ASSOCIATION of

# S.G.A.P. Fern Study Group

## Newsletter Number 100

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## GET TO KNOW OUR MEMBERS

**PETER BOSTOCK** **Contributed by Merle Gynther.**

Peter could find ferns on the moon! Such was the comment of a botanist friend. Some Fern study group members may be inclined to agree - particularly if they were on the outing to Stradbroke Island where Peter located an obscure fern, *Lycopodiella serpentina,* underneath big clumps of sedge in the middle of a swamp.

Peter Bostock was born in Ipswich in 1949. During his teenage years, after moving with his family to acreage at Riverview (between Ipswich and Brisbane), Peter developed a strong natural history interest. He accumulated a large number of 'pet' snakes, lizards, and fresh water tortoises during this time. His involvement in computers developed during University Christmas vacation employment with Weapons Research Establishment in South Australia. After completing a degree in Mathematics, his first full-time employment was with Queensland Main Roads Department. He worked in computer systems analysis and design, with experience working with various databases and statistical analyses.

It was much later that his interest in plants emerged. He bought a couple of ferns in late 1979. Within a few weeks the Bostock bathroom was full of ferns, and a few weeks later he purchased his first shade house, which also rapidly filled with ferns. Having seen the light, he enrolled to study botanical subjects, part-time at first. In late 1982, he became the full-time carer of daughter Amy, while completing undergraduate subjects, and then commencing his M. Sc., a study of Australian maidenhair ferns, at the University of Queensland. His thesis was submitted late in 1988 and awarded in 1989. One of his early publications was on *Adiantum hispidulum var. whitei.*

Coincident with his fern studies, Peter began examining the botanical Latin of fern descriptions and diagnoses. This was aided by his 'retirement' present from colleagues at Main Roads- a copy of W.T.Stearn's Botanical Latin. This ultimately lead to Peter's development of a suite of freeware computer programs collectively known as 'translat', which assist the translation of botanical latin text, and these are available for down loading from the web. He is now working on a commercial version, suitable for the current windows operating systems.

Peter joined the Queensland Herbarium in 1989. Peter's previous experience in computer systems analysis meant that he has been deeply involved in the ongoing re-development of the Herbarium's plant specimen database. His skills include those of a computer-literate botanist and of a botanically literate systems analyst. **Cont. page 3**

## STATEMENT OF RECEIPTS AND PAYMENTS FOR 2002

| RECEIPTS | 2002 | 2001 |
|---|---|---|
| Member subscriptions | 485 | 460 |
| Donations: | | |
| ASGAP regions | 105 | 90 |
| Members | 70 | --- |
| Dr Chaffey (share of royalties) | 996.06 | 1683.57 |
| Sydney raffles | 51 | 36 |
| Bank interest | 86.21 | 3.49 |
| **Total receipts** | **1793.27** | **2273.06** |

| PAYMENTS | | |
|---|---|---|
| Newsletters: paper and printing | 402.90 | 361.18 |
| Postage etc: newsletters | 218.92 | 202.49 |
| Correspondence | 25.10 | -------- |
| Money orders | -------- | 10.00 |
| Bank charges | 6.00 | 13.44 |
| **TOTAL PAYMENTS** | **652.92** | **587.11** |

| | |
|---|---|
| **CASH IN BANK DEC. 2001** | **3744.59** |
| **CASH IN BANK DEC 2002** | **4884.94** |

**Comments:** The account continues to be healthy, thanks chiefly to donations, particularly our share of royalties from Calder Chaffey's first book. Without the many members who have very kindly added a $5 - $15 donation to their membership subscriptions, our expenses would exceed our income. If you do send more than the $5 subscription, please specify if the extra money is a donation, otherwise you will be credited with subscriptions in advance. A few members are paid up some years into the future in this way. The high figure for bank interest is due to $4000 being kept, for the present, in a term account with about 4.5% interest.

With our financial year ending at the end of the calendar year, we are just about the only ASGAP Study Group adopting this practice. To synchronise our accounts with the rest of the Association, we need to do a once-off $7.50 subscription next year, to cover the following 18 months. About a third of our members send their $5 subscription through the mail, apparently successfully as I have not yet had any complaints about non-receipt of dues (it would help if you do not address the letter to 'The Treasurer'). For this once, perhaps a cheque or money order would be safer to send.

RON WILKINS - TREASURER

**BIO ON PETER BOSTOCK (CONT.)**

Peter's botanical research has had an emphasis on solving taxonomic problems, particularly with reference to ferns. He is responsible (some study group members say irresponsible) for contributions on all or part of eight families of ferns in Vol. 48 of the Flora of Australia, 1998. In the section on filmy ferns he had to choose between three different taxonomic systems used in recent botanical literature. However he has curatorial responsibilities at the Herbarium for a number of other plant families as well.

For nine months in 2002, Peter was the Australian Botanical Liaison Officer (ABLO) at the Herbarium at the Royal Botanic Gardens, Kew. This must be a highlight of his career to date, and lays the foundation for many future professional lines of inquiry. He also visited herbaria at Leiden (Holland) and Paris, as well as the Natural History Museum, London, taking photographs of some 550 fern type specimens, as well as other important collections from early explorations in Australia. He was also able to further his research into Botanical Latin.

Peter joined S.G.A.P. In 1980, and has been a key figure in the Fern Study Group in Queensland since its inception. Members seek his advice on fern cultivation, identification and origin. He has given numerous talks at S.G.A.P. meetings and conferences. Peter relishes the opportunity to go on field trips to see ferns growing in the wild, ranging from expeditions to North Queensland to outings of the Fern Study Groups. Peter has also been the active organizer of fern displays at S.G.A.P. Flower shows.

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## RETROSPECTIVE

With this being the 100th edition I felt it appropriate to include an item from the past. Coincidentally as I opened the file it opened at Edition 43 Dec. 1988. And the article that follows from that Newsletter seemed very apt.

Austrobaileya 2 (4): 360-364 (1987)

## REDISCOVERY AND STATUS OF *ADIANTUM WHITEI* BAILEY (ADIANTACEAE)

P.D. Bostock
Botany Department, University of Queensland, St Lucia, Qld **4067**

### Summary

*Adiantum whitei* Bailey (Adiantaceae), formerly recorded from a few localities in south eastern Queensland, is now known to have a wider range in north-eastern Australia. The receptacle of this taxon bears thick-walled trichomes, a condition not previously reported for the genus. *A. whitei is* reduced to varietal status under *A. hispidulum Sw.*

The original collections of *Adiantum whitei* were from Kenmore, a western suburb of Brisbane. Other contemporary collections came from the nearby suburbs of Indooroopilly and Enoggera, Lawnton (One Mile Creek) *ca* 16 km north of Brisbane and Maryborough *ca* 215 km north of Brisbane. The last collection (other than cultivated specimens) appears to have been from Kenmore in December 1931 (AQ142926, BRI).

Recent collections of *Adiantum* taxa include a robust tripinnate fern collected 9 km SW of the type locality (State Forest 494 Moggill, Bostock 190, BRI). Which matches one of the syntypes of *A. Whitei* (Kenmore, May 1915, White AQ24496 (BRI). A collection from *ca* 6 km NE of the type locality was subsequently propagated from its spores (R.Hill, pers.comm.). The descendants have been distributed under the horticultural names *Adiantum aff. whitei* and Adiantum Species. "SE Qld." More recently *A whitei* has been found to be common along creeks in southern and western

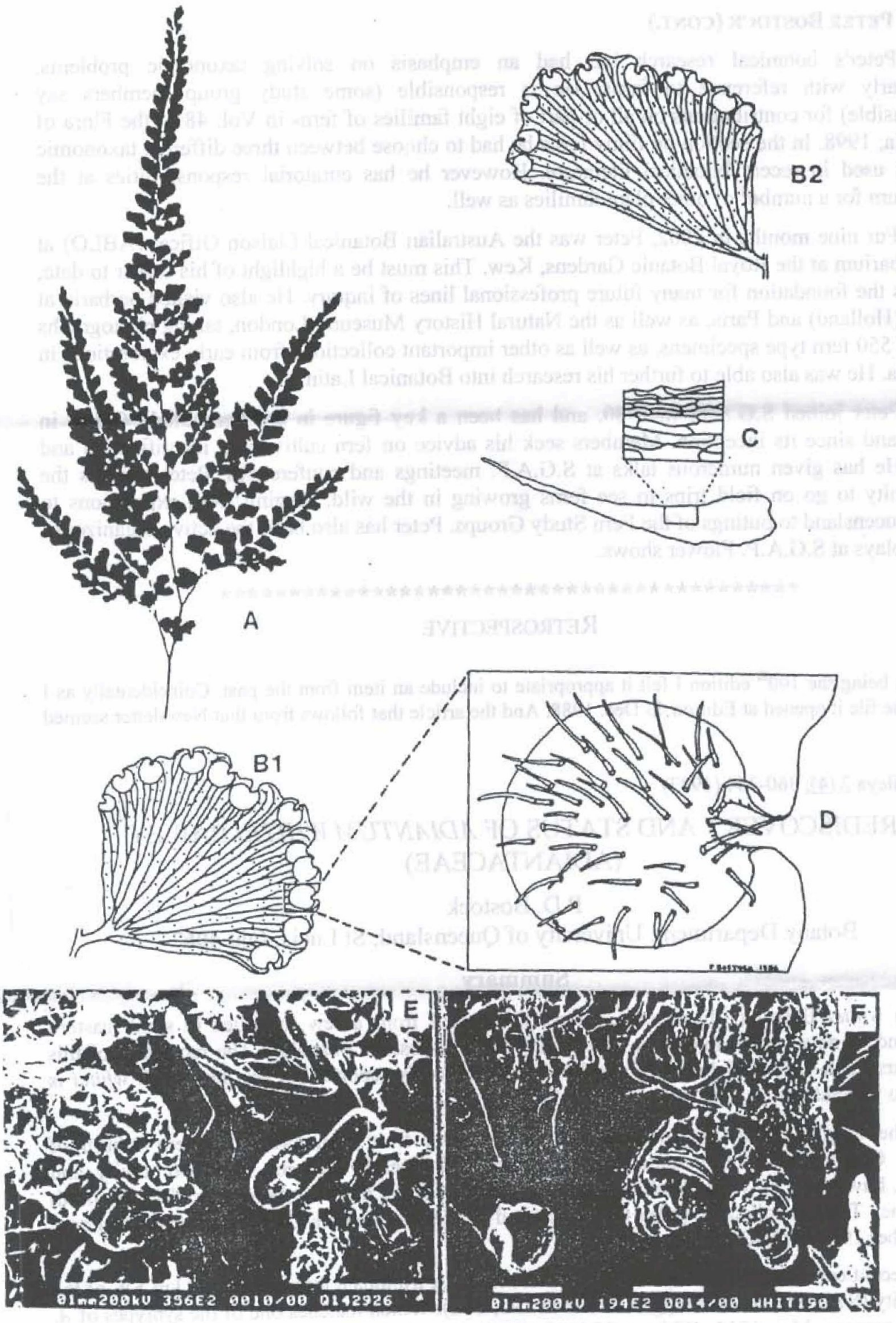


Fig. 1. *Adiantum whitei*: A. silhouette of frond (Bostock 218) × 0.4. B. ultimate segments (middle of frond) (Bostock 190) × 3.5. C. indusium (Bostock 190) × 40. D. rhizome palea (Bostock 246) × 35. E & F. scanning electron micrographs of abaxial indusial surface. E. Blake, Dec 1931, AQ142926. F. Bostock 190. (scale for E and F indicated on plates.)

parts of Brisbane and specimens now in cultivation in Brisbane are reputed to have come from as far afield as Mt Spec *ca* 1500 km north of Brisbane (C.Ritchie, pers. comm.).

A revised description of *A. whitei* is given here, based on specimens examined by the author.

Rhizome short-creeping, semi-erect, stoloniferous; scales concolorous, with entire margins and acuminate apex. Fronds approximate, occasionally remote, to 60 cm long. Lamina to 30 cm long, 20 cm broad, triangular. 2- to 3-pinnate, herbaceous to coriaceous. Rachides invested with antrorse red-brown hairs. Pinnae numerous, narrow-triangnlar, simply pinnate in their apical half. Ultimate segment symmetric and cunceate-flabellate becoming dimidiate and rectangular totrapeziform towards apices of pinnae and lamina; distal margins shallowly lobed, dentate when sterile; segment surfaces invested with numerous short pale trichomes (to *ca* 0.4 mm long) and a few similar but longer ones, denser abaxially. Indusia crowded, 1-4-per lobe, oblong to sub rectangular., joining the segment margin proper at a narrow sinus, bearing on their outer surface numerous dark brown uniseriate thick walled trichomes, which are also scattered a among the sporangia. Spores with minutely granulate perine adhering rather loosely to the exine. Fig. 1.

Recent authors (Jones & Clemesha 1981, Elliot & Jones 1982, Goudey 1985) have speculated that *A. whitei* is a hybrid. Jones and Clemesha (1981) and Goudey (1985)proposed *A. hispidulum* Sw. and *A. formosum* R.Br. as putative parents. Little evidence is offered in support of this statement, although Goudey (1985) lists a number of morphological characters of *A. whitei* which are common to one or other of these species.

In his original description and accompanying illustration, Bailey describes the rhizome of *A. whitei* as 'creeping'. Investigation of the new collections has shown that the 'creeping' rhizome is a stoloniferous branch that on occasion bears fronds spaced a few centimetres apart. The apices of mature stolons bear a tuft of fronds indicating reversion to a short-creeping rhizome. In this respect, the rhizome ramification of *A. whitei* is similar to that of both *A. hispidulum. and A. aethiopicum.* L, another taxon widespread in eastern Australia, but differs markedly from the robust much-branched system of *A. formosum.* The symmetric and cuneate-flabellate ultimate segments of *A. whitei* are reminiscent of those of *A. formosurn and* A.*aethiopicum. However, Hispidulum* also bears segments of a similar form, as in the small accessory pinnae through India and Malesia to Australia and the western Pacific (Parris 1950), is a variable taxon. The form which occurs in drier areas in north-eastern Australia has pedate, sub-pedate or pinnate-bipinnate fronds, with texture and indumentum of the lamina as described above for *A.whitei*. It is this form which occurs in areas where *A.whitei* has been collected and which is referred to in the remainder of this discussion. The range of frond forms which occur in *A.whitei and A. hispidulum* are shown as silhouettes in Fig.2.

Indusia of *A. whitei* (Fig. IC) are morphologically identical to those *of A.* hispidulum in shape, location on the segment and nature of the *trichomes* investing the *outer surface.* Additionally, most *specimens of A. whitei have* been found to possess hook-shaped trichomes among the sporangia (Fig. 1E-F). Indusia of *A. hispidulum* occasionally bear trichomes just under their margins but trichomes have not been found to arise from receptacular tissue. The genus *Adiantum* is usually recorded as non-paraphysate (e.g. Tryon & Tryon 1982), although Nayar (1961) recorded club-shaped paraphyses for material identified as *A. tenerum* Sw. The observation of receptacular trichomes reported here is the first for the genus, and may be regarded as diagnostic of the taxon regarded as *A. whitei.*

*A. whitei and A. hispidulum* cannot be separated by using any of the following characters: rhizome scales *(A. whitei,* Fig. 1D); lamina texture; rachis indumentum or texture; spore ornamentation; rate of spore germination (tested at room temperature (12-24*C) with indirect natural lighting). They have similar ecological requirements, and are generally found in close proximity, although *A. whitei,* which grows mainly in the vicinity of watercourses appears to be less tolerant of dry conditions than *A. hispidulum,* which is often found in relatively sheltered places considerably distant from streams.

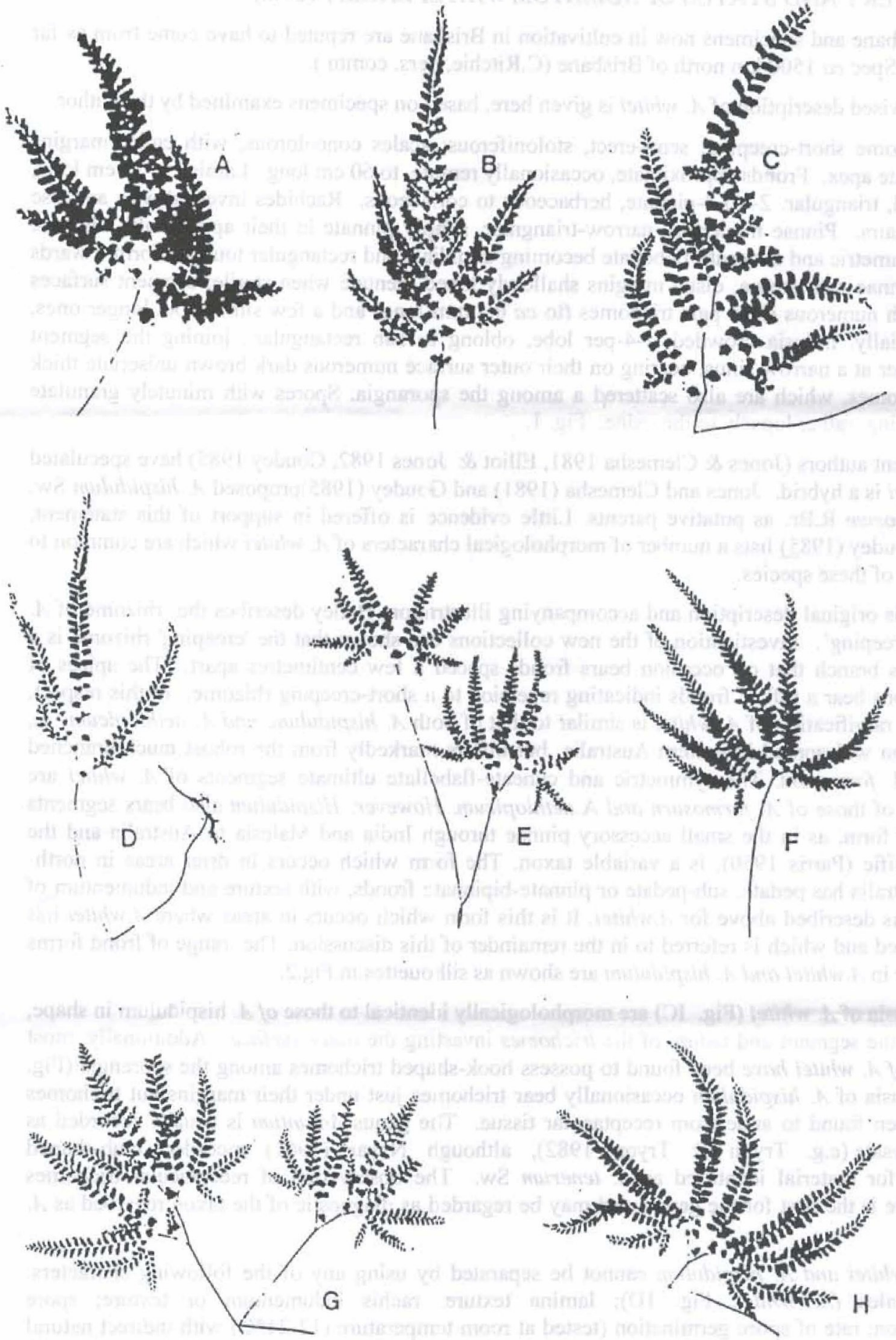


Fig. 2. Silhouettes (not to scale) showing frond forms in *Adiantum whitei* and *A. hispidulum* in Queensland: A–C. *A. whitei sens. str.* A. Bostock 190. B. Bostock 218. C. cultivated ex Mt Spec, NNW of Townsville, Richie s.n. D–H. *A. hispidulum sens. lat.* D. Bostock 235. E. Bostock 251. F. Bostock 245. G. Bostock 250. H. Bostock 151.

On the basis of the above evidence, *A. whitei* Bailey is here reduced to the status of a variety of *A. hispidulum Sw.*

**Adiantum hispidulum Sw. var. whitei (Bailey) P.Bostock stat. nov.**

*Adiantum whitei* Bailey, Queensland Agric. J., n.s 4: 39 & t. 5 (1915). **Lectotype** (designated here): Kenmore, Qld, May 1915, *White* AQ24496 (lecto: BRI; isolecto: NSW).

Specimens Examined. Queensland. MORETON DISTRICT: Kenmore, May 1914, *White* AQ142924; Kenmore 1914; *Young & White* AQ142928., Enoggera, May 1916, *White* AQ142927., Brisbane R., Indooroopilly Feb., 1916; *Young & White* AQ142929; One Mile-Ck, Lawnton, Blake AQ142925; Kenmore, Dec 1931, *Blake* AQ142926 Maryborough district, Young AQ142923; University Bushhouse [Brisbane], Dec 1937., Goy AQ 142930; S.F.494 Moggill, Brisbane, *Bostock* 159, 184, 189, 190, 218, 246, 252; garden plant, The Gap Apr1986 *Bostock 225*; cultivated plant ex Mt Spec, NNW Townsville, Apr 1986, *Ritchie* s.n.., cultivated plant ex base of Mt Petrie, Brisbane. Apr 1986, *Peach* s.n. (all BRI).

## Agamospory in the *A.hispidulum* complex

The source of taxonomic confusion in many fern species may be shown to result from agamospory. Thus the spores contain the unreduced parental chromosome complement and sporophytes arise directly from gametophytic tissue. Archegonia are absent from the gametophytes although functional antheridia are usually present (Walker 1983). This is the situation with *Adiantum caudatum L. sens. strict.,* which is member of a complex consisting of at least seven taxa (Lovis 1977).

Agamospory has also been reported as the normal state in *A. hispidulum* (Manton & Sledge 1954, Abraham et al. 1962, Ghatak.1977, Bidin 1983). The sole exception is Brownlie (1957, 1965) who reported only meiotic chromosome counts. At least 4 cytotypes have been identified in *A. hispidulum* (Walker 1983), but detailed studies linking morphology and cytology in the taxon are not available.

In all investigated cases of hybrids between apomicts and sexual species (where the apomict must be the male or antheridial parent), the offspring have been apomictic (Walker 1979, 1983, 1985). The production of fertile spores by *A. whitei* is not unexpected, even if the taxon should prove to be a natural hybrid between *A. hispidulum* and another (sexually reproducing) Adiantum taxon. Walker (1985) commented on the ability of agamosporous taxa to build up extensive agamic complexes in this manner and the possibility that *A. whitei* has its origins in such an event *(or* events) cannot be discounted.

The numerous morphological similarities between *A. hispidulum* and *A. whitei* indicate a common ancestry, but the latter taxon is sufficiently distinguished by virtue of its frond dissection and receptacular trichomes to be given varietal status.

**Acknowledgements**

I wish to thank the Society for Growing Australian Plants, Queensland Region, Inc. (SGAP) for publishing a request for material of *A. whitei;* the Queensland SGAP Fem Study Group for their donations of cultivated specimens; Rod Hill of Frankston, Victoria for his invaluable field observations and freely offered information; the Director of the Queensland Herbarium for permission to study the *Adiantum* collection; the Queensland Department of Forestry for permission to collect in forestry reserves, and Prof. H.T. Clifford and Mr. P.I. Forster (University of Queensland) for commenting drafts of this paper.

**Editor Note: Anyone seeking the full bibliography for the above article could contact me** by phone 03 5332 1275 or E-mail jmhealy@netconnect.com.au

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## LETTER FROM THE EDITOR.

Well I hope all fern growers out there are having fun during this unbelievably dry spell we are enduring here in Victoria especially in Ballarat It is very frustrating seeing rainfall all around the place (even if it is too heavy) on the news. I know most of the east coast has been dry Ron our treasurer said many of his ferns were suffering but observing rainfall totals of over 100 mm in many areas makes me jealous, we received 14mm. this on top of 7 years of well below average rainfall in the Ballarat area.

The low rainfall coupled with one of the hottest summers on record has meant most of my ferns not only look pathetic but are struggling to survive. hopefully EL NINA will soon appear on the horizon and give EL NINO the boot for many years, because it is a real struggle to keep the enthusiasm going when all your best efforts come to nothing.

## NOTES FROM STH. EAST QLD. FERN STUDY

**Compiled by Irene Cullen**

**THE END OF YEAR MEETING WE HELD AT ROD PATTERSONS RARE PLANT GARDEN** in December was attended by fifteen members. We were happy to welcome a still rather Jet-lagged Peter Bostock back to our group. After a brief meeting Peter told us a few of the Highlights of his stay at Kew. Then Rod told us what plants of special interest to look out for, before we went for a roam around his most interesting garden. Then it was back for our marathon plant exchange. Thanks to Graham Nosworthy's most generous number of ferns for the swap, we all went home with at least 3 ferns each.

**OUR FIRST MEETING OF 2003** was held at the home of Lorna Murray. Fourteen attended with three apologies. A programme for the next few months was worked out before Peter Bostock spoke on his nine months at Kew. As there was no available place for a projector, he chose to speak mainly of the type of work he was involved in and also of the vastness of the buildings needed to house all the botanical materials and the extensive libraries of Botanical books both modern and very very old. There was only time for a very brief look around Lorna's garden before lunch. One fern growing in her garden was a most impressive *Drynaria rigidula var. Whitei.* the lush broad fronds were well over a metre long.

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## FORTH COMING EVENTS

**PROGRAMME FOR SYDNEY MEETINGS 2003 -- NO REPORT RECEIVED**

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**PROGRAMME FOR N.E. NEW SOUTH WALES MEETINGS 2003 -- NO REPORT RECEIVED**

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ASGAP Fern study Sth East Qld Group.

**Sunday 2nd March Excursion to Browns creek road, Yandina hinterland.** Meet 9.30am at the Rest Area approx 1.5 k past Yandina on the Old Bruce Highway. before Lees Road. The leader of the excursion Rod Patterson will then lead.

**Sunday 6th April** - meet 9.30a.m. at Coadby's home 123 Haven Road, Pullenvale for study of Cyatheas

**Weekend 2nd 3rd & 4th May - Excursion to the Bunya Mts.**

**Sunday 1 st June - meet at home of Dan and Wendy Johnston** 14 Bank Road Graceville for study of Gleichena.

## DOODIA CAUDATA IN BALLARAT.

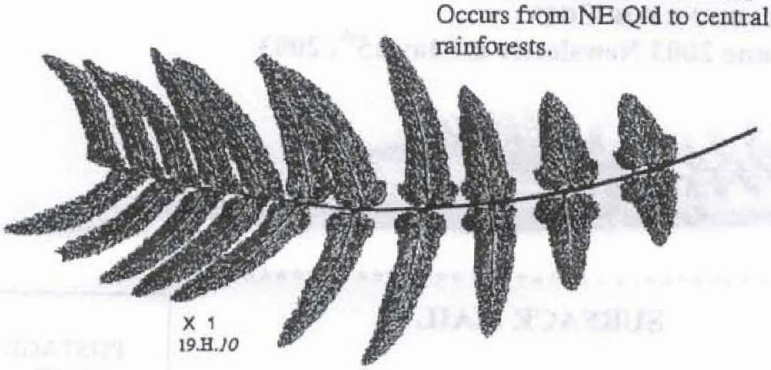
Continuing on from earlier in the newsletter watching semi drought tolerant ferns e.g. Birds nests suffer badly, one fern thriving is doodia caudata. This plant receives sun from early morning to approx 2 p.m. Water once a week and yet it has tripled its size this summer as well as looking healthy .

The following extract is from Calder Chaffey's:

A Field Guide To Australian Ferns.Vol 1. Page 100.


*9. Doodia australis* (Parris) Parris BLECHNACEAE
**Common Rasp Fern**
Spreading, terrestrial. Rhizome short-creeping.
Stipes slender and persistent. Slightly dimorphic, fertile fronds longer.
Lamina to 55 cm long, 5.5 cm wide, 1-pinnate-pinnatifid, elliptical; mature lamina dark green, new growth bright pink.
Pinnae thick, coriaceous, terminal pinnae elongate; change from stalked to lobed pinnae gradual, taking place over six or more pairs.
Sori elongate, discrete, in 1 or 2 rows each side of midrib. Indusiate.
Occurs from E Qld to Tas on creek banks and between rocks in rainforests and wet sclerophyll.


*10. Doodia media* R.Br. BLECHNACEAE
**Common Rasp Fern**
This fern is similar to *D. australis* except that the change from stalked to lobed pinnae sudden, taking place over three pairs or less.
Occurs from NE Qld to central E Qld in wet sclerophyll forests and rainforests.




## SPORE BANK

**ORDERING SPORE:** Spore is available free of charge from Barry White,
24 Ruby St., West Essendon. Vic. 3040
**When ordering please include a stamped self-addressed envelope.**

All types of spore are welcome including fresher samples of ones already on the list. There is no necessity to separate the sporangia from the spore. The whole, or part, frond may also be sent in, all is acceptable. Please include date of collection and, if collected in the bush, the area. In the list, the month and year of collection is shown. The letter B indicates collected in the bush. The area of collection is available on request.

## SPORE LIST - SAME AS DECEMBER NEWSLETTER

**Contributed by Barry White**

Acrostichum speciosum 12/01
Arachniodes aristata 5/00
Asplenium australasicum 2/02
Blechnum articulatum 1/02
Blechnum camfieldii 9/02
Blechnum cartilagineum 2/02
Blechnum chambersii 2/99
Blechnum fluviatile 2/00
Blechnum minus 5/02
Blechnum patersonii 8/99
Blechnum wattsii 5/02
Cyathea celebica 3/99
Cyathea cooperi 5/02
Cyathea cooperi var. cinnamonia /99
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Deparia petersenii 6/00
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Dicksonia youngiae 1/99
Diplazium australe 6/00
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Doodia australis 12/99
Histiopteris incisa 5/02
Hypolepis glandulifera 1/02
Hypolepis rugosula 5/02
Lastreopsis acuminata 10/02
Lastreopsis decomposita 12/00
Lastreopsis hispida 2/00
Lastreopsis microsora 12/00
Lastreopsis rufescens 12/00
Lastreopsis tenera 12/00
Macrothelypteris polypodioides 4/01
Microsorum pustulatum 1/02
Ophioglossum pendulum 2/00
Pellaea falcata 11/01
Platycerium bifurc. cv German Hybrid 9/01
Platycerium bifurc. cv Lemoinei 9/01
Platycerium bifurc. cv Roberts 9/01
Platycerium bifurc. cv. Hilo /99
Platycerium bifurc. cv.HulaHands /99
Platycerium bifurc. Mt. Lewis 9/01
Platycerium bifurc. ssp. veitchii 9/01
Platycerium bifurc.cv Willinckii Scofield /99
Platycerium bifurcatum 5/02
Platycerium hillii /99
Platycerium superbum 5/02
Platycerium superbum (Cairns) /99
Polystichum australiense 12/99
Polystichum fallax 4/02
Polystichum formosum 6/99
Pronephrum asperum 3/99
Psilotum nudum 8/99
Pteris comans 10/00
Pteris tremula 2/01
Pteris umbrosa 1/02
Pteris vittata 4/02
Sticherus urceolatus 5/02

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**NEWSLETTER CONTRIBUTIONS SOUGHT**

Could individuals and groups **PLEASE send items**

**DEADLINE FOR COPY:**

**Closing date for the June 2003 Newsletter is May 15th, 2003.**

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