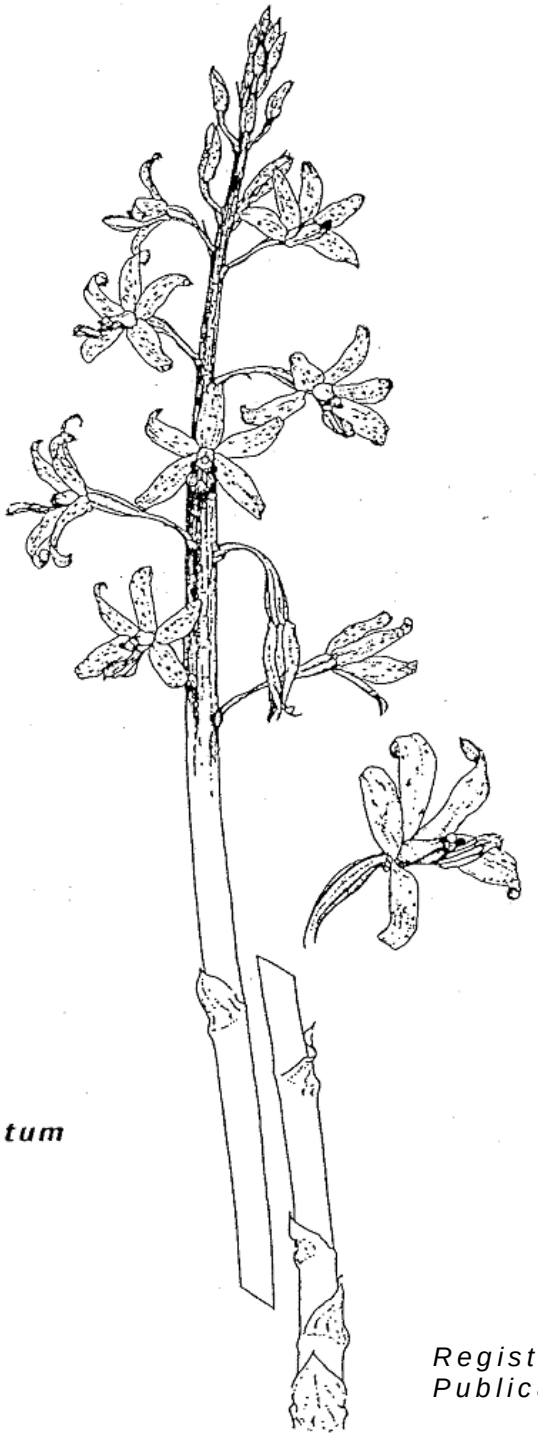
NATIVE ORCHID SOCIETY

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.

EXCEPT WITH DOCUMENTED OFFICIAL REPRESENTATION FROM THE MANAGEMENT COMMITTEE OF THE NATIVE ORCHID SOCIETY OF SOUTH AUSTRALIA, NO PERSON IS AUTHORISED TO REPRESENT THE SOCIETY ON ANY MATTER.

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NEXT MEETING

Tuesday 26 July at 8:00 P.M.; St. Matthews Hall, Bridge Street, Kensington.

Speaker

Margaret Fuller will present Pic-a-Pac, a joint N.O.S.S.A. and Department of Education Project which was designed to promote the conservation of native orchids. Pic-a-Pac comprises slides, overheads and text and is available for purchase. After Margaret's presentation, Les Nesbitt will show slides and talk about his outstanding, terrestrial orchid nursey. A most enjoyable and informative meeting is certain.

FIELD TRIP NOTICE

Southern Yorke Peninsula: Saturday August 13th. Meet at Marion Bay Store at 10:00 A.M. We will visit Warrenben and Innes Conservation Parks. (Winter flowered Mallee Orchids).

Monarto South: Sunday August 28th. Meet at Callington Hotel at 9:30 (just off the Murray Bridge Freeway). We will look for early Spring orchids of the Mallee.

NEW MEMBERS

The Committee and the Society take pleasure in welcoming as new members P. Matthews, B. Machen, and the A.N.O.S. Gold Coast Group.

JUNE VISITOR

We were pleased to welcome Mr. Brian Notz of A.N.O.S. Melbourne to our June Meeting. It was good to see you Brian.

JUNE MEETING

Dr. Keith Northcote presented a most informative and enjoyable talk, supported by slides, on Australian Soils. Keith, a N.O.S.S.A. member, was given little guidance frail your Committee on what aspects he should talk on, being told only to provide 'lots of gravy'. His talk proved to be a true 'Australian Casserole' with numerous aspects of Australian Soil Science being brought together to form a well rounded presentation.

Keith, now retired from C.S.I.R.O., remains one of Australia's foremost Soil Scientists having devoted more than 40 years to soil study, research and classification. His interest and enthusiasm continues and he is often consulted by industry (in particular viticulturalists) and by international experts wishing to gain some of Keith's knowledge..

Soil Science in Australia began in Adelaide, within the embryonic C.S.I.R.O. which was set up by the Waite family in the mid 1920's. The first soil laboratory was one of the stables of Urrbrae House. Many pastoralists contributed funds to allow research to continue. Today, Waite has become the most important Agricultural Research Institute in the Southern Hemisphere.

In 1956 it was decided that the existing maps depicting Australian soils had to be upgraded. Dr. Keith Northcote was immediately appointed to head a small team responsible for developing a useable soil classification system for Australia and to produce a series of maps which correctly presented Australia's soil types. The result was a series of 10 maps which together covered the entire Continent. These were ready in time for the International Soils Congress, held in Adelaide in 1968, the first time this Congress was ever held in the Southern Hemisphere.

Keith showed us several slides of different soil profiles common to Australia, explained the procedures followed in undertaking a soil survey across an entire continent and in addition showed us the value of knowing the various soil types, their characteristics and distribution and how this knowledge can be put to use for agricultural and other purposes.

The large number of questions presented to Keith at the end of his presentation showed clearly the keen interest of his audience. Thanks Keith for a very enjoyable evening.

PLANTS ON DISPLAY

Terrestrials

Pterostylis cucullata, P. *pyramidalis, P. robusta, P. russellii, P. grandiflora* x *P. concinna, Acianthus exsertus* (green form), *A. fornicatus*.

Epiphytes

Dendrobium atroviolaceum, *D. atroviolaceum* x *D. convolutum*, *D. johnsoniae* x *D. atroviolaceum, D. gracilicaule* x *D. tetragonum, D.* Hilda Poxon (x2*), D. bigibbum* x *D. tetragonum* = Peewee, *D.* Gwen Slade.

POPULAR VOTE

TERRESTRIALS: *Acianthus fornicatus*, grown by Les Nesbitt.
EPIPHYTES: *Dendrobium* Hilda Poxon, grown by Les Burgess.

COMMENTATORS CHOICE

TERRESTRIAL SPECIES: *Acianthus fornicatus*, grown by Les Nesbitt.
TERRESTRIAL HYBRID: *Pterostylis grandiflora* x *P. concinna*, grown by Les Nesbitt
EPIPHYTE SPECIES: *Dendrobium atroviolaceum*, grown by Reg Shooter.
EPIPHYTE HYBRID: *Dendrobium* Hilda Poxon, grown by Peter Barnes.

PLANT COMMENTARY

The plant commentary for the epiphytes was given by Reg Shooter. Les Nesbitt provided the commentary for the terrestrials.

Terestrials

A very disappointing number of plants was benched at the June Meeting - one of the poorest showings for this time of year since the club began. Lets all bring our flowering terrestrials to the July Meeting and see if we can make up for June.

A well grown pot of *Pterostylis pyramidalis*, a Western Australia greenhood, was benched. This species is characterized by a basal rosette and leaf bracts which get progressively smaller towards the top of the stem. the sepals of the flower are flattened in appearance.

A large pot of *Pterostylis robusta* contained many leaf rosettes but only a single flower. A beautifully grown pot of *Pterostylis cucullata* was notable in that it normally doesn't flower until September. *Pterostylis russelli* is also normally a relatively late flowering plant, being one of the last of the cauline group of greenhoods to flower. *Pterostylis grandiflora* x *P. concinna* was the only terrestrial hybrid benched. Unlike *P. grandiflora*, the hybrid is relatively short in stature.

Spectacular pots of *Acianthus fornicatus* and *A. exsertus* drew considerable praise, the latter being the very uncommon green form.

Epiphytes

June is not the normal time of the year for Australian epiphytes to be in flower. If, however, flower spikes are not now showing, the plant is not likely to flower until another year. *Dendrobium atroviolaceum* from P.N.G. was the only species plant benched. This can be a very rewarding species to grow, with even very small plants capable of producing flowers. Two *D. atroviolaceum* hybrids were also present, one a cross with *D. johnsoniae* and the other a cross with *D. convolutum*. The former used to be considered an Australian native but is now believed to be endemic to P.N.G. and some of the islands between P.N.G. and Australia. This is the first year that the second hybrid has flowered. Improved flowering can be expected in succeeding years.

Two pots of *D.* Hilda Poxon contrasted in that one had spots while the other did not. The spotless plant, a small seedling, was a 1984 competition plant. The spotted plant, an extremely well grown, more mature plant, had flowers without spots earlier in the year according to its grower Les Burgess.

D. Peewee is a cross between *D. bigibbum* and *D. tetragonum*. The cross can be quite 'spidery' but the benched plant has taken on the appearance of *D. bigibbum*. *D.* Peewee can be grown in a cool glasshouse, the cross being developed for cool tolerance.

DENDROBIUM BIGIBBUM by George Nieuwenhoven

This plant was the popular vote choice in the epiphytes for the May meeting. Native to Queensland, it shares with *Dendrobium dicuphum* the distinction of being the only members in the section *phalaenanthe* canon to Australia

Dendrobium bigibbum was first described by Lindley in "Paxtons Flower Garden" in 1852. The species is widespread, growing from the Archer River near Cook-town in northern Queensland to the tip of Cape York Peninsula, the islands of the Torres Strait and New Guinea. The colour of the blooms varies from white through to lilac and reddish mauve. There are two varieties, one of them consisting of two subvarieties:

Dendrobium bigibbum subsp. *bigibbum* var. *bigibbum*

Dendrobium bigibbum subsp. *bigibbum* var. *superbum* subvar. *superhum*

Dendrobium bigibbum subsp. *bigibbum* var. *superbum* subvar. *canpactum*

The first two are indistinguishable when not in flower. According to Dockrill the first variety has flowers from 2.5 to 5 cm. in diameter. They are somewhat shaped like a pansy with the petals and sepals usually curved backwards. The second variety has flowers 3.5 to 6.5 cm. in diameter with the petals not usually curved backward to any great extent. The plant itself has stems from 15 to 120 cm. tall with from 3 to 12 leaves. It grows on small branches of trees in dry scrub or on trees overhanging salt water, usually getting strong sunlight. It never grows into large clumps.

The last variety is a lithophyte which means it grows on rocks. The flowers are very much like the subvar. *superbum*, however, the pseudobulbs are short and more stout and the plant is confined to the Macalister Range between the Barron River and the Mosman River.

All three varieties are very desirable plants to have in cultivation and thus, sadly, many have been completely removed by collectors from their habitat, particularly in accessible locations, even though it was quite abundant at one time. *Dendrobium bigibbum* has been in cultivation since 1885 but it is said to have been introduced to Kew Gardens as early as 1824.

In Adelaide, *Dendrobium bigibbum* needs a heated glasshouse with the temperatures dropping to no further than 15 degrees Celsius. Many growers have had success growing it outside in a protected situation, keeping it in winter, however, the flower buds invariably abort before they have chance to open due to the low temperature at flowering time. The species seems to grow best using squat clay pots filled with a mix of coarse pine or fir bark and gravel. Plants should be placed on top of the medium rather than in it as the species is essentially an epiphyte.

Late Spring to early Sumer will see a commencement of root activity with a new growth coming from the base of last year's pseudobulbs. It will take copious watering at this time and humidity should be kept at a sufficiently high level to match its natural habitat (approximately 70 - 80 %). Its growth cycle should be completed about March with the flower spikes appearing immediately afterwards. The blooms normally last a long time on the plant.

Older plants with a number of canes can be induced to produce extra growths and keikis by severing three or four older canes from the newer section with a sharp knife. My plant has actually flowered from a keiki. Keikis can be potted up separately when two or more growths are present. During Adelaide's colder months, plants should be kept on the dry side, watering no more than once a week.

The subvar. *'compactum'* flowers from early March to April in Adelaide with the other two varieties commencing three or four weeks later. Many growers claim the subvar. *'compactum'* to be hardier, however I have not found this to be so. *'Compactum'* seems to drop its leaves quickly in the cooler months and to lose its roots if watering is not watched carefully. All three varieties are fairly resistant to pests and disease, scale being the major nuisance. Ants are the culprit here, spreading the scale from plant to plant. Get rid of the ants and you won't have a scale problem.

Dendrobium bigibbum has been used extensively in hybridising and in line breeding. The best known hybrid is a natural cross between *Dendrobium bigibbum* and *D. discolor* = *D.* x Superbiens, a variable hybrid growing up to 120 cm. tall with lovely semi-curled flowers, lilac or rose purple, and sometimes striped. Recently, attempts have been made using cool growing plants to produce cold resistant hybrids. *Dendrobium* Peewee = *D. bigibbum* x *D. tetragonum* is one example with more being registered all the time. *Dendrobium bigibbum* is readily available from nurseries in Queensland with many being grown from seed. This will hopefully alleviate the problem of illegal collection. Needless to say, to get the most desirable flower shape and colour, plants should be bought when in bloom as they vary considerably.

REFERENCES:

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Dockrill A. W. 'Australian Indigenous Orchids', 1969
Holtum R.E. , 'Flora of Malaya Volume 1, Orchids, 1953
Millar A.' 'Orchids of Papua New Guinea, 1978
Nicholls W. H. 'Orchids of Australia', 1969

DENDROBIUM SPECIOSUM - 'FRUSTRATION' by Margaret Fuller

I acquired this clone in 1980 from Mick Ryan. It was then a flowering-size plant of about 9 pseudobulbs with dormant flowering 'eyes' in the apex of the leaves. During the next four years it grew and grew - five new growths one year, seven the next. The plant outgrew the pot and was potted on - but still no flowers. This was when it received the name 'Frustration'! I tried everything sun, shade, fertilizer, copious waterings, dryness - everything in turn failed to induce it to flower. In 1984 I divided it and gave the two pots completely the opposite care - one sun, one shade, the first wet, the second dry, etc. - all to no avail. In 1986 I again divided the larger plant into three pieces and as I felt my frustration should be shared (what are friends for anyway?) I kept a small piece and presented the others to Peter Barnes and Ted Braddock. None of we three flowered the plant in 1987.

Early in 1987 I became the owner of a small cold glasshouse and thinking that the clone may have been from Queensland, the smaller of the first division was put in the glasshouse in the brightest, warmest, position. In over twelve months it received very little water and this year made fewer new growths. It has been fertilized only with the detritus from my bird cages. The small piece from the second division was put in a very shady position in my shadehouse, watered copiously during the hot weather, and given no fertilizer at all.

To my great delight I discovered flower growth developing on the plant in the glasshouse, proving, I thought, that the plant needed warmth - until I checked the 'control' plant under the Sarlon. It also is showing flower growth. So too are both the Braddocks' and Barnes' plants, which receive very different treatment from either of my plants.

Does this prove that each clone has a built-in flowering cycle and cannot be altered by any man-made conditions? Perhaps readers could let me know their views. P.S. What price the flower will turn out to be a very ordinary cream colour?

REVIEW: "WILDFLOWERS OF THE MOUNT LOFTY RANGES, FLEURIEU PENINSULA TO BAROSSA VALLEY", by Leona Woolcock: Wakefield Press. 1985 by Edda Viskic

As a celebration of our remaining existing Hills native wildflowers in their original environment comes this excellent field guide by Leona Woolcock. She introduces her topic by discussing adaptation of the predominantly stringybark forests which have developed a large understorey plant community and over 250 species are described.

The 26 Plant Families are arranged in 58 Genera in alphabetical order with 36 pages devoted to Orchidaceae. *Caladenia, Calochilus, Dipodium, Diuris, Eriochilus, Glossodia, Microtis, Prasophyllum, Pterostylis* and *Thelymitra* are the Genera illustrated by photographs showing some close-ups of individual flowers, some pressed specimens and some environmental sites.

The text is interesting, giving botanical information in simply worded descriptions. Reference is made to uses of the plants by Aborigines and early settlers. Flowering period is given for all species and some helpful hints are included on propagation requirements or availability from some local nurseries,.

N.O.S.S.A. members Bob Bates and Les Nesbitt were acknowledged as referees of the orchid component of this work and we can also enjoy some of Bob's excellent *Prasophyllum* and *Thelymitra* photographs. This is a well bound volume with a tough but flexible cover, which makes it ideal to take on field trips for on the spot identifications. As this book is a recent acquisition of the N.O.S.S.A. library, you will be able to see just how comprehensive is this guide to the vegetation of the higher rainfall areas of the Southern Mount Lofty Ranges. A small map has also been included and 300 m contours are shown. I thoroughly recommend this book as a high on "the must borrow and read" list.

PTEROSTYLIS LONGIPETALA by Les Nesbitt

This plant was benched at the May meeting and drew considerable comment. Until recently *Pterostylis longipetala* was included in the species *P. reflexa*. A recent issue of the ORCHIDOPHILE from A.N.O.S. Sydney Group doesn't agree with the change in name for the specimens obtained from South Australia. It is a member of the cauline group of greenhoods and it flowers from April to June in Adelaide. It is easy to grow and it flowers reasonably easily if grown in the shade. Flowers have a protruding labellum and a very long dorsal petals forming an extended "beak" on the hood.

PTEROSTYLIS X *TOVEYANA* by Les Nesbitt

Pterostylis x *toveyana* was the only terrestrial hybrid benched at the May meeting. Its common name is the Mentone Greenhood, after the Melbourne suburb where it was found. It is a natural hybrid between *Pterostylis concinna* and *P. alata*. Since we have a hybrid between a rosette type and a cauline type, the hybrid is intermediate with both a rosette and large stem leaves. The plant, although small, is vigorous and free flowering, often carrying two flowers per stem. *P.* x *toveyana* blooms from May to August. The species also occurs in Tasmania.

THE CONCEPT OF SPECIES By Bob Bates

The recent "official" recognition of two *Cyrtostylis* species in South Australia has seen the raising of that perennial question "what is a species?". For many of us the word is quite mysterious, misunderstood and misused (the word 'species' itself is both singular and plural). The old definition we were given at school indicating that "two different species cannot interbreed to produce fertile offspring" is just not appropriate in the world of orchids where fertile offspring may be produced even when crossing species of different genera!

A species is nowadays accepted as the total population of freely interbreeding individual organisms which under natural conditions is genetically isolated from every other species, the keywords being "freely interbreeding" and "under natural conditions" . Apparently zebras, and donkeys can be crossed to produce 'debras' and 'zonkeys' but we can be

certain they don't do so under natural conditions. On N.O.S.S.A. field trips we often encounter orchid hybrids but these are usually found in disturbed 'unnatural' sites and it is likely that natural hybrids were extremely rare before settlement! (It is doubtful if we could classify much of South Australia as still being in a natural state. Many of the barriers which once kept our native orchid species genetically isolated have been removed).

But lets return to the two *Cyrtostylis* species. *C. reniformis* and *C. robusta* are very similar in appearance. The great South Australian orchidologist R.S. Rogers would have been quite familiar with both, but apparently never gave any consideration to their being anything but forms of a single species; yet they clearly fill the requirement for being separate species:, they do not interbreed. The two species frequently grow together and have overlapping flowering times but hybrids have never been recorded!

For the most part we can easily recognise different species by their different appearance. No one would confuse the closely related spider orchids *Caladenia dilatata* and *C. patersonii*, but sometimes very distantly related organisms appear identical to the untrained eye. To most people a house mouse and a wild marsupial mouse could easily be confused, yet the house mouse is more closely 'related' to a camel or even a whale than it is to a marsupial mouse so general appearance isn't everything! Many orchid lovers would not be able to tell the difference between *Cyrtostylis robusta* and *C. reniformis* but an expert would have little trouble in listing a dozen consistent differences between the two.

Appearances can be misleading: Last year I was shown a flower of *Caladenia deformis* which was pink and had three hairless labellums. Now we all know that *C. deformis* has a blue flower with a single hairy labellum. The lady who found the freak *C. deformis* was convinced she had found a new species and took a lot of persuading otherwise. Seed from the freak plant, if fertile, could be expected to produce at least a few normal *C. deformis*. Remember that a species is a whole population. A single odd plant, or even a group of them is not likely to be a new species!

Geographically isolated plants are not really genetically isolated. A colony of *Spiranthes sinensis* in Victoria might seem well isolated from a colony of *S. sinensis* in Tasmania but a duck might pick up a seed of a Victorian plant one day and two days later deposit the seed in the middle of the Tasmanian population. Orchid seed is so light that it frequently blows from Australia across to New Zealand!

Species may be genetically isolated in many ways. Similar species may flower at different times. *Prasophyllum occidentale* and *P. validum* near Melrose flower in different months, they do not interbreed. Other species may have different pollinators. *Caladenia rigida* in the Adelaide Hills is bee pollinated while *C. reticulata* is wasp pollinated. Hybrids may be produced artificially but natural hybrids would be unlikely. *Caladenia dilatata* as we presently know it may be as many as a dozen species as each of the different so called 'forms' is pollinated by a different wasp. Other species may be unable to freely interbreed for mechanical reasons, or for chemical ones (a chemical in the stigmatic secretions of one *Caladenia* may inhibit the germination of pollen grains from another species). Most frequently, however, the barrier preventing two species from breeding is a cytological one - their chromosomes simply cannot match up. At this stage we do not know the barrier preventing interbreeding

between *Cyrtostylis reniformis* and *C. robusta*! It would be interesting to try and produce an artificial hybrid between these two!

How did *C. reniformis* and *C. robusta* become different species in the first place? Current theories suggest that at some time in the past, populations of their progenitor became geographically isolated, perhaps by rising sea level and that one if not both underwent various mutations. When sea levels fell again and the two spread to find themselves growing together again, genetic interchange was no longer possible. This may have happened a million years ago. *C. reniformis* and *C. robusta* despite their obvious similarity may have been separate species for all that time.

Some of the more serious orchid students have been seen shaking their heads lately at suggestions that two very similar looking orchids are really different species, perhaps not even closely related. They retort "thats the same as trying to say that a big nosed blonde is a different species to a small nosed brunette". The difference of course is that the big nosed blonde woman is married to the small nosed brunette man and together they have six children! No matter how insignificant the differences appear between two orchid species, it is the likelihood of their interbreeding that counts.

It is now possible, of course, to analyse the chemical and genetic makeup of orchid species in the laboratory, not something you or I are likely to get around to but nevertheless, with experience, we can all train ourselves to recognise even the subtle differences which characterise some species.

NEW POSTER: "ORCHIDS OF SOUTH AUSTRALIA"

This latest Gould League poster by talented Adelaide artist Lois Padgham is the most attractive and tasteful poster on Australian Natural History to appear for some time. Thirty six orchids are illustrated in true colour with a neat text provided on the rear of the poster. This poster, a must for all orchid lovers, should be available at the Conservation Centre within the very near future. (expected price is $4.00).

NEW TERRESTRIAL HYBRIDS

The following recently registered hybrids do not appear in the second edition of J. Kavulak's " Australian Native Orchid Hybrid Guide" published this year:

Caladenia		
Fairy Floss	*C. rigida* x *C. latifolia*	Nesbitt 1986
Pterostylis		
Bantam	*P. baptistii* x *P. pedunculata*	Nesbitt 1988
Follower	*P. Cutie x P. furcata*	Nesbitt 1988
Triffid	*P. baptistii x P. plumosa*	Nesbitt 1988

CLUB NOTES

November Auction

The Committee has decided to hold an auction at the November Meeting prior to our annual Break-up Supper. If each member would bring along a plant, backbulb, tuber or etc. we can have a lot of fun (as well as raise some all important funds). Start thinking about what you may like to bring. More will be said about this event during the next few months.

Orchid Mounting and Potting

Orchid mounting and potting techniques will be demonstrated at the September Meeting. If you are interested in mounting your own piece of *Dendrobium linguiforme* in the presence of experts, please let Margaret Fuller know by the July Meeting so she can order the required number of pieces. Cost per piece is $2.50. Your mounts should mature with easy care into spectacular and floriferous plants.