

**THE
FERN SOCIETY
OF
VICTORIA
Inc.**

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NEWSLETTER

VOLUME 18, Number 4

July / August, 1996

FERN SOCIETY OF VICTORIA Inc.

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SUBSCRIPTIONS: Single - \$15.00 (Pensioner/Student - \$11.00)
 Family - \$18.00 (Pensioners - \$13.00)
 Overseas - A\$30.00 (by Airmail)
 Subscriptions fall due on 1st July each year.

PRESIDENT'S MESSAGE:

The Fern Problem Night at our last meeting created a lot of interest with members bringing in a large number of specimens to go through. Bob and Joan Rowlands brought along some slides taken along the old abandoned railway line at Bird Creek in Tasmania on their recent trip. Barry White also showed some slides he took at the Byaduk Caves near Macarthur in Western Victoria. The caves are sink holes in the barren rocky plains and they abound with ferns. One cave even has tree ferns in it.

Ray Edwards from Cool Waters Fern Nursery will be our guest speaker at the next meeting titled, "Spore Raising - My Technique". Ray has a very interesting wholesale nursery a Lavers Hill in the Otway Ranges. The whole growing area is underground.

The August meeting is a very important night to attend; not only will Michael Garrett from Tasmania be our guest speaker, but it will be our Annual General Meeting. There will be vacancies on the committee, so here is your chance to contribute something for your club.

Michael is an authority on the ferns of Tasmania and has discovered several new species for that state in his many years of hiking throughout Tasmania. He is the author of a new fern book on the ferns of Tasmania and hopefully he will have copies of his new book, hot off the press.

Mary Frost's excursion to Carnarvon Gorge and Fraser Island went very well although unfortunately Mary took ill and was forced to drop out at the last minute. There will be a full report at the September meeting.

There are three excursions planned for the coming months, the first one to Rippon Lea on Sunday 1st September at 2.00 p.m. Members and friends are welcome and we will meet at the swimming pool. The afternoon will be spent wandering through the fernery and the gardens. Bring your own afternoon tea.

The second is to our place at Lara on Saturday 5th October at midday. Members of the South Australian Fern Society will be visiting and this will be a good opportunity to catch up with old friends and perhaps make some new ones.

The third excursion will be on Sunday 17th November to Badger Creek at Healesville. More details later.

The fern - or fern ally - for the July competition is a Selaginella, also don't forget to start pressing your fronds now, for the August competition.

In closing, I would like to congratulate all those members who brought along ferns for our competition in June. There was a very large display and the quality of the ferns was of a very high standard.

Chris Goudey.

FORTHCOMING MEETINGS

(1) THURSDAY 18th JULY, 1996

Topic: SPORE RAISING - MY TECHNIQUE.

Speaker: RAY EDWARDS, Coolwaters Fern Nursery in the Otways.

(2) THURSDAY 15th AUGUST, 1996

(a) 17th ANNUAL GENERAL MEETING

- Agenda:**
1. Minutes of 1995 A.G.M.
 2. President's Report.
 3. Treasurer's Report.
 4. General Business.

(b) GENERAL MEETING

Topic: FERNS OF TASMANIA.

Speaker: MICHAEL GARRETT.

VENUE: Victoria Bowling Club,
217 Grattan Street, Carlton.

GENERAL MEETING TIMETABLE:

Pre-meeting activities -
Sales of Ferns, Spore, Books, Merchandise and Special Effort Tickets
Library Loans

General Meeting

Topic of the Evening

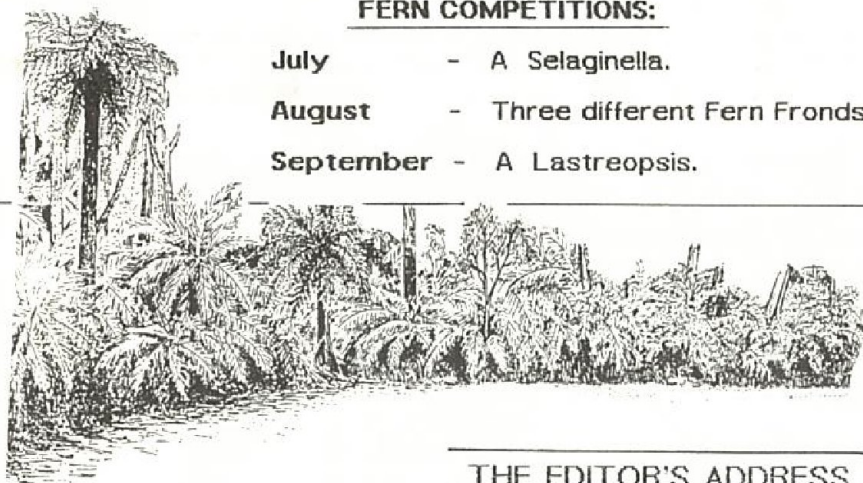
Fern Competition Judging
Fern Identification and Pathology
Special Effort Draw

Supper

Close

FERN COMPETITIONS:

- July** - A Selaginella.
August - Three different Fern Fronds, pressed and mounted.
September - A Lastreopsis.



THE EDITOR'S ADDRESS.

The Editor's postal and residential address is:

Mrs. L. Gresham, 20 Murchison Road, Avenel, 3664.

Your submissions for the Newsletter may be posted or, if you are passing Avenel, dropped in. If you call first, I will endeavour to be home, with the kettle on the boil.

I must apologise to the people who wanted to contribute to this issue but couldn't because of my address being omitted from the last Newsletter.

 Speaker Report – Meeting of 16th May, 1996.

 THE RISE AND FALL OF GEELONG BOTANIC GARDENS FERNERY.
 Ian Rogers.

Ian Rogers is the Director of the Geelong Botanic Gardens. He illustrated his interesting and informative talk with 'Then and Now' views and plans of the Gardens in general and the Ferneries in particular. Besides developing the Gardens in many directions, Ian is researching and compiling a comprehensive history thereof.

My report is taken as much from the notes helpfully provided by Ian as from the actual presentation at the meeting.

MAKING A VISION HAPPEN.

The chronological history of the Gardens reveals that things in the community and in local and state government haven't changed noticeably! The planning, cancelling, replanning, undoing, procrastinating, funding and fund cutting are all there. There is also a lot of forward thinking, building, wise decision making, garden designing and redesigning, generosity and plant and seed collecting. Later on, quite a lot of tree removal due to overplanting went on. Haven't most of us made **that** mistake in our gardens?! But on to the fernery.

THE FERNERY IN THREE STAGES.

It was designed by John Raddenberry, Gardens Manager (1872 - 1896) and the plans drawn up by Robert Balding, Town Surveyor.

The material used for the fernery was local timber with wooden slats covering the frame. This would have provided an estimated 50% to 70% shade to the interior, depending on the sun's position.

The first stage was built in 1885, 37 years after the Geelong Botanic Gardens were first conceived and 28 years after the first actual planting commenced. Water was not laid on in the gardens until 1875 so for 18 years the gardens had struggled without a reliable water supply! The garden curator's cottage, fences, nursery, conservatory, greenhouse, an artificial lake and aviary were built, trees planted and many gardens laid out and planted in the

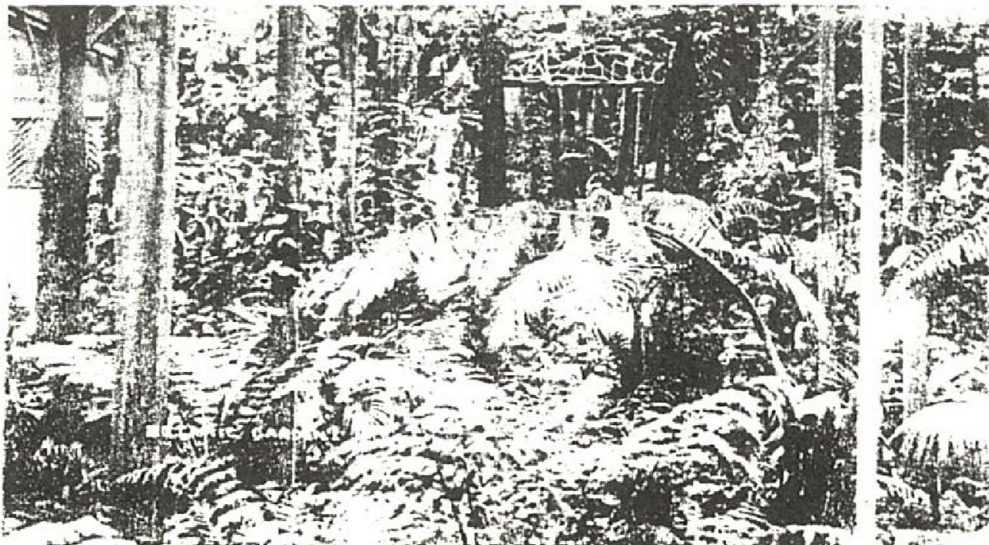
intervening years so the fernery had a garden to 'sit' in immediately. Even from Stage 1 it dominated the landscape. Costing 229 pounds 10/-, it was 120ft x 60ft x 25ft high (36.6m x 18.3m x 8m high).

Stage 2 was completed in 1886, at a cost of 280 pounds. This consisted of an octagonal spire 60ft (18.3m) in diameter and 66ft (20m) high in which was constructed a fountain and pond 36ft (11m) across.

Stage 3 was built in 1887 to the fernery's final size of 300ft x 60ft x 66ft (91.5m x 18.3m x 20m). This was a massive construction for the 1880's. It had a stone grotto at the Eastern end, which was 'improved' in 1899 by the addition of petrified tree roots from Barwon Heads.

FERNS AND OTHER PLANTS.

The choice of plants grown in the fernery seems rather peculiar to us - maybe because we're a BIT biased?? Surely not!! Mentioned in a newspaper article of 1886 were fuchsias, tacsonia (passionfruit fam.), *Cobaea scandens* (cup-and-saucer vine), climbing rose Cloth of Gold, waterlilies, canna, clematis, wisteria, maples, a flame tree and many species of camellia, ivy and holly. There was an impressive collection of palms, too. In fact, it was suggested that it was more like a palmery than a fernery! The ferns mentioned were; *Cyathea australis*, *C. cooperi*, *C. medullaris*, *C. dealbata*, unspecified tree ferns and dwarf ferns, *Todea superba*, *Cibotium magnificum*,



48 Dicksonias and 100 Staghorn ferns. Also 'ferns' around the several pools and on a 16ft high pillar supporting a Jupiter Pluvius fountain. Wow!

LIFE AND DECLINE.

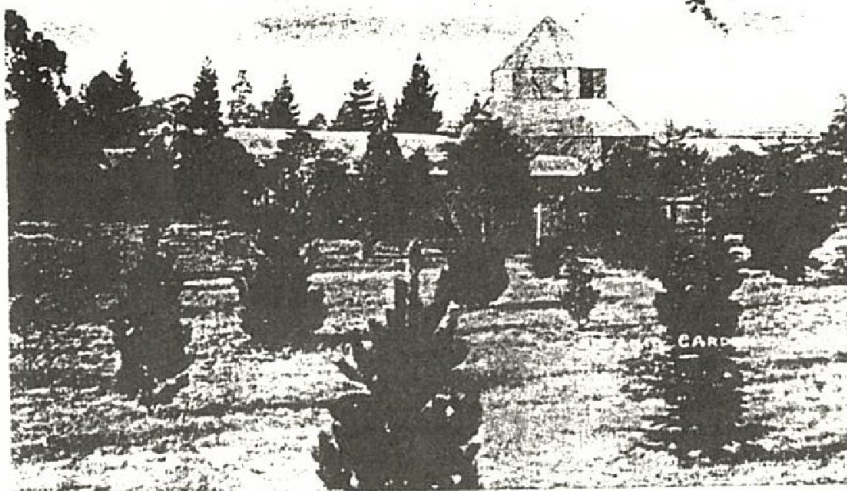
The fernery had a long and celebrated life in the gardens, and was a great attraction in Geelong. The use of local hard-wood timber, however, was to be its demise, due to its poor lasting quality. By the late 1920's the great structure was beginning to show its age and was in a generally poor condition.

In 1945 the first stages of demolition were carried out as the fernery was beyond repair. The last remnants of the structure were demolished in the late 1950's, to be replaced with lawns, garden areas and the pelargonium conservatory.

Today the paths of the original fernery still exist, as do the walks of the original garden design of Daniel Bunce in 1857. Much else has changed as aging plants need removal and fashions come and go.

THE NEW VISION.

One of the significant changes is the establishment of the John Raddenberry Fern Glade in 1982. (1992???) As the name suggests, it is an outdoor fernery. It is, of necessity, being planted in stages, the first being the



establishment of a tree/tree fern canopy. *Cyathea australis* and *Dicksonia antarctica* are the principal species chosen, though many other interesting tree ferns have been used in the glade.

A realistic timeline has been formed for the gradual addition of a wide variety of ferns, as a congenial habitat is established.

A VISIT TO THE GARDENS.

There was considerable interest shown in the Society visiting the Gardens as a group some time. There is a possibility of including it in the outing to Lara in October, though it may be decided to make it a separate excursion.



LETTER FROM OUR 1996 FERN SHOW JUDGE, MARY FROST.

I would like to convey to the Fern Society my sincere thanks for the gift of the lovely clock for Judging the Ferns at the Fern Show.

I wish to congratulate each and every person who presented a fern to be judged, it was an absolute delight to see such lovely specimens and I was sorry to put some out because of little errors made by the Exhibitors – for example, two crowns in an *Asplenium*, 4 broken fronds in an *Asplenium*, a Maidenhair in a lovely Tassel Fern, a frond in a *Pteris* not trimmed out.

The pots were clean, soil clean and really lovely clean plants – my "Presentation of Ferns" (refer to March/April '96 Newsletter) really helped, I think.

If any exhibitor did not win a prize keep on trying at the monthly meetings, ask why if your plant did not win and expect the person judging to give you a reasonable answer.

Congratulations to the winners and next year your plant may be the Best in Show. I hope the Show was successful.

Regards,
Mary Frost.

A NEW SPECIES OF *MARSILEA* L. FROM AUSTRALIA

Marsilea costulifera

David L. Jones

INTRODUCTION

The opportunity is taken here to formally describe an entity related to *Marsilea angustifolia* R.Br., to facilitate use of the new name in the 'Flora of Victoria'. Chinnock (1978) was the first to recognize the distinctiveness of this taxon.

TAXONOMY

Marsilea costulifera D.L. Jones *sp. nov.*

(from the Latin *costula*, diminutive of rib, *ferens*, carrying, bearing; in reference to the distinctive small ribs on the sporocarps.)

Rhizomatous perennial fern forming patches; rhizomes slender, creeping, rooted at nodes, much-branched, glabrous except at the tips, bearing sterile fronds and sporocarps. *Sterile fronds* arising in clusters at nodes, erect on plants growing in mud, floating when growing in water; stipes 1-12 cm long, glabrous or hairy; juvenile sterile fronds often with a single small obovate leaflet; mature sterile fronds with 4 leaflets; leaflets oblanceolate to cuneate, 1-12 mm long, 1-5 mm wide, glabrous or sparsely hairy, outer margin entire, flat to shallowly rounded, arranged unequally at the apex of the stipe. *Sporocarps* clustered, borne singly on unbranched pedicels, 2.5-3 mm long, 1.8-2 mm wide, c. 1 mm thick, at right angles to the pedicel, brown, densely scaly, distinctly ribbed, apex broadly rounded, upper surface concave, one basal tooth prominent, the apex of the pedicel forming a second less-prominent, tooth-like protruberance; pedicels 1-2 mm long, more or less shorter than the sporocarp, glabrous or scaly. (Fig. 1)

DISTRIBUTION AND HABITAT

Coastal and inland localities in Queensland, New South Wales, Victoria and South Australia. Grows in mud on the verges of swamps and billabongs, in shallow water and less commonly among grass in moist depressions.

The species is widely distributed, locally common and probably well conserved.

NOTES

This species can be distinguished from *M. angustifolia* by its much less robust habit, with sterile fronds to 12 cm long (to 30 cm long in *M. angustifolia*), shorter, relatively broader, oblanceolate to cuneate leaflets (narrowly cuneate in *M. angustifolia*), smaller scales on the sporocarps and smaller (2.5-3 mm x 2 mm x 1 mm), distinctly ribbed sporocarps which are usually concave on the upper surface (5.5 mm x 4 mm x 2.5 mm, shallowly and indistinctly ribbed and upper surface convex in *M. angustifolia*). *M. angustifolia* is strictly tropical in its distribution in Western Australia and the Northern Territory, whereas *M. costulifera* is widespread from subtropical to temperate regions. The distributions of each do not overlap.

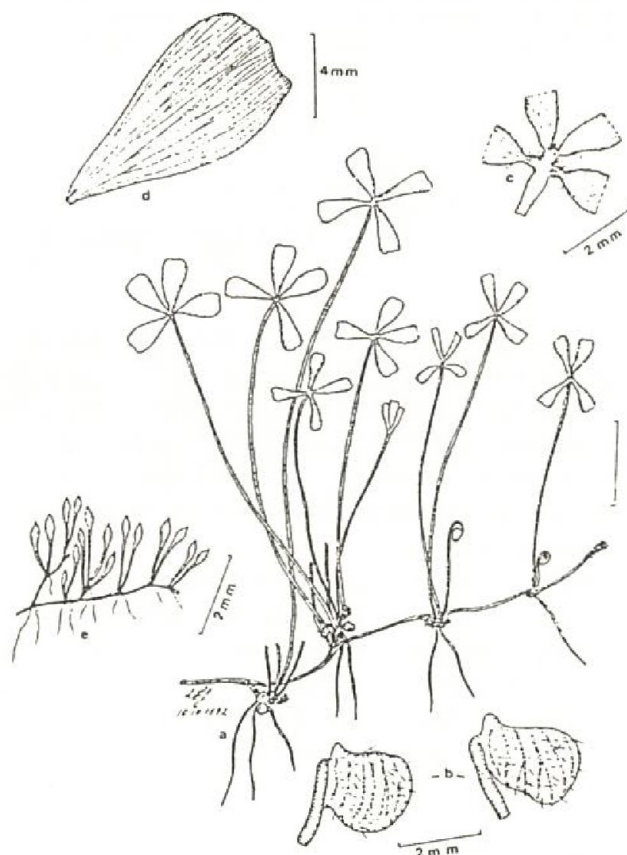


Fig. 1. *Marsilea costulifera* D. Jones. a — portion of a plant. b — sporocarps. c — base of frond showing arrangement of leaflets. d — leaflet. e — portion of young plant showing juvenile fronds. (a-d from the Type collection; e from Booberoi Ck, NSW, K.L. Wilson 5348).

 FERNS AND FERN FOSSILS FROM THE ICE AGE.

by Christopher J. Goudey

During the Pleistocene Epoch (the last Ice Age) from 1.8 million years ago to 10 thousand years ago, the sea level was from 300 to 600 feet below its present level. The colder temperatures reduced the volume of the oceanic waters by contraction and the building of the polar ice-caps further reduced the oceans.

Port Phillip and Westernport Bays were dry and the Yarra River formed a deep channel out through Port Phillip Heads. The base of the old river bed at Port Melbourne was 100 feet below the present sea level.

Today the original channel has silted up, but when excavations were taking place for the Spencer Street Bridge, some very interesting discoveries were made. Sixty-three feet below the present sea level a Red Gum stump, probably *Eucalyptus cameldulensis*, about 4four feet in diameter was discovered in an upright position of growth. Nearby was a layer of peat which consisted largely of a Bog Moss now found on the high plains above 4,000 feet, *Sphagnum cristatum*. Pollen of Beech trees, *Nothofagus cunninghamii* was also found in the sediments at this level, together with the remains of *Azolla filiculoides* and many other plants and ferns including spore of the Rough Tree Fern *Cyathea australis*, the Soft Tree Fern *Dicksonia antarctica*, the Austral King Fern *Todea barbara* and the Kangaroo Fern *Phymatosorus diversifolius*. These finds indicate that the climate in Melbourne during the Pleistocene Epoch was much colder and wetter than at present.

As the Ice Age passed and the polar caps melted, the sea level rose and the oceanic temperatures also rose, greatly increasing the

volume of water in the oceans. With the influence of the rising sea, Melbourne's weather pattern changed and the rainforest receded further into the mountains. The Red Gum stump was radiocarbonated and found to be about 5,000 years old, so it is obvious that the Red Gum occurred after the ferns, when the rainforests had gone.

During the Tertiary Period from 1.8 to 65 million years ago, the Celery Top Pine *Phyllocladus* which is now restricted to the rainforests of Western Tasmania occurred in Victoria. There was a rich flora of ferns and fern-like plants including *Osmundites*, *Cladophlebis*, *Microphyllopteris*, *Coniopteris*, *Adiantites*, also *Phyllopteroides*, *Taeniopteris*, *Rhizomopteris*, *Sphenopteris*, *Thinnfeldia*, *Dicroidium*, *Neuropteridium* and *Czekanowskia*.

Fern and fern-like fronds are the most characteristic fossils encountered in the black coal rocks chiefly found in Gippsland, the Otways and the Western District. The spores of these ferns were distributed by the winds, so the species were very widespread.

Ginkgoites (related to the living *Ginkgo* or Maidenhair Tree) belong to a small but interesting group of gymnosperms that has survived from the Permian, previous to 280 million years ago, to the present. This group would be extinct if the *Ginkgo* had not been cultivated for centuries in Chinese gardens.

My source of information for compiling this article is 'Palaeontology of Victoria' 1965, a small publication by the National Museum of Victoria.



REMINDER.

Members are reminded that MEMBERSHIP fees for 1996/7 are now due. It would be much appreciated if they could be paid promptly thus avoiding the need for a reminder note.

Please use the form which was included in the May/June Newsletter. Our renewal process requires the Treasurer to endorse the membership renewal form with the payment date and the receipt number before forwarding on to the Membership Secretary. Failure to include the form means that the Treasurer has to generate a form and he already suffers from writer's cramp at this time of the year!

If you do not wish to renew your membership it would be appreciated if you could let the Society know, as this will avoid the sending of a reminder note. We would also value knowing your reason.

Our May 1995 Newsletter included an article on the use of ferns in garden design taken from the Newsletter of the SGAP Fern Study Group. There have been three followup articles in their Newsletters for September 1995 to March 1996 and they are reproduced here, with thanks, in combined form.

FERNS IN GARDEN DESIGN

Listed below are further ferns attractive and easy to maintain and considered valuable in garden design.

Arachniodes aristata

The glossy dark fronds make this one of the most appealing ferns. It forms spreading colonies but is not invasive.

- Form: Shiny green roughly triangular fronds are erect, spreads very slowly.
- Size: Up to 1 m.
- Soil Type: Loamy well-composted with good drainage.
- Aspect: Shaded.
- Watering: Improved by periodic good soaking but will withstand dry periods.

Asplenium australasicum

This is the familiar Birds Nest Fern, a favourite throughout all but the coldest parts of the world because of its small root ball making it an ideal container plant. In nature it is generally found growing as an epiphyte on trees or on rocks.

- Form: Leathery fronds are simple, erect, spreading in a rounded tussock.
- Size: To 2 m tall, fronds are up to 20 cm wide.
- Soil Type: Plant on top of a log or rock, keep out of wet soil. Favours an open mixture with lots of leaf litter.
- Aspect: Provide some protection but dislikes heavy shade.
- Watering: Seldom necessary.

Asplenium bulbiferum

A very attractive fern which because of its semi-pendant habit is often seen at its best when grown on a rock wall. It likes a damp situation and in nature is often found along creek banks or near waterfalls. However it is very hardy and tolerant of a range of conditions. It is commonly available from nurseries. A feature is the numerous bulbils or plantlets produced towards the end of the pinnae.

- Form: Dark green soft fronds erect or drooping.
- Size: Up to 1.2 m tall.
- Soil Type: Loamy and well-composted soil or can be grown as an epiphyte. Grows happily in a large basket or pot.
- Aspect: Shaded.
- Watering: Likes moisture but will survive with only periodic good soaking.

Blechnum cartilagineum

A common hardy fern found in all Eastern Australian States. The new growth fronds are an attractive pink, often a feature of the sheltered gullies in the bushland. Fronds are pale- to mid-green, being darker in shaded positions.

- Form: Erect or semi-erect, very broad fronds, the sterile and fertile fronds being fairly similar. Has a short creeping rhizome.
- Size: Up to 1.5 m but usually less than 1 m.
- Soil Type: Loamy well composted.
- Aspect: Hardy but prefers some shade.
- Watering: Tolerant of dry periods but periodic thorough watering will be to its advantage .

Blechnum nudum

A widely grown fern in cultivation and widespread and common in nature, often grows near streams. Found in all Eastern States and South Australia. Forms large colonies in a suitable habitat.

- Form: Bright green erect fronds forming a rosette. Older ferns form a short trunk. Fertile and sterile fronds distinct. The fertile fronds are stiff and have very narrow pinnae and grow from the centre of the rosette.
- Size: Up to 1.2 m but usually less than 1 m.
- Soil Type: Hardy in any moist to even swampy acid soil.
- Aspect: Best in at least partial shade.
- Watering: Relatively hardy but likes ample water.

Blechnum patersonii

Widespread in nature and gaining popularity in cultivation. Its pink-tipped new fronds are a feature and may be simple or lobed. Found in all Eastern States and Lord Howe Island.

- Form: Has semi-erect or pendant dark green strap-like fronds. The fertile fronds have very narrow segments.
- Size: Up to 0.8 m.
- Soil Type: Adaptable but prefers good loamy, composted soil.
- Aspect: Requires a shaded, sheltered position.

Blechnum penna-marina

This is the smallest of our Australian Blechnums and the only one that forms a low, compact ground cover. Its dark green fronds look particularly attractive when grown among rocks in shaded moist situations. In nature, *Blechnum penna-marina* is found at high latitudes in cold areas but grows readily in temperate coastal regions. Best if planted in a moist, fairly protected position where it tolerates all but the hottest sun. From subalpine districts of NSW, Victoria and Tasmania.

- Form: Fronds erect to sometimes prostrate, spreads by rhizomes just under the soil with bright new fronds crowded around the growing ends.
- Size: Fronds 15 to 30 cm tall.
- Soil Type: Loamy well composted.
- Aspect: Part shade, good in an easterly aspect..
- Watering: Will recover from dry spells but responds to regular water.

Blechnum wattsii

Widespread and common from Southern Queensland down through the Eastern States and also extends to South Australia. Forms large, tangled clumps when growing in favourable conditions..

- Form: Dark green, leathery erect fronds are an attractive bronze pink when new. Spreads from a creeping rhizome. Fertile fronds are much narrower than the ones sterile.
- Size: Up to 1 m tall.
- Soil Type: Favours moist, loamy soil.
- Aspect: Requires shaded position protected from hot wind.
- Watering: Water regularly to prevent soil from drying out.

Cheilanthes distans

An excellent choice for a rockery. A hardy fern which spreads by a short creeping rhizome and in favourable conditions will slowly extend over wide areas. The narrow fronds have a hair-like covering of scales. Widespread in all the mainland States and in Lord Howe Island.

- Form: Erect fronds on creeping rhizome.
- Size: Fronds up to 15 cm tall.
- Soil Type: Acid well composted soil.
- Aspect: Requires a sunny to semi-shaded position.
- Watering: Prefers to be kept on dry side and should not be over-watered.

Opinions expressed in articles in this Newsletter are the personal views of the authors and are not necessarily endorsed by the Society, nor does mention of a product constitute its endorsement.



LIBRARY. Our library is a useful resource centre which has a good stock of books and magazines for members to borrow. Please remember to check it out next meeting - and to return the books promptly so someone else can also benefit from them.



IT IS SAID that one Vitamin B tablet dissolved in 1 litre water makes good plant food. Comments?

TOOLANGI EXCURSION.

Barry White.

A day of doubtful weather greeted the seven carloads of people who assembled at the Toolangi store on the 21st of April. The forecast was for wind and showers, and dark clouds were looming. However, the weather person smiled on the group, and the weather steadily improved all day. It was good to see one family come "all the way" down from Wodonga.

The first stop was the Wirrawilla reserve which is on the Sylvia Creek road. The Forest Commission has constructed a boardwalk through a rich fern area dominated by *Dicksonia antarctica* (Soft Tree-fern).



*Rumohra
adiantiformis*
(Leathery Shield-fern.)

The boardwalk is only a short one and very easy going, nevertheless 22 species of ferns were noted including five types of filmy fern which were often showing luxuriant growth. There was also an impressive patch of *Sticherus tener* (Silky Fan-fern).

The second stop, which also served as our lunch spot, was at Murrindindi Cascades. The recent heavy rain resulted in an impressive flow of water down the series of cascades

with accompanying roar and spray. This area had a more scattered fern population than the first spot but there were some beautiful areas of *Gleichenia microphylla* (Scrambling Coral-fern) and *Sticherus tener* overhanging the bank of the Murrindindi River.

Ctenopteris heterophylla (Gipsy Fern) was also well represented. (Does anyone know how it got its common name?

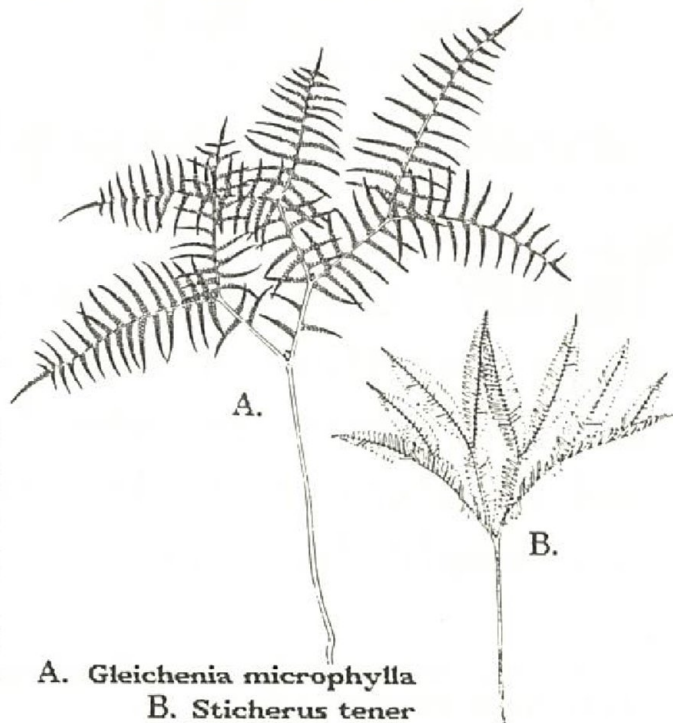
The botanical name comes from the Greek *ctenos*, a comb, and *pteris*, a fern; and *heterophylla* meaning leaves of varying shapes.) Although the walk along the cascades involved a few steeper patches, it is only about 30 minutes' duration, depending upon how far one continues on along the walk on the far side of the river. The bridges over the river give an excellent view of the cascades.

Lindsaea linearis (Screw Fern.)



Dicksonia antarctica
(Soft Tree-fern.)

The third and final stop of the day was for the walk to the Wilhelmina Falls. The falls are located on the appropriately named Falls Creek and the water drops down 75 metres over a slippery rock face. This was a slightly longer walk (about 4 k return), a little rough in patches and mostly through open forest area with little in the way of ferns except for some patches of *Lindsaea linearis* (Screw Fern) about half way along. All the other ferns were observed either along the Murrindindi River at the start of the walk, or at the finish in the area of the falls and in particular just above the falls. *Adiantum aethiopicum* (Common Maidenhair) and *Cheilanthes austrotenuifolia* (Rock Fern) were two ferns which had not been observed earlier reflecting the more open nature of this area. Nineteen species of fern were noted and the total number for the day was 33. The ferns found in each of the three areas are listed in the table on the following page.



A. *Gleichenia microphylla*
B. *Sticherus tener*

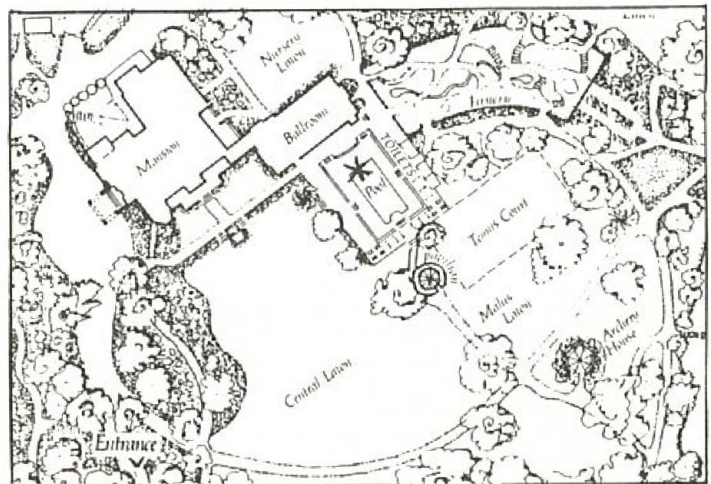
Next Fern Society Excursion....

Sunday 1st September - Rippon Lea Fernery.

192 Hotham Street, Elsternwick.

Meet at the Swimming Pool at 2.00 p.m.

- *Friends and families of members very welcome.
- *Bring your own afternoon tea. (You may like to take a picnic lunch to enjoy before we meet.)
- *Entrance fee will apply; Normal \$8, Conc. \$5, Child \$4.
- *A significant discount is available for groups of 20 or more. Notify us at the July meeting to obtain yours.



FERNS FOUND AT TOOLANGI EXCURSION - 21 APRIL 1996.

BOTANICAL NAME	COMMON NAME	WIRRA- WILLA	M'DINDI CASCADES	W'MINA FALLS
<i>Adiantum aethiopicum</i>	Common Maidenhair			x
<i>Asplenium bulbiferum</i>	Mother Spleenwort	x		
<i>Asplenium flabellifolium</i>	Necklace Fern		x	x
<i>Blechnum cartilagineum</i>	Gristle Fern		x	
<i>Blechnum chambersii</i>	Lance Water-fern	x		
<i>Blechnum fluviatile</i>	Ray Water-fern	x		
<i>Blechnum minus</i>	Soft Water-fern			x
<i>Blechnum nudum</i>	Fishbone Water-fern	x	x	x
<i>Blechnum wattsi</i>	Hard Water-fern	x	x	x
<i>Cheilanthes austrotenuifolia</i>	Rock Fern			x
<i>Ctenopteris heterophylla</i>	Gipsy Fern		x	
<i>Calochlaena dubia</i>	False Bracken		x	x
<i>Cyathea australis</i>	Rough Tree-fern	x	x	x
<i>Dicksonia antarctica</i>	Soft Tree-fern	x	x	x
<i>Gleichenia microphylla</i>	Scrambling Coral-fern		x	x
<i>Grammitis billardieri</i>	Finger-fern	x	x	x
<i>Histiopteris incisa</i>	Bat's-wing Fern	x	x	x
<i>Hymenophyllum australe</i>	Austral Filmy-fern	x	x	x
<i>Hymenophyllum cupressiforme</i>	Common Filmy-fern	x	x	x
<i>Hymenophyllum flabellatum</i>	Shiny Film-fern	x		
<i>Hymenophyllum rarum</i>	Narrow Filmy-fern	x		
<i>Hypolepis rugosa</i>	Ruddy Ground-fern	x		x
<i>Lindsaea linearis</i>	Screw Fern			x
<i>Microsorium diversifolium</i>	Kangaroo Fern	x	x	
<i>Pellaea falcata</i>	Sickle Fern		x	
<i>Polyphlebium venosum</i>	Veined Bristle-fern	x		
<i>Polystichum proliferum</i>	Mother Shield-fern	x	x	x
<i>Pteridium esculentum</i>	Bracken	x	x	x
<i>Rumohra adiantiformis</i>	Leathery Shield-fern	x		
<i>Sticherus lobatus</i>	Spreading Fan-fern	x		
<i>Sticherus tener</i>	Silky Fan-fern	x	x	
<i>Tmesipteris billardieri</i>	Long Fork-fern	x		
<i>Todea barbara</i>	Austral King-fern		x	x

MAIDENHAIRS.

Chris Goudey.

Maidenhairs are distributed worldwide, there being about 200 species in the genus. The greatest concentration of them is found in Central to South America, where there are about 80 to 90 species. The next most populated area is South East Asia, particularly southern, coastal China, where about 30 species grow. The whole of South Africa has about 20, Australia has about 10.

As you can see, the majority of them come from Central to South America. This includes *Adiantum raddianum* and *A. tenerum*.

A. capillus-veneris is found just about worldwide, and seems to be spreading. It grows now along the Murray River near Renmark (S.A.), in the Hammersley Ranges of W.A., all through coastal Queensland and there has been a recent find of it on the Mornington Peninsula in Vic. It also grows in America, Africa, Europe - even cold countries like England.

Not many commercial uses have been found for Adiantums, although in mediaeval times the leaves were used for making tea. We can usually tell if there's a Maidenhair drying out in our glasshouse by the quite strong smell of tea which is given off by the dry fronds.

Maidenhairs grow in a slightly different habitat to most other ferns. Most of them are not rainforest ferns, but grow in open forests or on the margins of rainforests. The reason they grow well in these drier conditions can be seen under a magnifying glass or eye glass. Fine cilia (hairs) cover the entire surface of the fronds and these hairs repel water. You may notice that continual overhead watering rots the centre of many of your Maidenhairs, particularly any of the tightly compacted cultivars e.g., 'Legrand Morgan', 'Cluster Glory' or 'Micropinnulum'.

Exceptions are *A. cunninghamii* which grows in rainforest and *A. diaphanum*, which grows in very wet rainforest.

I have walked in forests in western Victoria, particularly near Nelson, where *A. aethiopicum* is growing so thickly, as far as the eye can see, that I have been able to wade through them. They are growing in very dry forests.

They like a very open soil media and there is a school of thought at present which advocates the use of shallow containers. I have not tried it yet, but think that that would suit them. They also like lime in the soil, particularly *A. capillus-veneris* and its cultivars because *A. capillus-veneris* grows naturally on limestone or sandstone, particularly limestone. Carnarvon Gorge in W.A. is a notable example.

Maidenhairs also need lots of fresh air. For this reason rotting can be a problem in a glasshouse which is closed up in the winter. We found we had to install fans in ours, to keep air

circulating.

They are not susceptible to many diseases, though they can be attacked by mealy bug, scale and particularly aphids in the early Spring. Slugs and snails can also do a lot of damage.

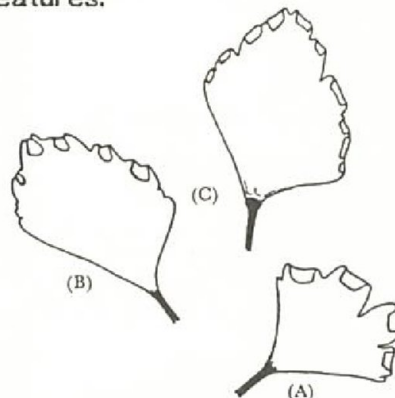
Almost any spray is good to use, providing it **does not** contain white oil. This causes a heavily waterlogged appearance of the fern, and they soon thereafter die. Check carefully for white oil in the products you use; "House and Garden" (a popular indoor/outdoor garden spray which is available in a pressure-pack) contains some white oil. Be warned; it is fatal.

There hasn't been a great deal of literature on Adiantums in the past. The only specialist reference was "The Genus Adiantum in Cultivation" by Barbara Joe Hoshizaki, published in two papers until I wrote mine, "Maidenhair Ferns". I could not have done mine without Barbara Joe's help.

All the cultivars we have today (and there are well over 100 of them) come from three species - *A. raddianum*, *A. capillus-veneris* and *A. tenerum*.

Distinguishing Features of The Three Main Species.

If you can memorise the following features, as long as there is a fertile frond on a plant, you will be able to identify the species it belongs to. All cultivars of the three main species carry these features.



(A) *Adiantum capillus-veneris*
(B) *Adiantum raddianum*
(C) *Adiantum tenerum*

1) *Adiantum raddianum*. The sporangia are **all reniform** (kidney-shaped). Some other species are also reniform, but neither *A. tenerum* nor *A. capillus-veneris*, or their cultivars, are. *A. raddianum* always is.

2) *Adiantum capillus-veneris* and its cultivars have **elongate, slightly concave indusia**.

3) *Adiantum tenerum* and its cultivars also have **elongate indusia**, usually much more

shallow but they are not concave. The pinnae are usually more inflated. The easy way of identifying *A. tenerum* is that the segments are jointed. If you look at the base of the pinnule, you'll see that where the black petiole (stem) comes up, there's a jointed bit and then you've got the leaf. In really old fronds the pinnules drop off, and you're left with the stipes and petioles, with no pinnules left on them.

The other Maidenhair you could possibly confuse with *A. raddianum* is our own *A. aethiopicum*.

DISCUSSION OF FERNS AT THE MEETING.

Adiantum hispidulum. Native to South Africa, Australia, New Zealand and the Pacific Islands. *Hispidulum* means 'hand-shaped'.

Adiantum novae-caledoniae. A tripinnate Maidenhair, two forms of which are endemic to New Caledonia. It is from the *A. hispidulum* complex, possessing its typical, rosy new fronds.

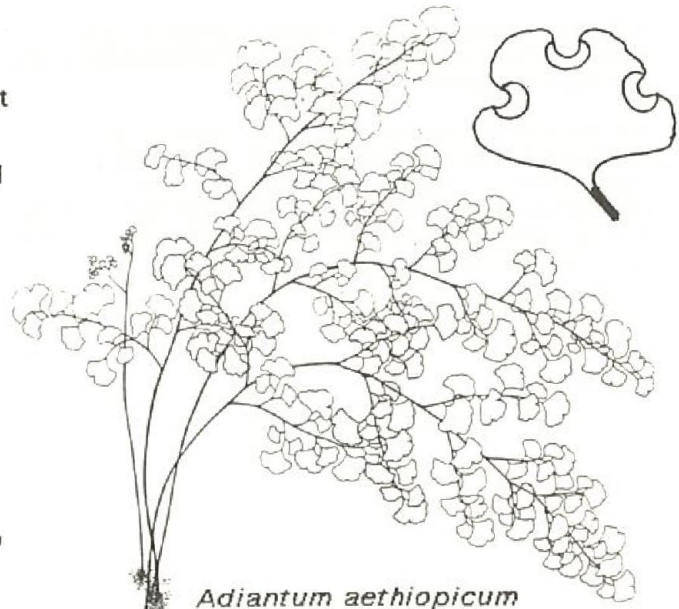
Adiantum aethiopicum. Growing naturally in South Africa, Australia and New Zealand, it is quite an aggressive fern, spreading right across a pot and escaping wherever it has the opportunity - commonly out the drainage holes. It forms an extensive mat, even in full sun. It seems to be seasonal, having a distinct peak after which it loses condition and 'rests'. Trimming it back will promote new growth. The only Maidenhair which is native to every state in Australia, it is very good for an exposed position in the garden. There are at least two cultivars;

'Foxtail' has elongate pinnae and pendulous fronds.

'Frostii' was found at Beechworth in Victoria. It is hardy, spreading rapidly and is interesting in that it has quite varied fronds - no two fronds on the one plant are alike. Very similar to *A. excisum*, all segments are skeletonised, cut right back into the tissue. Ian Broughton has an *A. aethiopicum* which is different. It was collected in a National Park near Sydney somewhere by Rod Hill. He calls it 'Lady Carrington' because it was growing in a Drive by that name! It is very persistent.

Adiantum cunninghamii. It has almost purple fronds. *A. cunninghamii* is a rainforest fern which occurs in southern parts of New Zealand and central Queensland - quite different habitats. (This is the case with quite a number of ferns which are common to both countries. Does anyone have a possible explanation?)

Adiantum formosum. Meaning 'beautiful', *A. formosum* occurs in New Zealand, Australia and Africa. Judy Marley is growing this species for the gorilla enclosure at Taronga Zoo, Sydney, for which they want native African plants. In Australia it occurs right along the east coast and into the south eastern tip of Victoria - where it is only known to grow in two sites on river flats. It has a long, creeping rhizome and is a slow grower. At its best it has lovely, large, wide fronds and a thick rhizome which



Adiantum aethiopicum

will grow out through drainage holes in pots. A very attractive fern which is quite hardy, it is a good garden subject.

Adiantum monochlaemes. This one is similar to *A. venustum* and is a difficult fern to grow.

Adiantum raddianum 'Kensington Gem'. Obtained by Chris in England, this cultivar is not easy to find, propagate or grow. It does not produce spore so must be propagated by division. Having put you off completely, it must be said that it is a magnificent fern, probably one of the nicest raddianums.

Adiantum raddianum 'Brilliantelse'. A European cultivar with lovely pink new fronds, it seems to be a sport of 'Goldelse' which is sterile, though 'Brilliantelse' occasionally produces spore. If grown in a lot of light, it is quite gold.

Adiantum raddianum 'Bridal Veil'. This is one of the really fine Adiantums, with each leaf segment teardrop shaped. It is similar to 'Triumph' but finer.

Adiantum raddianum 'Matthewsii'. Very similar to 'Micropinnulum' but the segments are rounded and more spaced out.

Adiantum raddianum 'Lawsonianum'. A very variable cultivar. There are about six forms of this one, one of which is 'Frog's Foot'.

Adiantum raddianum 'Pacific Maid'. 'Pacific Maid' is described in the trade as a double maidenhair. There is a crested form called 'Tuffy Tips' or 'Lady Geneva'.

Adiantum raddianum 'Gracillimum Cristata' or 'Crested Gracillimum' has lovely, crested ends. These crests can be so large that they make the frond weep.

Adiantum fortei. Variable. Dorothy Forte said that her original plant has altered quite a bit since she collected it from her property and had it growing in more protected conditions. This makes identification difficult.

Adiantum raddianum 'Lady Supreme' is a Judy Marley cultivar in which the segments are all fused together.

Adiantum pedatum. Seems to prefer a compost based growing media to a pine bark based one. They also prefer terra cotta pots for better aeration. There are two subspecies now available from a wholesaler, both of which are dwarf, compact growers; 'Pumillum' and 'Aleuticum'.

GENERAL COMMENTS.

1) There are up to ten variegated varieties of Adiantums, of which present at the meeting was *A. raddianum* 'Variegatum'. There are tessellate, double, clustered and skeletonised ones. Also variable. They can be so much skeletonised that they are quite ugly.

2) There was a query regarding sterile ferns - are they hybrids rather than cultivars? Your comments are welcome on this one.

3) Maidenhairs generally do better in well drained, shallow containers but they must never be allowed to dry out completely.



Long Fork-fern, *Tmesipteris billardieri*:
Terminal part of stem,

COMPETITION RESULTS

Congratulations to the following winners of the Fern Competitions and the Special Effort draws.

MARCH COMPETITION: (Category - A Blechnum)

First	Dorothy Forte	<i>Blechnum spicant</i> 'Lobatum'
Second	Dick Kissane	<i>Blechnum patersonii</i>
Third	Don Fuller	<i>Blechnum giganteum</i>

MARCH SPECIAL EFFORT:

Exhibitor; Dorothy Forte
Fran Harrison, Jean Boucher, Dave White, Cheryl Shelton.

APRIL COMPETITION: (Category - A Pteris)

First	Barry White	<i>Pteris multifida</i>
Second	Kathy & Adrian Goodall	<i>Pteris argyraea</i>
Third	Kathy & Adrian Goodall	<i>Pteris cretica</i> 'Riverton'

APRIL SPECIAL EFFORT:

Dorothy Forte, Mavis Potter, Joy Horman, Nancy Perry

MAY COMPETITION: (Category - An Asplenium)

First	Don Fuller	<i>Asplenium polyodon</i> (Pinnate form) Mare's Tail Fern
Second	Dorothy Forte	An <i>Asplenium</i> from New Caledonia.
Third	Jean Boucher	<i>Asplenium daucifolium</i> .

MAY SPECIAL EFFORT:

Exhibitor; Joy Horman.
General draw; Joy Horman again, Barry Hubbard, Jack Barrett, Dick Kissane.

JUNE COMPETITION: (Category - A fern with creeping rhizome)

First	Dorothy Forte	<i>Polypodium formosum</i>
Second	Don Fuller	<i>Polypodium formosum</i>
Third	Don Fuller	<i>Pyrrhosia lingua</i>

JUNE SPECIAL EFFORT:

Exhibitor; Jean Boucher.
General draw: Dick Kissane, Margaret Radlev, Dick Kissane again, Reg Kenealy.

FERN BOOKS IN PRINT

Ivan Traverso

(continued from March/April issue)

- A Field Guide to Ferns & Their Related Families: Northeastern & Central North America.** Boughton Cobb. (Peterson Field Guide Ser.) 01/1975 Houghton Mifflin Company
Trade Cloth ISBN 0-395-07560-2 Wholesalers: Ingram. 304p. \$ 19.45
Trade Paper ISBN 0-395-19431-8 Wholesalers: Ingram. 304p. \$ 14.45
- Ferns of the Northeastern United States.** Farida A. Wiley. 06/1973 Dover Publications Inc.
Trade Paper ISBN 0-486-22946-7 Reprint 108p. \$ 2.75
- Ferns of the Witwatersrand.** Florence D. Hancock and Anabelle Lucas. 1973 International Specialized Book Services . Trade Cloth ISBN 0-85494-196-7 Witwatersrand University Press R 18.95
- Kleine Kryptogamenflora, Vol. 4: Die Moos-und Farnpflanzen.** H. Gams. (German) 1973 5th ed. Lubrecht & Cramer Limited. Cloth Text ISBN 3-437-30139-X (Gustav Verlag GW) Revised 248p. \$ 28.80
- Spores of Indian Ferns.** Santha Devi. 1973 Scholarly Publications
Trade Cloth ISBN 0-88065-190-3 (Today & Tomorrow Printers & Publishers) 129p. \$ 15.00
- Growing Woodland Plants.** Clarence Birdseye and Eleanor G. Birdseye 11/1972 Dover Publications Incorporated. Trade Paper ISBN 0-486-20661-0 \$ 5.95
- A Guide to the Wildflowers & Ferns of Kentucky.** Mary E. Wharton and Roger W. Barbour. 04/1971 University Press of Kentucky. Trade Cloth ISBN 0-8131-1234-6 Wholesalers: Ingram. 352p. \$ 25.00
- Vergleichende Morphologie der Hoeheren Pflanzen: Supplement: Index to Troll's Vergleichende Morphologie der Hoeheren Pflanzen.** Wilhelm Troll. Contribution by I. Siefert and A. Siefert. (German) 1971 Koeltz Scientific Books, U. S. A. Library Binding ISBN 3-87429-012-3 Reprint 200p. \$ 72.00
- Species Filicum.** W. J. Hooker. 5 vols. 1970 Lubrecht & Cramer Limited
Trade Cloth ISBN 3-7682-0690-4 Reprint \$ 350.00
- Ferns.** Blanche E. Dean. (Southern Regional Nature Ser.). 1969 Southern University Press
Trade Paper ISBN 0-87651-019-5 \$ 8.00
- Ferns of Southern India.** R. H. Beddome.
Trade Cloth ISBN 0-934454-31-0 Lubrecht & Cramer Limited Reprint 1969 \$ 45.00
Trade Cloth ISBN 0-685-22322-1 State Mutual Book & Periodical Service Ltd (Scientific) 1988 \$ 130.00
- Handbook to the Ferns of British India, Ceylon & Malay Peninsula.** R. H. Beddome. 1969. Lubrecht & Cramer Limited. Trade Cloth ISBN 0-934454-47-7 Reprint \$ 27.50
- A Monographic Study of the Fern Genus Woodsia.** D. F. Brown. 1964. Lubrecht & Cramer Ltd.
Trade Cloth ISBN 3-7682-5416-X \$ 36.00
- How to Know the Ferns: A Guide to the Names, Haunts & Habits of Our Common Ferns.** Frances T. Parsons. 1899. 2nd ed. Dover Publications Incorporated. Trade Paper ISBN 0-486-20740-4 \$ 5.95

(to be continued)

BUYERS' GUIDE TO NURSERIES

VICTORIA:

Andrew's Fern Nursery / Castle Creek Orchids - Retail. Phone (058) 26 7285.
Goulburn Valley Highway, Arcadia 3613 (20 km south of Shepparton).
Large range of ferns and orchids for beginners and collectors. Open daily 10am - 5pm except Christmas Day.

Austral Ferns - Wholesale Propagators. Phone (052) 82 3084.
Specialising in supplying retail nurseries with a wide range of hardy ferns; no tubes.

Coach Road Ferns - Wholesale. Phone (03) 9756 6676. Monbulk 3793.
Retail each Saturday and Sunday at Upper Ferntree Gully Market (railway station car park), Melway Ref. 74 F5.
Wide selection of native and other ferns. Fern potting mix also for sale.

Fern Acres Nursery - Retail. Phone (057) 86 5481. Kinglake West 3757.
On main road, opposite Kinglake West Primary School. Specialising in Stags, Elks and Bird's-nest Ferns.

Fern Glen - Wholesale and Retail. Phone (056) 29 2375.
D. & I. Forte, Garfield North 3814. Visitors welcome.

Kawarren Fernery - Wholesale and Retail. Phone (052) 35 8444.
Situated on the Colac - Gellibrand Road, Kawarren (20 km south of Colac).

The Bush-House Nursery - Wholesale and Retail. Phone (055) 66 2331.
Cobden Road, Naringal (35 km east of Warrnambool). Ferns - trays to advanced. Visitors welcome.

NEW SOUTH WALES:

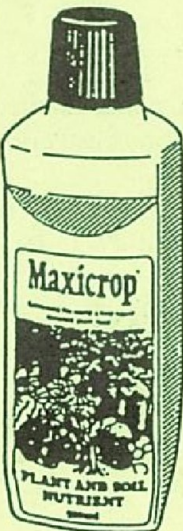
Jim & Beryl Geekie Fern Nursery - Retail. Phone (02) 484 2684.
6 Nelson Street, Thornleigh 2120. By appointment.

Kanerley Fern Exhibition and Nursery - Wholesale and Retail. Phone (049) 87 2781.
204 Hinton Road, Osterley, via Raymond Terrace 2324.
Closed Thursdays and Saturdays. Groups of more than 10 must book in advance, please.

Marley's Ferns - Wholesale.
Phone (02) 457 9168.
5 Seaview Street, Mt. Kuring-Gai 2080.
All Fern Society members welcome. By appointment.

QUEENSLAND:

Moran's Highway Nursery -
Wholesale and Retail.
Phone (074) 42 1613.
Bruce Highway, Woombye (1 km north
of Big Pineapple; turn right into
Kiel Mountain Road).
P.O. Box 47, Woombye 4559.



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