

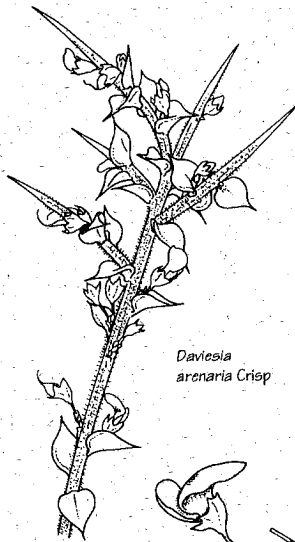


Australian Systematic Botany Society NEWSLETTER

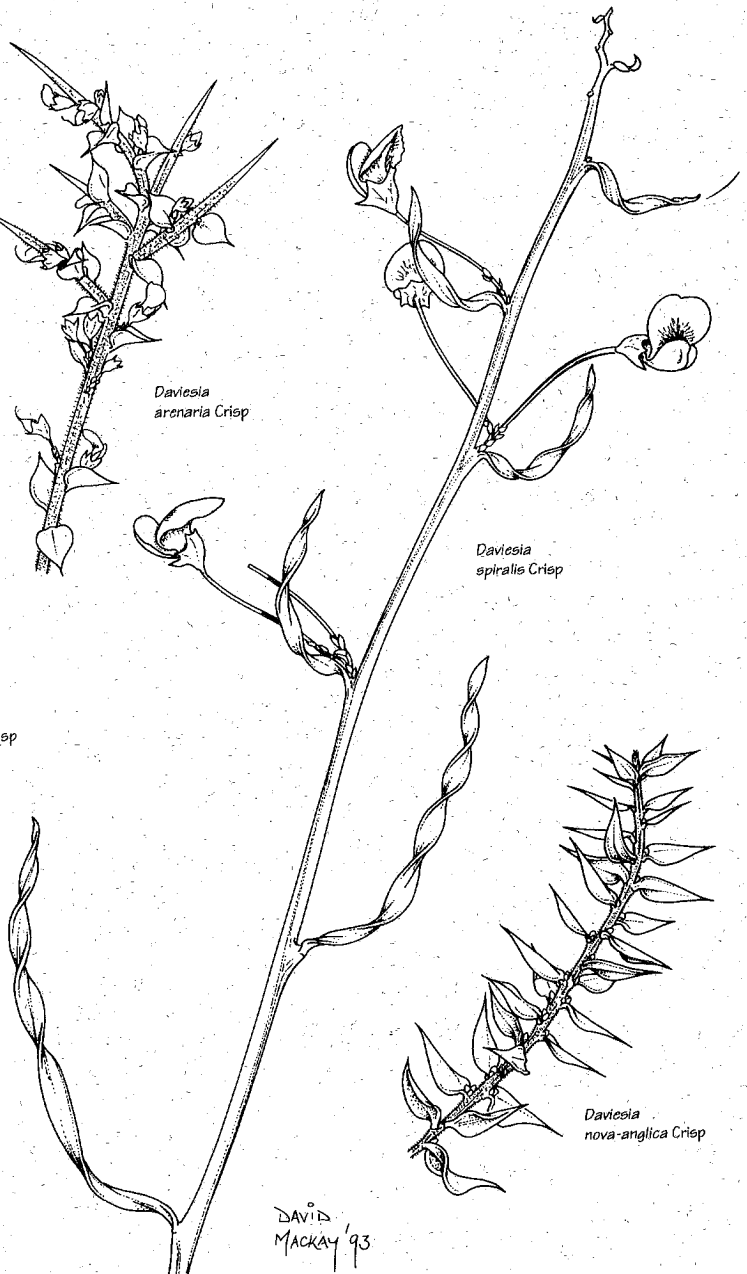
No. 77 DECEMBER 1993



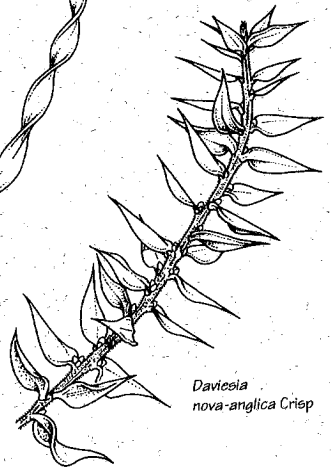
*Daviesia
eremaea* Crisp



*Daviesia
arenaria* Crisp



*Daviesia
spiralis* Crisp



*Daviesia
nova-anglica* Crisp

DAVID
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ARTICLES

A ceremony in memory of Hansjörg Eichler at the State Herbarium of South Australia

W.R. Barker
State Herbarium of South Australia
Botanic Gardens of Adelaide
Adelaide SA. 5000

Introduction

On 19th October 1993, on the eve of the Council of Heads of Australian Herbaria (CHAH) meeting in Adelaide, a gathering of 70 people, including nearly 50 former colleagues and friends of Hansjörg Eichler, took part in a ceremony in the State Herbarium's tea and meeting room to commemorate his contribution to systematic botany. It turned into quite a reunion, some people meeting again after many years.

The ceremony

Marlies Eichler, Hansjörg's wife and long-time companion in systematics, was guest of honour. David Symon, a colleague from soon after Hansjörg's arrival in South Australia, introduced the three speakers. John Jessop welcomed the visitors to the State Herbarium, and spoke of his own experiences in arriving in a new country to take up the position vacated by Hansjörg. E. Stirling (Ted) Booth, Hansjörg's predecessor at the State Herbarium, then told of the beginnings of the State Herbarium of South Australia, its initial collections, and his early collaboration with Hansjörg. This talk is being submitted to a forthcoming issue of the *Friends of the Botanic Gardens of Adelaide Gazette*. Finally, Hansjörg's first postgraduate student, Richard Schodde, recognized Hansjörg's major contribution to Australian systematic botany. His speech is included here. For background information, the reader is referred to Enid Robertson's (1993) recent obituary.

A plaque indicating the extent of Hansjörg's contribution to South Australian and Australian plant systematics together with a photograph of him (taken in 1967, courtesy of CSIRO; see Robertson 1993) and a watercolour by his sister Meret of

the George Gill Range, Central Australia now hang in the meeting room beside the cabinet containing memorabilia of J.M. Black, another important contributor to Australian systematic botany. The text of the plaque was composed by Hansjörg's former friends and colleagues active in the local Chapter of ASBS. The plaque, through the computerization of engraving techniques, includes artwork of Hansjörg's specialities in plant systematics by the State Herbarium's botanical artist Gilbert Dashorst. Represented are stylized fruits and habit of *Ranunculus hamatosetosus*, the first Australian species described by him, and leaves and fruits of *Zygophyllum* and *Hydrocotyle*. The watercolour, Hansjörg and Marlies' favourite of Meret Eichler's paintings from her 1982 Australian visit, was donated by Marlies to the State Herbarium in Hansjörg's memory. A very different rendition in oils, done later in 1985, is illustrated in a recent biography of the artist (Hindelang 1993).

Production of the plaque and the framing of the photograph and painting, together with half of Richard Schodde's air fare, were funded from the Adelaide Chapter's proceeds from book sales to local members over the past several years. Richard Schodde is thanked for financing the remainder of his travel, and the Botanic Gardens of Adelaide and its sponsor Ansett Australia for providing passage for our guest of honour.

References

- Hindelang, E. (ed.) (1993). *Meret Eichler: Beiträge zu Leben und Werk*. Robert Gessler, Friedrichshafen.
Robertson, E.L. (1993). Hansjoerg Eichler, 1 April 1916 – 22 June 1992. *J. Adelaide Bot. Gard.* 15: 81-85.

Hansjörg Eichler: a valedictory

Richard Schodde
CSIRO Division of Wildlife & Ecology
Lyneham, ACT 2602

Introduction

Hansjörg Eichler will be remembered as a father figure in Australian systematic botany. Like Ted Booth, I knew him almost immediately upon his arrival in Australia, first when I came to work at the herbarium here as a student mounting plants in the summer holidays, then as my co-supervisor of Honours and Ph.D. projects in 1958–59 and 1967–68, and again as a neighbour in taxonomy street, Canberra, until his death.

Hansjörg Eichler

When he first arrived, systematic botany in post-war Australia was shambolic. The number of scientifically-trained plant taxonomists could be counted on the fingers of one hand minus the thumb, herbaria were burrowed away in pre-fabs and rooms in buildings designed for other purposes, and there were virtually no students coming through, at least in phanerogams. If you think that was bad, then consider zoology. The university department in Adelaide at that time actually discouraged systematic research, maintaining that it was just technical work and not science. The fact that every taxonomic decision that we make in every revision represents a working hypothesis was lost on them.

Compare that to the situation now. Today there is even an ABRIS and *Flora of Australia* project up and running. To be sure, much of the current impetus is driven by the biodiversity bandwagon — but the foundations for it in Australian systematic botany were laid several decades ago; and Hansjörg Eichler played a central role in establishing that base.

Not a naturally outgoing man, he worked by persuasion rather than declamation. He networked incessantly, corresponding voluminously, involved himself in meetings with herbaria heads — yes, there was life before CHAH — and buttonholed important men in science wherever he could. His positive influence here came not so much from force of personality as from his complete professionalism and untiring dedication to the cause of systematic botany.

It was this professionalism and inspirational

dedication that attracted students, both from within Australia and overseas. In his time at Adelaide, six of them took their doctorates under him, including myself. For us, he was our mentor. If I had to categorize his approach to plant systematics, it would be that it couldn't be categorized; it was all-round — a systematics for all seasons. It even extended to nature conservation, for the very reasons underlying the present biodiversity push. During the 1960s, until leaving for Canberra, he was an active member of the Nature Conservation Society of South Australia.

In taxonomy, he impressed on his students that if systematics drove biology, then collecting and collections drove systematics. His effect in establishing the present form of the South Australian State Herbarium, out of the extensive but too often fragmentary collections inherited by the Botany Department of the University of Adelaide, is evidence enough of that. It was not just collecting but the standards of collecting that he so improved, stressing the need for complete specimens and locality data, something that we take for granted now but which was just not understood at the time. In the widest metaphorical sense of the term, he built the State Herbarium here, and established its standing nationally and internationally.

He also impressed on his students that the finding of taxonomic characters, however cryptic, from the study of a series of specimens, was as important as their subsequent analysis by any technological procedure. As we all know, garbage in produces garbage out.

He impressed on his students that taxonomic characters from state of the art, cutting edge technologies were just another set of characters to amplify, even modify, but not replace those that had been used before. In my student days, a systematics paper devoid of chromosomal analysis was considered hardly worth the paper it was printed on. Now, today, karyology is out and DNA sequencing is in. To be sure, the use of such technologies improves the chances of support from funding bodies in Australian science. But in turning out primarily morphological systematists, Hansjörg Eichler had a more ecumenical vision. He understood that to put Australian systematic botany on a sound footing in the wider community, a modern

Flora of Australia was needed. Such a *Flora* could only be achieved from wide-ranging revisionary work, and for that a small army of taxonomists well-drilled in morphological analysis and the rules of nomenclature was essential.

His students may now be scattered, but his vision lives, and his example stays with us. His professionalism, born of his German training, meant rigour and care in everything that he undertook in systematic botany. The integrity of his approach never brooked any compromise. To the frustration of some, this meant that some projects

took a long time to finish. To the chagrin of others, it meant that they themselves had to go back and correct finer points of nomenclature, grammar, and references. Such pedantry — to use his word — had good reason, for research not published with precision usually reflected flaws that someone would have to take time out to clean up later on.

Yet Hansjörg Eichler was a gentle man; and those of us who knew him personally continue to miss his shy humour and fatherly dissertations on his abiding interest: systematic botany. He lived and breathed it. It was his life's work.



IN MEMORY OF

HANSJÖRG EICHLER

1 APRIL 1916 – 22 JUNE 1992

KEEPER OF THE STATE HERBARIUM OF SOUTH AUSTRALIA
1955 – 1973



In recognition of his considerable influence on
South Australian and Australian plant systematics

through his major role in:

- the development of the State Herbarium of South Australia and the realisation of its international standing;
- increasing knowledge of the South Australian flora, epitomised in his *Supplement to J.M. Black's Flora of South Australia*;
- promoting and encouraging plant systematics throughout Australia;
 - the improvement and application of the international rules of plant nomenclature;
- influencing high standards in systematic research;
- the establishment of the *Australian Plant Name Index* and the *Flora of Australia*.

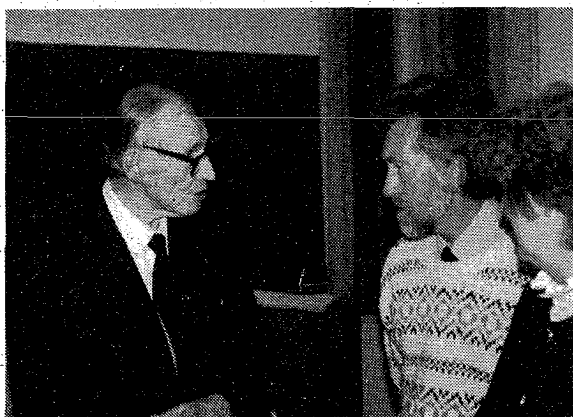


Dedicated at the meeting of
Council of Heads of Australian Herbaria
19 October, 1993

Australian Systematic Botany Society
South Australian Chapter



The design of the plaque commemorating Hansjörg Eichler in the State Herbarium of South Australia.



Clockwise from top right:- Marlies Eichler and Eric Sims, long-time friend of the Eichlers and J.B. Cleland's frequent field companion in South Australia, examine the plaque. Old friends meet again: Dick Schodde and Barbara Welling, Dr Eichler's second secretary, who succeeded Mrs Riddoch on 20th March 1967. E. Stirling Booth (left) with David Whibley, first Botanical Assistant in the State Herbarium from 21st June 1956, and his wife Andrea. Marlies Eichler with Bill Barker, who had a holiday position in the State Herbarium in January and February 1968 and was Dr Eichler's fifth Ph.D. student. (Photos: Bill Barker).

**The compilation of short biographical notes on
people who have named species of *Acacia* and
Eucalyptus, after whom species have been named,
or who collected the type material**

Norman Hall
Unit 212, Hopetoun Village
Castle Hill NSW 2154

Introduction

About early 1974, I, in conversation with senior staff of the then Bureau of Flora and Fauna, was given the opinion that information about people who named plants, after whom species were named, or who collected the type material was a desirable part of the background of a species. In August 1993 the Director, Flora, Australian Biological Resources Study, advised: "The staff of the ABRS regard information on the people connected with the naming of a species as a valuable extension of the associated knowledge of that species".

I thought that outlining biographical information appeared to be particularly important when considering the status and background of species in the early days of Australian history, especially in the late 1700s and early 1800s when species were named by people in Europe. In the early days of the project, I was only concerned with species of *Eucalyptus*, but this was later extended to *Acacia*.

The plan for "Botanists of the *Eucalypts*" (1978)

Although the booklet was not published until 1978, the early planning went back to the beginning of 1974. Dr D.A.N. Cromer, Director of the Forestry Bureau, secured approval of the Secretary of the Department of the Interior for the preparation of the publication, and it was arranged for the Government Printer, Canberra, to print it. In late 1975, however, the Forest Research Institute was taken over by CSIRO, and Dr M.F.C. Day became first Chief of the Division of Forest Research. The *Botanists of the Eucalypts* was included in the Division of Forest Research programme, and was printed by CSIRO, Melbourne.

For some years I had an office in the new building of the Forest Research Institute, and continued there when it was taken over by CSIRO, although I was not on the staff of the latter organi-

sation. During the years 1970-74 I was closely associated with Mr M.I.H. Brooker, a botanist specializing in the systematics of eucalypts, in the writing, necessary photography, and growing of seedlings from authentic seed sources, for upwards of 200 leaflets, each dealing with one species. (Previously, I had been engaged in the writing and photography for a number of extra species of eucalypts for the second edition of *Forest Trees of Australia*). I left Canberra in early 1975 for a retirement village in the Sydney area, and that meant an end to the collaboration with M.I.H. Brooker.

In view of my long association with species of eucalypts, the idea was realized of writing short biographical notes on the people associated with the naming of species. This work would not have been possible without access to the library of the National Herbarium of New South Wales at the Royal Botanic Gardens, and the State Library of N.S.W.

For the minimum biographical data needed, I attempted to secure:-

1. Full name, including spelling if in a foreign language;
2. Date of birth, at least including the year in the case of very early years (1700s and early 1800s);
3. Place of birth. For overseas people the country was considered adequate, but for Australia the state was important in case additional information was needed;
4. Academic qualifications where applicable;
5. If the person was the collector of a type, then date and place of collection;
6. Occupation, position and organisation where relevant. The organisation and status of a person is of increasing importance in the case of the younger people currently collecting;

The sources of information

Information given by *Index Kewensis* was essential, especially for species published in the

earlier years. From *Botanists of Australian Acacias* (1984) on, authors' names were given as in *Draft Index of Author Abbreviations*, as compiled at the Herbarium, Royal Botanic Gardens Kew.

Botanists of the Eucalypts (1978)

Information about people in that publication mainly came from major references, with minimal data direct from living people. There were a few cases where background information was sought from overseas sources; in such cases a letter from an official source was more desirable than by me writing as a private individual. Some help was given by Mr A.G. McArthur (obit. 1978) and Dr M.F.C. Day, Acting Chief of the Division of Forest Research in 1976 and then Chief (1977–80).

Supplement to "Botanists of the Eucalypts" (1978), "Botanists of Australian Acacias" (1984) and supplement

Note that many notable early botanists and collectors of acacias have not been included in *Botanists of Australian Acacias*, for example G. Bentham and J. Drummond, since notes on them were in the earlier published *Botanists of the Eucalypts*.

When new species were published, I sought from the authors, if the information had not been given in the description of the species, the full names and current addresses of collectors of type material or of people after whom species had been named.

I did not expect people whom I did not know to send personal biographical information to a stranger. This position was covered by the Division of Forest Research sending out a *pro forma* letter and a form indicating the critical information requested.

When the forms were returned to Canberra, the originals were retained there and a photocopy sent to me for use in compilation. Mr A.G. Brown, who held senior positions in the Division from 1982 including that of Chief (1991–92), was a major source of help in the inquiries. Acknowledgment is also made to him in editing and preparation for printing of the supplements to *Botanists of the Eucalypts* and *Botanists of Australian Acacias*.

The value of personal contacts

The staff of the leading herbaria were very helpful, but there was another aspect to all of this. Living in retirement village complex of 2,000 or more people in the 60–95 age class, there were

some neighbours to whom I mentioned my problems. One useful example was that I had fairly full information of R.J.G. Burrow, a Senior Forestry Officer in N.S.W., but I did not know the date and place of death. My neighbour simply said: "I can give you the address of his widow". In the case of a daughter and the only son of J.H. Maiden, another neighbour said that another daughter was living in the Mowll Memorial Village, adjacent to my own Hopetoun Village.

In the case of D.W.C. Shiress, I had help from a duty officer of the National Herbarium of N.S.W. A grandson, the Rev. D. Shiress from London, called at the Herbarium, seeking information about his grandfather. The duty officer thoughtfully gave him my address, and so I was able to complete the note.

In the case of the Rev. T.H. Goodwin, all that F. von Mueller noted in the type description of a species was: "Goodwin was one of the collectors, on the Darling River, N.S.W." The date was certainly not after 1863. When Dr L. Gilbert saw my inadequate note, he gave me more information from his *Plants and Parsons in Nineteenth Century New South Wales* (1982). Professor K.J. Cable of Sydney University also made an important contribution.

In the case of G. Ward, I had little information other than that the author of *Acacia resinicostata* (1974) told me that Ward was an elderly man in poor health, living in Toowoomba. At that time, Mrs Hando of Chinchilla prepared the monthly newsletter of the Chinchilla Field Naturalists Club, and in the March 1985 issue of *Urimbirra* made an appeal for information. There were two replies, one from a daughter.

One 1993 example also merits recording. When a new acacia species was described in early 1993, the type was referred to W.E. Giles in 1959, and the location was near Orange, N.S.W. Fortunately, Dr L.A.S. Johnson had met Giles in his orchard in 1958. The mayor of Orange advised me that this Giles had left the district but was reported to have bought an orchard in the Batlow district near Tumut. Correspondence with a nephew in Tumut provided the address of Giles' remaining sister, and she was able to provide the necessary data.

Conclusion

The preceding notes refer to successful results, but anyone checking *Botanists of the Eucalypts* will find that there are a number of people for whom I did not find any information. In many cases, the

full name was not given, nor was the occupation or any associated organisation. One man was a settler in Victoria and known to have been active in the period around 1840–56. In this case, possibly a detailed examination of the early records of that State may have revealed adequate information. In a number of cases, both J.H. Maiden and W.F. Blakely referred to young ladies on the staff as ste-

nographers or assistant librarians, and it appears possible either that they married and changed their surname or that they moved interstate.

I would appreciate it if anyone who has any clue to people for whom I have failed to produce a minimum biographical outline would advise me at the above address.

Catalogue of the J.E. Smith herbarium at Liverpool has been completed

John Edmondson
National Museums & Galleries on Merseyside
Liverpool Museum
William Brown Street
Liverpool L3 8EN
England

Introduction

A major collection of 18th and early 19th century Australian herbarium specimens has been catalogued and entered into a database, as part of a long-term project to prepare a computerized inventory of the James Edward Smith herbarium. In the main, these specimens consist of duplicates of specimens in the main Smith herbarium at the Linnean Society of London; but a few appear to be unicates.

The Smith collection at Liverpool

The herbarium consists of 268 Australian specimens, 123 of which are regarded as types. The principal collector is John White, surgeon-general of the Port Jackson settlement from 1788 to 1794; but other collectors include Robert Brown, David Burton, William Caley, J.J.H. de Labillardière, Archibald Menzies, and Arthur Phillip.

In the early 1980s, microphotographs of the Smith herbarium were taken at Kew, and a set of colour transparencies mounted on aperture cards was deposited in the herbarium of the Australian National Botanic Gardens, Canberra (CBG). These can be studied in conjunction with the IDC microfiche of the main Smith herbarium; the Liverpool catalogue includes cross-references to London specimens when an exact counterpart has been established.

Unlike the main Linnean collections, the Liverpool material is available for loan overseas, and

over the past ten years we have sent seven loans totalling 32 specimens to botanists in Australia. Nevertheless, there is considerable scope for further use of the material, particularly by authors of accounts for the *Flora of Australia*, and I hope that this note will help bring it to attention.

Other collections

The Smith herbarium is not the only significant Australian collection at Liverpool.

Our most recent acquisition was the bryophyte herbarium of Prof. N. Alan Burges, formerly of the University of Sydney. Several late 19th and early 20th century collectors are represented, and it contains a set of Thomas Whitelegge's material.

The John Forbes Royle herbarium has a small Australian component, including a few Smith specimens. This herbarium is currently undergoing conservation, and a database of specimen label data is now being built up. This may in time bring further Australian type specimens to light.

The Thomas Velley seaweed herbarium contains algal material from Port Jackson collected by Governor Phillip, including the type of *Ecklonia radiata*.

Enquiries are welcome, whether by post fax or email.

Tel. (+44) 51 207 0001

Fax (+44) 51 298 1395

Email 100145.554@compuserve.com

COMMENTARY

W.F. Blakely's birth date

Following my note in *Austral. Syst. Bot. Soc. Newsletter* 74, seeking the actual birth date for William Faris Blakely, I was contacted by a former colleague, Norman Hall, who told me to look in the Public Service List of New South Wales. My wife has looked in this for me, while doing genealogical searching in the National Library, and it showed that Mr Blakely was born on November 3 1875.

George Chippendale
4 Raoul Place
Lyons. ACT. 2606.

**Cneoridium dumosum (Nuttall)
Hooker f. collected March 26,
1960, at an elevation of about
1450 meters on Cerro
Quemazón, 15 miles south of
Bahía de los Angeles, Baja
California, México, apparently
for a southeastward range
extension of some 140 miles**

I got it there then (8068).

I wish to express my sincere thanks to the San Diego Museum of Natural History and particularly to its director, Dr George E. Lindsay, for making possible the trip on which this interesting specimen was collected; to my companion on the trip, Mr Glen Ives, then staff artist of the Museum but functioning on the trip as collector of birds and mammals, for much help and encouragement during the field work; to Señor Ricardo Daggett of Bahía de los Angeles, majordomo of the Vermilion Sea Field Station of the San Diego Museum of Natural History, for help in planning and arranging the trip; and to Señor Pepe Smith and his 14-year-old son Favian, both of Bahía de los Angeles, who packed us into the mountains, for many courtesies extended. I am very grateful to Miss Anita Carter, Principal Herbarium Botanist of the University of

California, Berkeley, for graciously verifying my determination of the specimen. I also wish to extend my thanks to the editor of the publications of the San Diego Society of Natural History for his many helpful suggestions during the compilation and processing of the data and the writing of the manuscript; to Dr Helen K. Sharsmith, Señora Herbarium Botanist of the University of California, Berkeley, for her valuable suggestions on expanding the discussion and making the title more precise; to Mrs Jerry Heller of the Museum staff for her very careful and accurate typing and retyping of the manuscript; and to Mrs Rosemarie Fiebig of the Museum staff for taking the final manuscript to the post office for mailing. I must also express my deep gratitude to all my former mentors, to whose excellent instruction and training must ultimately be attributed any merit that this unworthy contribution may possess, although, needless to say, any errors are my own: in particular, I would name Prof. Ira L. Wiggins and the late Prof. LeRoy Abrams, of the Stanford University; Prof. Robert T. Clausen, of Cornell University; and Profs Lincoln Constance, Herbert L. Mason, and G. Ledyard Stebbins, of the University of California, Berkeley. Last but not least, I cannot fail to mention my deep indebtedness to my parents, without whose early co-operation this work would never have been possible.

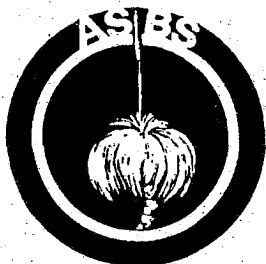
Reproduced from *Madroño* 16: 272 (1962).

Reid Moran
Museum of Natural History
San Diego, California

There was a young curate of Kew,
Who kept a tom cat in a pew;
He taught it to speak
Alphabetical Greek,
But it never got further than μ .

Said the curate, "Dear pussy, you know,
Is that really as far as you go?
If you only would try,
You might get up to π ,
Or even υ or ρ ."

A.S.B.S. Inc. BUSINESS



Student

Awards

There was no official Council meeting at the ASBS symposium held in Perth last September–October, due to the lack of a quorum. However, the three councillors present — myself, Jenny Chappill, and John Clarkson — met informally and awarded financial support to students who presented papers at the symposium, following the Council decision made last January.

Details of the students and the payments are given below. Michael Bayly was awarded more than the others because: (i) he was the only student who gave a spoken paper, and (ii) he was the only one to travel from interstate. All of the other students presented posters. In addition, all seven students are given free membership of the Society for one year.

It is good to see students participating actively in an ASBS symposium, and they are commended for their efforts.

W. Jason Kennington \$50
Department of Botany
University of Western Australia
Nedlands WA 6009

Jason Passioura \$50
Department of Botany
University of Western Australia
Nedlands WA 6009

Kristina Lemson \$50
Department of Botany
University of Western Australia
Nedlands WA 6009

Lin Chen \$50
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University of Western Australia
Nedlands WA 6009

Louise Egerton-Warburton \$50
School of Environmental Biology
Curtin University of Technology
GPO Box U1987
Perth WA 6001

Philip Groom \$50
School of Environmental Biology
Curtin University of Technology
GPO Box U1987
Perth WA 6001

Michael Bayly \$150
School of Botany
University of Melbourne
Parkville Vic 3052

Mike Crisp
President, ASBS Inc.

A.S.B.S. Member Profiles

Tim Entwisle A.S.B.S. Councillor

When you're born in Nhill, being a phycologist is seen as making a success of your life. But I wasn't always a phycologist. I did kindergarten at Wangaratta, school at Euroa, Alphington, Thornbury, and Castlemaine, and university at Melbourne. My parents were teachers, which somehow explains this progressive (as in "progressive dinner") education.

Following on from a third year project in marine botany where (somewhat enigmatically) I studied freshwater algae, my honours year was devoted to the taxonomy of freshwater red algae — the slippery, slimy kind that love scenic mountain rivulets. It took a year of assisting horticulturally at the Royal Botanic Garden Melbourne to get me back to university; and, true to my inherited wanderlust, I chose La Trobe University.

Just over three years of dedication to a moss-like, yellow-green alga called *Vaucheria* earned me a Ph.D. This I used to secure a post-doctoral position back at the University of Melbourne, where I became a "taxonomist who dabbles in ecology". By the end of another three-year stretch, I knew lots about freshwater macroalgae in the Yarra River

catchment. I also learnt a little about journalism, writing irregularly for *The Age*. My efforts huddled beneath banners that I would have been proud to have coined but didn't: e.g. "Orchid welshes", "Rain-forest bug bites back in Gippsland", "Blood may flow over the wattle", "Toxic time-bombs in bay", and "Enthusiast makes no bones about his fish collection".

The last bit of my abridged life could be headed "From phycology to phanerogams, a fluorescent four years". I took up my current job as flora writer in January 1990, starting with ferns and gymnosperms, and graduating to orchids and then (we do things differently in Victoria) crucifers and wattles. As co-editor (with Neville Walsh) of the latter three volumes of the *Flora of Victoria*, I also do some pasting, some crossing out, and some interpersonal skill development. My research is still phycological: I am collecting and DELTAizing the freshwater red algae of Australia and New Zealand, before doing the full monograph/phylogeny/biogeography deal. Life at MEL is good. It's diverse, interesting and satisfying, which is not bad for a boy who started with Nhill.

Peter Wilson A.S.B.S. Treasurer

I was born in what has now been shown to be a centre of origin for a select group of Australian taxonomists: the Southern Highlands of New South Wales. One of my aunts has suggested that I am following the botanical inclinations of my great-grandfather, who was a Church of England clergyman somewhere on the Salisbury Plain, and who taught botany to his parishioners in the rectory garden. Although I do have a strong interest in matters theological, I never seriously contemplated a path which would lead me in the footsteps of Rupp or Watts.

Unfortunately, my parents did not foresee this botanical potential, and created a junior homonym P.G. Wilson when they named me. This has no doubt been somewhat inconvenient for PERTH's Paul, since it has certainly made my life interesting when people expect me to comment intelligently on *Maireana* or *Phebalium*!

I was still quite young when my family moved to the northern beaches of Sydney. This really marked the beginning of my interest in biology and taxonomy. I have always been a bit of a collector of things (others would see this as evidence that I am a "pack-rat"!), and I became a keen collector of

mollusc shells. Hence, when I entered the University of New South Wales, it was my intention to major in some type of marine biology. However, as I progressed I developed a growing interest in taxonomy, which was not a prominent part of zoology (except in entomology), and I elected to do Honours in botany.

My Honours project in botany was primarily a species problem, assessing the variation in what was then known as *Tristania laurina*. By the end of the year, I had started to be gripped by the desire to find out just what the generic affinities of the disparate taxa in *Tristania sens. lat.* really were. This led to my Ph.D. studies and my continuing interest in generic limits in the Myrtaceae, particularly in the *Metrosideros* alliance, which has led to the recognition of six new genera so far.

Between finishing my Ph.D. and starting work at the National Herbarium of N.S.W., I managed to get myself started on a completely alien subject: a revision of *Indigofera* (Fabaceae) in Australia, a challenging task that is nearly complete. Also, in more recent times, I have taken on another alien subject: the treasurer'ship of ASBS — I who eschewed my father's line of work (in a bank) to study science. Good luck ASBS!

Newsletter editor vacancies

At the 1994 ASBS Inc. Annual General Meeting, your *Newsletter* editors intend formally announcing, regretfully, that they wish to stand down, preferably as from the date of that meeting. We will produce the June 1994 issue as usual, but a new editor (or editors) will be needed from the September 1994 issue onwards.

Editing the *Newsletter* has been an enjoyable experience, but we feel that after 3.5 years of toil it will be time for somebody else to have a turn. In some ways, we are leaving a bit early, as we will have just missed setting the record for the greatest number of issues edited — we will be making it to fourteen, while Gordon Guymer made it to fifteen (on his own). It is probably also time for the *Newsletter* to move out of Sydney (Sydney, Canberra and Brisbane have dominated so far).

So, if anyone out there wants to exercise some power over other people's publications (rather than the other way around), then please contact one of the Council members.

David Morrison
Barbara Wiecek

Subscriptions for 1994

Subscriptions for 1994 are due on 1 January 1994. Subscription rates for 1994 are:-

Ordinary/Institutional members..\$30

Full-time students.....\$15

Monies should be sent, with membership renewal form, to the Treasurer at the address shown below.

CSIRO Scientific Journals 1994 Concessional Price List

The concessional rates for subscriptions to CSIRO journals for 1994 are listed below. Note that

these rates are available only to financial members of ASBS. Subscriptions must be paid for through the Society — the concessional rates are not available directly from CSIRO. Please note also that late orders will not be accepted.

Those members wishing to subscribe, or to renew their subscriptions, should send the appropriate subscription money by January 31 1994 to:

Dr P.G. Wilson

Treasurer, ASBS Inc.

National Herbarium of New South Wales

Royal Botanic Gardens

Sydney NSW 2000

Please include this with the payment of your 1994 subscription to the Society.

Journal	Concession	Full rate
Australian Journal of Agricultural Research	\$110	\$220
Australian Journal of Botany	\$100	\$195
Australian Journal of Chemistry	\$225	\$450
Australian Journal of Experimental Agriculture	\$100	\$200
Australian Journal of Marine & Freshwater Research	\$110	\$220
Australian Journal of Physics	\$130	\$260
Australian Journal of Plant Physiology	\$100	\$195
Australian Journal of Soil Research	\$100	\$195
Australian Journal of Zoology	\$100	\$195
Australian Systematic Botany	\$100	\$195
Invertebrate Taxonomy	\$130	\$260
Reproduction, Fertility & Development	\$100	\$195
Wildlife Research	\$100	\$195
Single Back Issues	\$ 20	\$ 40

PERSONAL NEWS

Obituary

Gwenda L. Davis

Prof. Davis passed away after a very brief illness on 21 September 1993, shortly before her 82nd birthday, at Port Macquarie N.S.W., where she had moved after her retirement from the University of New England. Dr Davis was well-known for her book *Systematic Embryology of Angiosperms*, which was published in 1966 but is still quoted widely, and for her elegant research on the embryology of Australian Asteraceae and the genus *Eucalyptus*.

Gwenda started her academic career in 1945 as a plant taxonomist at the then New England University College at Armidale, affiliated with the University of Sydney, and she was largely responsible for setting up the Department of Botany on the

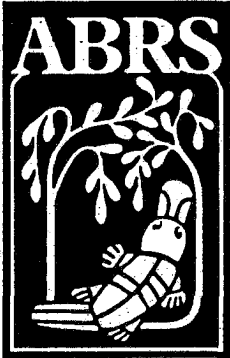
campus. After a disastrous fire in 1958, which destroyed the building that housed the Botany Department, she switched her research interests to plant embryology. She visited the leading centres for the study of embryology in the world, including long periods spent with Prof. P. Maheshwari at the University of Delhi.

At New England, she is fondly remembered for her wide knowledge of Australian botany, her strict but fair treatment of students and junior colleagues, and most importantly for her humane and kind nature.

She is survived by three children, one of whom, Margaret, is married to the director of the Royal Botanic Gardens Sydney, Prof. Carrick Chambers.

N. Prakash
University of New England, Armidale

REPORTS



Australian Biological Resources Study

In a public lecture at the Australian Academy of Sciences on the evening of 22 November, ABRs marked its 20th birthday. The organisation was founded on 6 December 1973 with the establishment of an Interim Council. The birthday celebration was held a few days early, to coincide with a meeting of the ABRs Advisory Committee. The keynote address was delivered by The Hon. Gough Whitlam, who as the then Prime Minister presided over the establishment of ABRs, and who has since maintained an active interest in our progress. The evening was attended by many past members of the ABRs Interim Council, the Advisory Committee, representatives of the Editorial Committees, ABRs staff (past and present), the scientific community, and members of the Academy. The evening closed with drinks and the ceremonial sacrifice of a large cake in the shape of the ABRs logo.

A week or so earlier, the Minister announced the award of Grants for 1994 under the ABRs Participatory Program. The flora-related grants are listed elsewhere in the *Newsletter*. As mentioned in the last issue, funding available to ABRs this year was about half a million dollars less than last year. This was reflected in the grants program. Several long-running projects were terminated, and others were notified that 1994 would be the last year of funding. Most applications were trimmed to some extent from their proposers' initial requests. Many very good projects that we would have liked to support were not funded at all.

These decisions have understandably caused a certain amount of distress, which we share. Unfortunately a number of circumstances have combined this year to bring things to a head.

The Advisory Committee has decided to enforce a 3-year limit on research projects. This limit has already applied for some time to Fauna projects, and Flora has been brought into line. In future, no projects will be funded beyond 3 years (but annual renewals and reviews will continue as at present). Projects that, by their size or complexity, need to continue beyond 3 years will require "Initial" applications again for the 4th year, with full argumentation, as if they were new projects.

A second factor has been the increase in requests for support for projects leading ultimately to *Flora* treatments. In the past, ABRs Flora has received a very high proportion of its manuscripts from contributors with little or no support expected or received. We are very proud of the fact that support for the *Flora of Australia* project in the botanical community has been such that up to two-thirds of the manuscript received for published volumes has been donated. Tighter economic times have now forced many institutions to seek additional funding wherever possible, and an unfortunate side effect has been that many botanists are now requesting support for projects that they might previously have completed under the auspices of their home institutions. While this is understandable, it does unfortunately create additional pressure on limited ABRs grant funds.

In line with other scientific granting organisations, the ABRs Advisory Committee has this year decided to raise the level of salary on-costs added to grants from 20% to 26%. This has created a further pressure on available resources.

There are now probably more taxonomic botanists existing precariously on "soft" money than at any time in the past. These individuals have an advantage, from ABRs's point of view, that they can devote their time 100% to research / flora writing. However, in comparison with botanists in permanent positions, they are obliged to seek full time salaries in line with their level of expertise.

The combination of the above factors has meant that this year, with shrinking resources, we have had increasing demands on funds, such that for several projects on the advertised preferred objectives, we received 4–5 competing applications. The Advisory Committee had the difficult and complex decisions to make, to divide the \$1 million available for Flora grants amongst applicants seeking a total of over \$2.39 million. In doing this, they took many factors into account,

including (in no particular order):-

- ABRs's needs for research and *Flora* accounts;
- continued support for on-going projects, to protect past investment;
- the need to get new projects started, to build for the future;
- equity of opportunity for taxonomists working in different taxonomic groups;
- equity of spread of resources amongst institutions and individuals;
- obtaining value for money; and
- established publication schedules.

It is difficult to see how this situation will improve in future years. Unless additional funds to support the Participatory Program can be found, it is likely that competition for grants will become increasingly tight, reflecting the situation that has applied in other scientific grant schemes for some years. Potential grantees will need to spend additional time on paring their applications down, making them increasingly focussed, with well-defined goals and demonstrably cost-effective, if they are to be successful.

On a brighter note, the Flora Section is pleased to be able to announce that the first volume in our new *Flora of Australia Supplementary Series* has gone to press. The book, *The Marine Benthic Flora of Southern Australia. Rhodophyta Part IIIA, Bangiophyceae & Florideophyceae (to Gigartinales)*, by H.B.S. Womersley, consists of 508 pages, including 167 plates and 4 pages of colour illustrations. It continues, and is uniform in format with, Parts I and II, published in 1984 and 1987 in the *Flora and Fauna of South Australia Handbooks* series. Publication is expected in late December.

The *Supplementary Series* will comprise occasional publications on the systematics of the Australian flora, considered essential to underpin the main *Flora of Australia* project. The publications will take many forms — monographs of key groups, census compilations, nomenclatural indices, and bibliographic compendia, amongst others. Those wishing to have manuscripts considered for this series should consult the Executive Editor. Unlike the *Flora of Australia*, publication and marketing of these books is entirely an ABRs undertaking, with no involvement of AGPS.

The *Flora of Australia* Editorial Committee met in Canberra on 12–13 October. Some of their key decisions were:-

- A new edition of *Volume 1* of the *Flora of Australia* will be prepared, for publication in late 1995 / early 1996. The existing text will be extensively rewritten and updated, and additional chap-

ters added, to make the book a more rounded compendium of information on the systematics of the flora of Australia. A questionnaire seeking the views of the user community on desirable content for this new edition has been circulated through universities and herbaria. Anyone who has not received a copy but would like to take part in the survey should write to the Executive Editor.

- The concept of ABRs as national co-ordinator of taxonomic descriptive database inventories, arising from a meeting in Perth in September, was endorsed, but only on condition that it did not absorb existing resources.

- As a result of representations from taxonomists of non-vascular groups, it was agreed that, in the non-vascular flora volumes only, the following convention could be used:- for measurements of small objects, like spores, the size could be given in the form $2 \times 3 \mu\text{m}$, rather than $2 \mu\text{m}$ long, $3 \mu\text{m}$ wide. The same group asked that, in the non-vascular flora volumes, the keys should be in the form of adjacent couplets rather than indented. This was also agreed. Note that neither of these changes applies to the vascular flora volumes, which will continue to use existing conventions.

Three members of the Editorial Committee retire at the end of this year. Jim Ross has been on the Committee since its inception, and has been Chairman since 1988. Bob Chinnock has been a member since 1985, and George Scott since 1988. All three have provided very valuable advice to us over the years, and we are most grateful for their input.

The ABRs Advisory Committee met in Canberra on 22 November. Their decisions on grants for 1994, so far as Flora is concerned, are listed separately in the *Newsletter*. They cover all major groups of plants, including, for the first time, some grants supporting research on the algae. The Committee also finalised a list of Research Objectives for the next granting round, and these will be advertised as usual in March. The Flora Objectives are shown below, to give potential grantees additional time to consider their applications.

The Advisory Committee endorsed the concept of ABRs becoming the national co-ordinator of taxonomic descriptive database inventories. It is envisaged that developers of such databases will register them in some way with an ABRs database manager, with ownership and control remaining distributed throughout the country. It is hoped that this will lead to more uniform standards for such things as character sets, making the individual databases much more compatible with each other. The result, for botany, would be a "Supra-Flora" of

taxonomic descriptive databases, in a constant state of development and enhancement by those best able to do so (their originators), overlying the published subset of data which is the current *Flora of Australia*. For this to become a reality, additional resources will need to be found, and the Advisory Committee is now addressing this problem.

A further departure from previous practice endorsed by the ABRs Advisory Committee was the strengthening of the contract system for preparation of manuscripts requiring little or no research input, and for non-writing tasks such as support for the ABLO and the Herbarium Loans scheme. In future we will have greater flexibility to commission the writing of sections of the *Flora of Australia* under contract, subject to the scrutiny of the Advisory Committee. This will be particularly useful in those cases where "remnant" treatments are needed to complete volumes, or where taxa on the Research Objectives attract no expressions of interest. Mechanisms for this contract system are still being developed.

The contact numbers and addresses for ABRs remain:

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Tony Orchard
Flora of Australia



**Australian
Botanical
Liaison
Officer**

I took over the ABLO position from Peter Weston on the 1st of September. We were fortunate to find a semi-detached house at the North

Sheen end of Kew, which suits us well because it is close to the school which both of our boys now attend and is about 25 minutes walk to the herbarium.

The display of autumn foliage was, I am told, better than usual this year, but a couple of good windy days have since changed the skyline to a more stark wintry profile. Our first month here introduced us to the vagaries of the English weather. September began with beautiful sunny days, but then after a couple of hailstorms and some heavy downpours it became the wettest September since about 1974, and then it rounded off near the end of the month with a couple of frosts and the coldest September day since 1952. We have also now just had the first November snow-falls in London since 1969.

The autumn Kew Science Seminars began on the 29th September with an address by the Director of Kew, Prof. Ghilleen T. Prance. The title was "A Vision for Kew". Prof. Prance explained how the focus of the new Corporate Strategic Plan would be program-based rather than department-based, with the emphasis on inter-departmental co-operation. Prof. Prance said that, while basic work such as inventory and classification of plant and fungal diversity will continue, there will be increasingly more emphasis on conservation and sustainable development, through such work as re-introduction of rare species to the wild, accelerated seed banking, increased emphasis on economic botany and ethnobotany to assist in the development of sustainable use systems, and increased education of the public and schoolchildren about the environment. Prof. Prance's goals include expanding the herbarium space by building Wing E, striving to obtain in the herbarium a representation of each species in each 1 degree square of latitude and longitude, renewing the plant nurseries, increasing visitor numbers 50% to 1.5 million per annum, and increasing the percentage of income from private sources and trading activities from the current 18% to 25% of the total budget. Towards the conclusion of his talk, Prof. Prance declared that his dreams for the future included providing visitor accommodation for short-term visitors, and the computerization of the label data of the entire herbarium collection.

The other Liaison Botanists who began work at Kew this year are Ms Leanne Dreyer from South Africa, who is working on *Oxalis*, Dr V.J. Nair from India, who is working on Indian Paniceae, and Dr Mesfin Tadesse from Ethiopia, who is revising Compositae for the *Flora of Ethiopia* project. During my year at Kew I will be endeavoring to

vooring to complete my work on Ebenaceae, Sapotaceae and Symplocaceae for the *Flora of Australia*, but I also hope to follow up some work in Annonaceae that I began a few years ago.

The herbarium at the Natural History Museum (BM) is still under renovation, and is rather cluttered with scaffolding. During a recent visit, the herbarium reeked with the smell of freshly applied oil paint. The herbarium will be largely inaccessible during scaffolding removal, which is due to commence on 6th December, with an anticipated completion at the end of the month.

Australians who have visited the Kew herbarium or library in the last few months include Arthur Chapman, Alex George, Gillian Perry, Peter Mellen, Jocelyn Powell, and Judy West. Arthur Chapman gave a seminar on ERIN and its role in monitoring biodiversity in Australia.

From the 9th of September for two months, the Kew Gallery featured an exhibition of *Banksia* paintings by Celia Rosser. The exhibition, which has now transferred to the Royal Botanic Gardens Edinburgh, consists of the original watercolours published in *Volumes 1 & 2 of The Banksias*.

Laurie Jessup
ABLO

IOPI at the XV International Botanical Congress in Yokohama

The International Organization for Plant Information took good advantage of the many botanists (2,800 Japanese, 1,500 non-Japanese) present at the recent XV IBC to discuss and publicize IOPI's activities, particularly the Global Plant Checklist project: a poster was displayed in the poster sessions; large numbers of the new publicity brochure were given away; the IOPI council met; the AGM was held; and I spoke about the Checklist in a symposium on current flora-type projects.

The Checklist Committee and its working groups have now prepared a Project Plan for the Checklist, which I was pleased to be able to present and explain to the IOPI Council meeting and to the AGM. All IOPI members will receive a copy of the Plan after further refinement. With the plan now essentially finalized, the way is clear for IOPI to make definite proposals to potential funding bodies over the next few months. Concurrently, we will continue to approach the thousands

of potential contributors of data and expertise to the project: individual botanists and computer experts, and the owners of existing botanical databases.

The various formal and informal meetings in Japan indicated an encouraging level of support from botanists and botanical institutions in all parts of the world. One point on which everyone is agreed is that we *must* obtain additional funding in order for this project to succeed: botanical institutions around the world are suffering financially, and botanical workers are equally suffering from lack of time to participate in all of the worthwhile projects currently being undertaken or proposed. IOPI aims to find funds to employ extra botanists for the Checklist project, which will result both in the efficient utilization of the expertise of taxonomic specialists and in the provision of jobs for younger botanists.

Karen Wilson
Convener of IOPI Checklist Committee

Membership of IOPI now stands at 93 (75 Institutional, 18 Individual). In the ballot for five members of Council for the 1994-96 term, the following were elected to Council:

Dr Ana Anton, Museo Botanico, Universidad Nacional de Cordoba, Cordoba, Argentina
Dr Laurence J. Dorr, Dept of Botany, Smithsonian Institution, Washington DC, U.S.A.
Prof. Rudolf Kamelin, V.L. Komarov Botanical Institute, St Petersburg, Russia
Dr Philippe Morat, Muséum Nationale d'Histoire Naturelle, Paris, France
Dr Rodolphe Spichiger, Conservatoire et Jardin botaniques de la ville de Genève, Switzerland.

Council has opted for the current office-bearers to continue in 1994, i.e.:

Chairman: Sir John Burnett, Oxford, England
Vice-Chairman: Prof. John McNeill, Royal Ontario Museum, Canada
Secretary: Mr Alex George, 'Four Gables', 18 Barclay Rd, Kardinya, WA, Australia.

IOPI has now been incorporated in the United Kingdom. Publication of a newsletter for members has begun, two issues so far having been produced by the editor, Hervé Burdet, Geneva.

The next Annual General Meeting of IOPI will be held in Mar del Plata, Argentina, in early October 1994.

Alex George
Secretary, IOPI

Council of Heads of Australian Herbaria

The 21st meeting of CHAH was held in the Botanic Gardens of Adelaide on 20th and 21st October. It was attended by representatives of all major State, Territory and Commonwealth herbaria, along with observers representing the New Zealand National Herbarium Network, Australian Biological Resources Study, Papua New Guinea (funded by the Australian International Development Assistance Bureau), the National Collection of Fungi, the Council of Australian Museum Directors, and the University Herbarium Curators.

The following are some of the items dealt with:-

A database of photographs of overseas-held types housed in Australian herbaria is being maintained for CHAH by Gordon Guymier (BRI). New records will continue to be added and should be submitted on disc (specifications available from Gordon). Access to the information is freely available.

It is expected that a *List of Current Taxonomic Research Projects in Australia* will be published for CHAH at the end of November, with CANB and CBG providing most of the resources assisted by a contribution from CHAH. Judy West is editing this.

A fourth workshop is being organized on behalf of CHAH. This one will be in Perth in October 1994, and will be aimed at herbarium technical staff. This is being organized by Chang Sha Fang and Neville Marchant.

A collaborative research and publishing project to take advantage of the large proportion of *Eucalyptus* specimens databased Australia-wide is being organised by Judy West. Further details will appear in the *ASBS Newsletter*.

It was noted that \$1.50 per loan specimen was likely to be paid by ABRS to herbaria to help meet the costs of loans for the *Flora of Australia*, and it was recommended to ABRS that this should be available to all herbaria regardless of size.

A recommendation was made for the appointment of an Australian Botanical Liaison Officer for 1995/96. CHAH members expressed very strong support for the continuation of the ABLO scheme, although financial and staffing restrictions were making it difficult for institutions to send people to Kew. Appreciation for the assistance of ABRS is gratefully acknowledged.

Difficulties which have arisen from loans to some university herbaria were discussed. The

problem has often related to lack of long-term continuity in management or to lack of security for loans. It was restated that the official curator (or the head of department) must request loans and accept full responsibility for the safety and return of specimens but that it is often preferable to send loans to a nearby Government herbarium.

The next meeting will be in Sydney, and Barbara Briggs will be chairperson during 1994.

John P. Jessop
Chairman, CHAH

ASBS Symposium

University of Western Australia

29 September to 2 October, 1993

One of the perennial problems faced by ASBS is that we are a small society widely dispersed over a large continent. Communication among members is made more difficult by the concentration of most of us in the large population centres of Sydney, Melbourne, and Canberra. Thus, it is not surprising that many, if not most, of our meetings are held in one or other of those three cities.

It is therefore always good to see members organizing symposia in the more far-flung places, and in 1992 and 1993 we have been given the opportunity to visit three of the four corners of Australia:- Hobart, for the "Southern Temperate Ecosystems" symposium held last January; Perth, for this symposium last September-October; and north Queensland for the "Origin and Evolution of the Flora of the Monsoon Tropics" symposium to be held next July. One of the benefits of such meetings is that they give the rest of us an excuse to visit interesting places, do some field work, and meet the local ASBS members whom we otherwise see rarely. I had not been to Tasmania for 25 years and I had not been to Western Australia in 13 years before attending the recent meetings in these places.

The symposium in Perth was organized efficiently by a committee, including Jenny Chappill, Mark Harvey, Steve Hopper (chair), Neville Marchant, Ken Aplin, Tony Friend, and Byron Lamont. My impression was that Steve, Mark, and especially Jenny deserve a pat on the back for carrying most of the burden of the "behind-the-scenes" work; and Neville played a big part in making the pre-conference excursion a conspicuous success.

The Conference was opened by the Western Australian Minister for the Environment (Hon. Kevin Minson) with an interesting speech about the high species richness of the south-west of WA, threats to its continued existence, and CALM's efforts to preserve it. To his credit, he appeared to show genuine interest in and knowledge about the issues, departing from his prepared speech for part of the time. Over the next two days and a half, there followed a variety of papers, mostly interesting, broadly covering "biota" — plants, animals, and micro-organisms.

The meeting commenced with invited speakers presenting general papers. Mike Archer (from whom we also heard in Hobart) spoke with his usual verve and flair, and this time he experienced only minor problems with his slides. (In Hobart, somebody from the media had borrowed his best slides and failed to return them. We were treated to the embarrassing spectacle of a "star" speaker being continually confronted with a blank screen, and having to talk from memory until the next slide came up. This is the sort of nightmare that all conference speakers have.) He discussed the interesting observation that the south-west Western Australian fauna lacks the diversity of "old endemic" mammals that are seen in the extant and fossil faunas of north Queensland. His thesis is that aridity in the Tertiary hit the south-west particularly hard and effectively drove the rainforest fauna into the Indian Ocean. Thus, today one sees in their place derivatives of arid-adapted taxa. Certainly, the lack of rainforest plants would support this view-point, but later in the meeting other speakers pointed to animals that do show ancient mesic connections, e.g. trap-door spiders (Barbara York Main), and land hoppers (Tony Friend).

Stephen McLoughlin and Bob Hill summarized current knowledge of the plant fossil record in Western Australia. They reported some fascinating recent discoveries of very rich macrofossil deposits, revealing that some of the typical scleromorphic modern flora have a very long history. In the mid-Tertiary, banksias almost indistinguishable from extant species co-existed with *Nothofagus*, which has long since disappeared.

The third invited key-note speaker was Robert Ornduff, who comes from one of those American departments with curious names ("integrative biology") at the University of California, Berkeley. His talk was a disappointing rehash of an old theme: floristic and ecological comparisons among Mediterranean floras — in this case, south-west WA, the west coast of the USA, and the real Mediterranean, i.e. in Europe. We have been made

aware long ago that these floras look and function similarly but are floristically different (for historical reasons), and far more sophisticated analyses have been made, e.g. by Whittaker.

The next group of papers concerned the genetics and evolution of plant populations and species, mostly Western Australian of course. Allozyme data presented by Jane Sampson, Dave Coates, and Stephen van Leeuwen suggested that disturbance (such as fire and partial clearing) is seriously perturbing mating systems in rare species of *Banksia* and *Eucalyptus*. Michael Bayly, a student from Melbourne, presented a very good talk outlining his recently-begun cladistic and biogeographic analysis of *Eriostemon*. This project promises to reveal historical links between east and west, a problem for which there is little well-analysed evidence. In the same session, John Pate startled us by plonking cut-down shrubs onto the bench, in order to demonstrate their weird root systems.

Genetic and molecular studies of plants continued the next morning, with Sid James attempting to summarize in 40 minutes several decades of research into the extra-ordinarily complex genetic systems of *Isotoma* and other plant taxa with small isolated populations. He moved through his material at breathtaking speed and still exceeded his time, which is a pity, because it is fascinating stuff. Dave Coates talked at a more comprehensible pace about his similar research on *Stylidium*, which shows extensive repatterning of the genome even in very localized populations.

Cryptogams and micro-organisms were not entirely neglected at this meeting. John Huisman showed some superb slides of marine algae from the Houtman Abrolhos islands, but we heard almost nothing about their systematics or biology. Then, John Jacob proved that he had missed his vocation as a preacher by giving a stirring oration about the loss of biodiversity in the micro-algae of the estuaries, streams, and lakes of Western Australia, and its causes. Although he went way over-time, everybody was too rapt to notice.

Next, we heard from the zoologists, who presented some excellent papers. Barbara York Main eloquently described a microcosm of Gondwana clinging to a remnant of uncleared land in the middle of the wheatbelt. She found an extraordinarily rich representation of trapdoor spiders with ancient and distant relationships. Her hypothesis was that these creatures have managed to keep pace (by adaptation and speciation) with changing environments that today are far different from the rainforests of their ancestors. She suggested that finely-tuned adaptation has allowed great diversity

to persist in closely adjacent but subtly different microhabitats. Similarly, Grant Wardell-Johnson and co-authors found that very small-scale ecological and geographic separation had been sufficient to give rise to speciation in frogs of the genus *Geocrinia*. Despite the implication by Sid James (below), cladistic offerings at the conference were few. However, Mark Harvey's paper on biogeography of micro-arthropods (mites, pseudoscorpions, and the like) was a pleasing exception. Like some of his zoologist colleagues, he has found taxa showing ancient links with other southern continents.

The last morning was devoted to conservation of the Western Australian biota. Bert Main presented a keynote address, which was appropriately wide-ranging, and emphasized the need to study processes (resource recycling, regeneration, and replacement), as well as constituents (biodiversity). Although John Clarkson's talk about the invasive threat from aquatic plants introduced for ponded pastures was drawn from north Queensland examples, it served as a warning for the west as well. Perhaps the best of the papers on particular groups in this session was Greg Keighery's lively account of the western lilies (*sens. lat.*). His main point was that widespread and common species need attention as well as the rare and restricted ones, because they show considerable regional variation, and are important to the study of evolutionary processes.

Seven students presented papers:- six posters and one spoken. Following our recent initiative, the ASBS Council awarded them free membership of the Society, plus a partial waiver of their registration fees. The student who travelled from interstate and gave a spoken paper received a little more than the others. It is pleasing to see students participating in our symposia, and I hope that these small awards encourage them to stay in systematic botany, as well as to continue as members of ASBS.

Overall, the symposium was of a good standard, with plenty of variety both in the organisms and the methods of study. However, it was well-structured and coherent, and I came away much the wiser about the rich diversity of Western Australian organisms, their evolutionary history, and, sadly, the all-too-apparent threats to their continued existence.

Members of the symposium committee, headed by Steve Hopper, are editing the proceedings, which will be published in a book dedicated to Sid James and Bert Main. I believe that the book is a long-standing project of Steve's, from which the

symposium emerged, rather than the other way around.

A highlight of the conference dinner was Neville Marchant asking for a show of hands from all those born in Western Australia. When only a few were raised, he tut-tutted, and said "I thought as much!"; as if we needed a reminder that those "westerners" are perpetually looking over their shoulders at we "easterners". The other highlight of the dinner was the limerick competition. Sid James won the prize (a conference T-shirt), to loud acclaim, with the following offering:-

Systematic botanists

Attack their clades with wanton lust

So, I suppose that I must

Become a plant taxonomist.

Dave Shaw (ANU) responded with the following:-

A botanist from Western Australia

*Found an *Isotoma* that looked like a *Dahlia**

To Sid James it was sent

To search for mobile element

But the whole bloody thing was a zygotic failure to equally loud acclaim, and also won a T-shirt. Although these are finely crafted works, I must protest that neither is a proper limerick!

Other events were associated with the symposium, but I did not participate and cannot report on them. These included a bus trip to see the flora of the south-west (by all reports very successful), and a workshop on taxonomic databases organised by Alex Chapman, Nicholas Lander and Terry Macfarlane.

Mike Crisp
Division of Botany and Zoology
Australian National University

Australian Biological Resources Study Grants Research Priorities for 1995

Vascular Plants

Clusiaceae

Zygophyllaceae

Pandanaceae

Marine angiosperms

Freshwater Alismatales, Hydrocharitales and

Najadales

Myrtaceae (small genera)

Lichens

Stereocaulaceae
 Umbilicariaceae
 Catillariaceae
 Bacidiaceae (*Bacidia*, *Lecania*)
 Lecanoraceae (*Lecanora*)
 Physciaceae (*Buellia*)

Fungi

Oomycetes (excluding *Halophytophthora*)
 Phyllacoraceae

Algae

Phaeophyta *pro parte* (Sphacelariales, Cutleriales,
 Sporochinales)
 Chlorophyta *pro parte* (Siphonocladales,
 Dasycladales)

Bryophytes

Hookeriales

Tony Orchard
 Flora of Australia

Dr JG West — Generic limits in Australian Rham-
 naceae and *Flora of Australia* treatment of all
 genera except *Pomaderris* \$61,007

Unattached

Mr CF Puttock — Revision of *Ozothamnus* R.
 Br. \$52,498

New South Wales

National Herbarium of New South Wales

Dr BG Briggs — Treatment of Restionaceae for
Flora of Australia \$37,540

Dr EA Brown — Revisionary studies in the Austr-
 alian Lepidoziaceae (Hepaticae) \$53,419

Dr B Conn — Revisionary studies in the Australian
 Xyridaceae \$22,415

Dr HP Ramsay — Preparation of manuscripts for
 the family Bryaceae (Bryopsida) for the *Flora*
of Australia \$5,500

Mrs KL Wilson — Systematic studies in Australian
 Cyperaceae \$34,272

University of Sydney

Dr MJ Henwood — A Revision of Australian Apia-
 ceae (Umbelliferae) \$60,000

Northern Territory

Northern Territory University

Mr N Sammy — A revision of the lichen genus
Heterodermia in Australasia \$4,609

Queensland

James Cook University

Ass.Prof. IR Price — Taxonomy of the siphonous
 green algal genus *Caulerpa* in tropical Australia
 \$9,664

Queensland Herbarium

Mr PD Bostock — *Flora* account of Polypodiaceae
 (Pteridophyta) \$21,160

Mr PI Forster — Revision of Australian Euphorbia-
 ceae, excluding Phyllanthaceae, Stenolobeae,
Euphorbia s.l. and *Adriana* \$51,770

Mr DA Halford — Taxonomic revision of the
 family Tiliaceae in Australia \$23,026

Australian Biological Resources Study Flora Grants for 1994

Australia

Dr B. Conn — Australian Botanical Liaison
 Officer \$35,805

Herbarium Loans — Supplementary funding to
 herbaria to assist with costs of lending speci-
 mens for *Flora of Australia* work \$39,743

Australian Capital Territory

Australian National University

Dr MD Crisp — Systematics and biogeography of
 Pittosporaceae \$23,190

Dr C Weiller — Flora and DELTA accounts of
 Chloridoideae, Poaceae and Panicoideae,
 Poaceae \$51,439

*Commonwealth Scientific & Industrial Research
 Organisation*

Mr LA Craven — Systematic studies in *Melaleuca*
 (Myrtaceae) \$67,149

University of Queensland

Dr JA Phillips — Taxonomic investigations on
selected genera of the Dictyotales \$35,702

Tasmania*University of Tasmania*

Dr WM Curtis — A Flora of Tasmania (Dicotyle-
dons) \$5,957

Victoria*Institute of Plant Sciences*

Mr IG Pascoe — Revision of Australian Erysi-
phales (Fungi: Ascomycotina) \$60,714

National Herbarium of Victoria

Mr NG Walsh — Revision of *Pomaderris* (Rham-
naceae) in Australia \$27,129

University of Melbourne

Prof. PY Ladiges — A systematic and biogeo-
graphic analysis of *Boronia* section *Valvatae*
\$21,229

Unattached

Dr TW May — Catalogue and census of Australian

macrofungi

\$39,519

Western Australia*Commonwealth Scientific & Industrial Research
Organisation*

Dr NL Bougher — Taxonomic revision of the
truffle-like Cortinariaceae (*Hymenogaster* and
Thaxterogaster) in Australia \$13,975

Western Australian Herbarium

Dr RS Cowan — Preparation of *Flora of Australia*
treatment of Subfamily Mimosoideae (excl.
Acacia) \$39,050

University of Western Australia

Dr JA Chappill — A taxonomic revision of
Jacksonia R.Br. (tribe Mirbelieae, Fabaceae)
\$17,216

Dr JA Chappill — Taxonomic revision of Sterculia-
ceae, Tribe Lasiopetalae \$61,789

Unattached

Mr AS George — Treatment of Caesalpiniaceae *pro*
parte in Australia \$23,513

Tony Orchard
Flora of Australia

REVIEWS

Australian Tropical Rain Forest Trees

By B.P.M. Hyland and T. Whiffin. CSIRO, Mel-
bourne. 1993. 3 volumes + computer disks. ISBN
0-643-05403-0. \$195.

The future has arrived.

I've always wanted to say that, melodramatist
that I am, and at last I've found the opportunity.

Taxonomists have long known of the opportu-
nities provided by computers in the eternal quest
for a practicable means of identifying organisms,
but they have been rather slow to do much about it.
Consequently, the users of the fruits of taxono-
mists' labours have spent much of their time grum-
bling about the inadequacies of many of the current

aids to biological identification.

In particular, the printed dichotomous key has
come in for its fair share of vilification, not the least
because it may fail as often as it succeeds. This is
largely a result of the fact that it fails to be an accu-
rate reflection of biological reality — very few taxa
are the discrete entities imagined by Linnaeus. In
the real world, most taxa display a considerable
degree of morphological variation, both spatially
and temporally; and, so, a key that works in one
place at one time may not work at any other place
or in any other time. Furthermore, the larger a
group of taxa is then the more complicated the key
becomes, and thus the more likely it is that each
taxon will appear several times in the key —
groups like *Acacia* and *Eucalyptus* are a nightmare

to most non-specialists, and yet these people probably form the biggest group of users of identification aids for these two genera. Even worse, much of taxonomy is based on reproductive characters, and so these tend to play a predominant role in the construction of dichotomous keys. The keys then fail miserably if the organisms are not in reproductive mode at the time.

Consequently, taxonomists have given a good deal of thought as to what form of identification aid is most suited to dealing with the multivariate world of identification. One of the theoretically better aids is the multi-access polyclave; but its limitation has always been the practical one of how to physically construct it. Most of us have seen the card-and-needle constructions that were popular when I was a youngster, although many of the people who used them subsequently returned the needles to their grandmothers (so that they could get on with their knitting) and sent the cards to their friends at christmas time.

It is, however, in the world of polyclaves that computers come into their own in the weaponry of the practicing taxonomist. Constructing and using a multi-access key is bread-and-butter to a computer, and the only remaining mystery is why so few of these keys exist in the modern world. I mean, how many taxonomists can honestly say that computer-aided identification plays a regular role in their work practices? Nevertheless, this appears to be the way of the future; if for no other reason than that it frees the identifier from the tyranny of the dichotomous key. Yet, people have been saying this sort of thing for nigh on twenty years, and what has happened? Multi-access computer keys have appeared in dribs and drabs, that's what, usually created by specialist groups of people for specialist purposes; and general-purpose computer packages such those developed by Mike Dallwitz and Richard Pankhurst are still seen by many people as esoterica.

Well, the commercial future of computers as identification aids can be seen right now. All you need to do is get a hold of the *Australian Tropical Rain Forest Trees* package. This is a specialist package, it is true, since its use is restricted to a specified set of taxa in a specified geographic area; but if this package doesn't convince you of the potential that multi-access computer keys have, then nothing ever will.

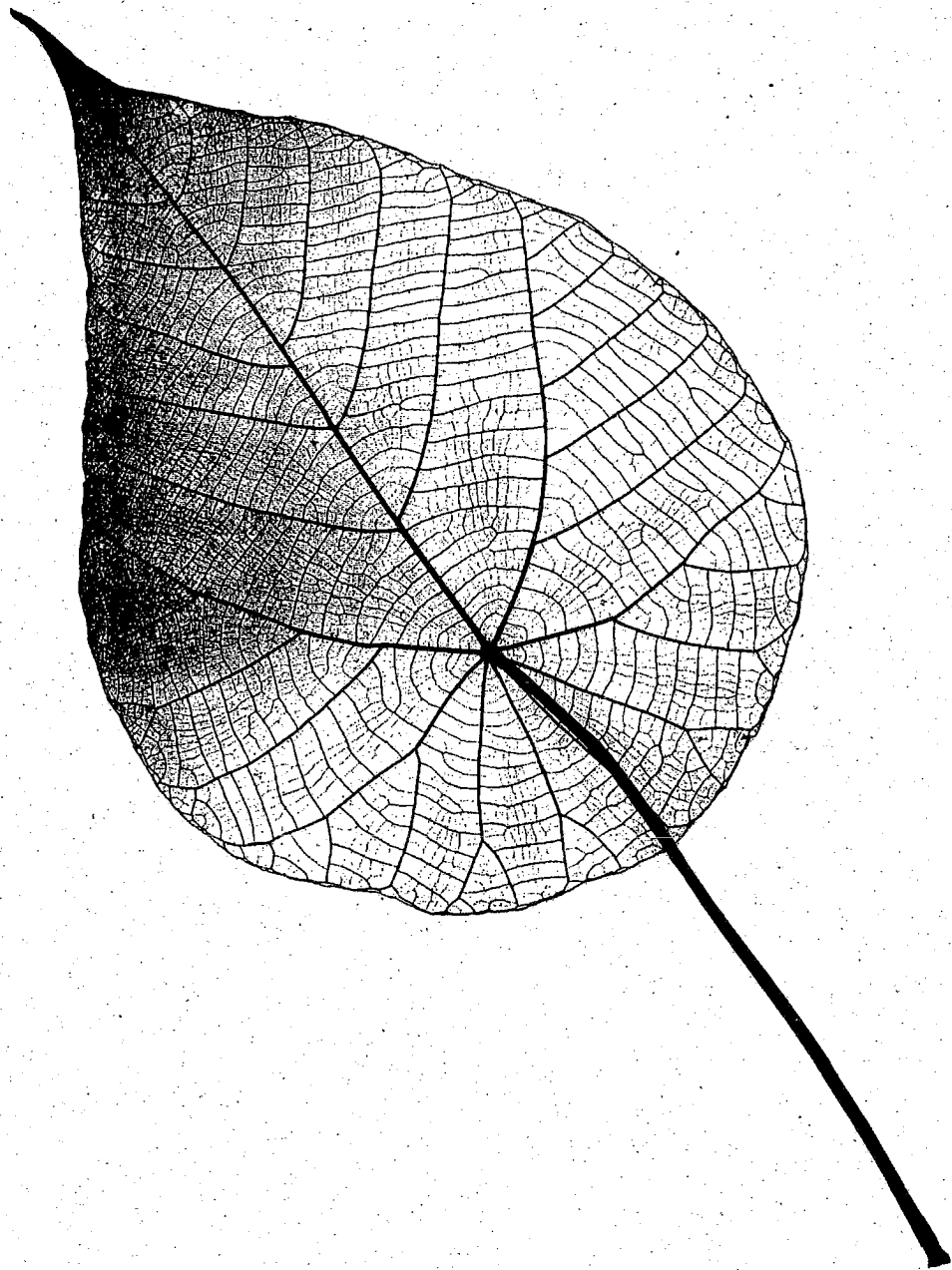
The package had its genesis shortly after my own, predictably enough starting off as a card key. Bernie Hyland recognized the limitations of dichotomous keys for identifying rainforest trees, since flowers are not always available, and started inves-

tigating the possibilities of using vegetative characteristics. This lead him inevitably to the use of polyclaves to access his data set, just as it did for the early work of Norman Hall with the acacias and George Chippendale with the eucalypts. The problem with the future development of this system was that the card-punch machines necessary to automate the production of the data cards were no longer being manufactured (since computer technology had moved on — punched cards were developed by Herman Hollerith at the end of last century), and new editions of the key could no longer be produced. So, computer storage and analysis of the data became the most viable option; and this is where Trevor Whiffin enters the story, as the one responsible for the production of the computer package in its present form.

Between them, these two people have produced an interactive multiple-entry computer key for 1,056 species of tropical rainforest trees (many of them as yet undescribed), along with a set of printed books as an accompaniment. The key allows the user to use the morphological features of bark, leaves, flowers, fruits, and seedlings, as well as family name and geographic area, as characters in the search for the correct identification of a specimen. The area covered by the data set is everything on mainland Australia north of 19°S latitude, and it incorporates all single-stemmed woody species that attain a height of at least 6 m as adults.

The package consists of three computer disks, and three weighty books. One pair of the disks contains the data set and programs for use on MS-DOS computers (one 3.5" disk and one 5.25" disk — you only need one of the pair), while the other disk is for use on Apple Macintosh computers. *Volume 1* of the books (303 pp) contains instructions for loading and using the computer keys, descriptions and illustrations of the characters available, a glossary, and lists of the relevant species giving scientific names, common names and standard trade names. *Volume 2* (564 pp) contains a short description of each species (arranged alphabetically by genus within family), a series of additional (diagnostic) features for each species to aid in identification, and comments on the distribution and ecology of the species; references to the literature are also provided. *Volume 3* is a surprise bonus, and is discussed below.

The authors envisaged that normal use of the package, to identify a specimen would primarily involve the use of the computer-based key, along with the descriptions and illustrations of the features in *Volume 1* as necessary. The descriptions and diagnoses in *Volume 2* would then be used



Low-voltage x-ray photograph of a leaf of *Macaranga tanarius*,
from *Leaf Atlas of Australian Tropical Rain Forest Trees*.

confirm or refine the identification, depending on how many species remain as possibilities after the use of the computer key.

The package should run on any IBM-compatible computer (including PCs and XTs) with 640K of conventional memory and a hard-disk, running MS-DOS or PC-DOS. Most screen types are accommodated, although the program looks its best on a colour screen. The program will apparently even run successfully using only high-density floppy disks, although speed will be seriously degraded. For the Macintosh users, you need a MacPlus or greater, with at least 1M of memory and preferably more. Once again, the program will apparently run from a floppy disk, with consequent speed degradation.

Installation of the package on a computer can be automatic or manual. For assessment purposes, I installed the package on a 386SX PC, an 80286 laptop, and a Macintosh Classic II, and it was a trivial exercise in each case. The package comes as a set of files in compressed format, and these must be unpacked for the program to run. The program then accesses the files as necessary from the disk — hence the slow running time when using floppy disks. My only quibble here is that, like many programs, the disks are not write-protected when delivered, which always strikes me as a serious oversight on the part of the manufacturers.

The PC version runs like a dream (I was using version 1.0d of the package, dated 19-May-93). It took about 12 seconds to load the program on the 25 MHz 386SX, which is not overly fast, but after that the response is more than acceptable. Loading a particular character set is the work of a couple of seconds, and the response to selecting a character is almost instantaneous. This means that the ease and speed of identifying a specimen is never limited by the computer.

The program displays a neat window on the screen, listing the available options across the top and listing taxa or characters in the lower two-thirds. Each of the available data sets is chosen via one of the function keys, and character selection is with the spacebar key. Movement through the lists is by the cursor keys or the Ins/Del keys. To operate the package, you first choose a data set of characters, and then each time that you select a character from that set the number of taxa remaining as possible identifications is instantly displayed. You keep selecting characters from the data sets until only one species remains or you run out of available characters on the specimen. You can delete characters at any time, and you can display a list of the remaining taxa at any time. Context-

sensitive help is always available via the F1 key, and the help feature basically repeats the information contained in volume 1 of the books (without the illustrations).

This system is so easy to use that it really is child's play. I certainly had no difficulty using it on some herbarium material, and the identifications all seemed to be correct. More to the point, I have spoken to several other people who have used the package, both for correctly-identified specimens and for obviously wrongly-identified specimens, and it seems to have worked for them as well. I am, however, yet to speak to a non-taxonomist about it.

There are a couple of caveats to my use of the package, as you might expect. Firstly, the data sets provided are by no means complete, especially the seedling data set. However, to expect perfection, even after 30 years of data collecting, is to expect too much. Secondly, returning to a list of characters after accessing another part of the program does not return you to where you last were in that list — it returns you to the beginning of the list, instead. This becomes annoying after a while, if you are trying various combinations of characters in different lists. Presumably this could be easily fixed.

The Macintosh version of the program is simply a cut-down product from the PC version, as the package was originally developed solely for the PCs. It therefore does not really take much advantage of the wimp interface provided by the Macintosh operating system. It took about 8 seconds to load the program on the 16 MHz Classic II (I was using the version of the package dated 30-June-93). The program merely opens a non-resizable window, with a few items in the menu-bar. The commands are all selected from the menu-bar, and there are no key-combination short-cuts (not even ⌘-Q for quitting). So, the package emulates the PC version solely within its own window, and none of the other Macintosh operating system features are available. While this limitation is a pity, it is certainly better than not having the version available at all (as is unfortunately true of most other scientific packages).

Overall, the presentation of the package is very professional. The attention to detail in the user interface is a refreshing change from that provided with many other computer packages for scientists, and it lives up to and exceeds almost all of my expectations.

For future versions of the package, there are a number of possible directions. For example, it should be possible to digitally scan the character

illustrations provided in *Volume 1*, thus allowing them to appear on the computer screen along with the lists of characters. It should also be possible to provide distribution maps for each species, both in printed and scanned form, perhaps along with a line illustration of each species. At a broader scale, it would also be desirable to expand the type of plants covered by the data set. For example, it is currently necessary to know that the seedling that you wish to identify is, in fact, that of a tree species before this package is of any use to you. It would also be useful to expand the area covered by the data set. These suggestions should keep the authors occupied well into the next millenium.

Volume 3 of the books (260 pp) is, in many ways, the jewel in the crown of this package. It is a *Leaf Atlas of Australian Tropical Rain Forest Trees*, by D.C Christophel and B.P.M. Hyland. It provides approximately life-sized illustrations of typical examples of the mature leaves of all of the species covered by the computer data-set, so that the specimen can be directly compared to an illustration. Almost all of the illustrations are low-voltage x-ray photographs, thus clearly showing the venation details of the leaves, as well as the size and shape. This technological development immediately does away with all of that tedious mucking around with leaf-clearing that we have all done and loathed. Dave Christophel is to be congratulated for this contribution to the identification of rainforest trees — those of you who have stared mindlessly at rainforest leaves all of which look exactly the same will realize just what a boon this particular volume is.

So, what we have here is an identification package that is worth every cent of its price (which isn't cheap, at \$195 plus \$20 package and delivery). If the future of plant identification is all like this, then the future will indeed have been worth the wait.

David Morrison
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University of Technology, Sydney

Small-leaved Shrubs of New Zealand

By H. Wilson and T. Galloway. Manuka Press, Christchurch. 1993. 305 pp. ISBN 0-473-01851-9. \$NZ35 + postage.

One hundred and sixty-five species, including several that are introduced, are described and illus-

trated with line drawings. In addition, there are eight plates of colour photographs and additional line drawings of a number of other taxa designed to assist identification.

The presentation of this book is good, starting with the distinctive but pleasant cover, which invites a second look. The layout also makes for easy use, with the species headings standing out clearly from the rest of the text. Each species is numbered, and this number corresponds with those used on the illustrations, which makes cross-referencing very quick and easy. It is also nice to see a key that makes absolutely no pretence of trying to solve all of the identification problems; the reader is made instantly aware that difficulties may be experienced. At the same time, every attempt has been made to produce a useful and exhaustive key (just over 40 pages).

The introduction discusses the two lines of thought that have been advanced about why so many New Zealand shrubs have a small-leaved interlacing form. Unfortunately, common sense has prevailed and the authors incline to the climate theory! I rather like the idea of moas being well-versed in topiary — it evokes a much more imaginative response in people.

One of the features of the book that I particularly liked was that discussion was not limited to shrubs that fall totally within the definition of small-leaved shrubs given in the introduction. Nor is the discussion limited to shrubs; the notes provided under the species descriptions give a wealth of information on related or similar species. It makes for very interesting and informative reading.

The book is not a botanical treatise; the plant descriptions are not long and complicated, and few measurements are given. This "lack" of information makes the descriptions easy to read, and the provision of illustrations for every species means that such measurements will rarely be required. The book was not written specifically for botanists, but nevertheless will be of great use to them as well as to the general public.

Just to prove that I have read the book, I do have a few small gripes. It would have been nice to have more full-plant habit sketches; not all divaricating shrubs look like an indescribable mess. The different branching patterns of various taxa do make a number of forms distinguishable; the photographs don't fully address and solve this problem.

Having taken the trouble to provide some information on the type specimens, I was a bit surprised that taxonomic authorities were not included. A few lines in the introduction would have been sufficient to explain the importance of this compo-

nent of the botanical name. It may have been a deliberate decision designed to get past the knee-jerk "I don't understand all that complicated scientific stuff, I'm just interested in plants" reaction, but I feel that the public needs to understand the importance of this part of a Latin name, even if they never use it themselves.

The term "see after", which is used in the key, is rather unusual, although its usage is perfectly clear once you have looked up a specimen thus labelled. The glossary is adequate, but some of the descriptions have been used without thought for the interested amateur that this book is obviously designed for. Naturally, the first term that I looked up was "achene", only to find it described as having a thin pericarp; but unfortunately the pericarp is undefined.

These are rather minor criticisms of a well-presented, well-written and useful book, which I will be very happy to add to my library.

Elizabeth A. Brown
National Herbarium of New South Wales
Royal Botanic Gardens Sydney

Flora of New South Wales, Volume 4.

Edited by Gwen Harden. New South Wales University Press, Kensington. 1993. xxii+775 pp. ISBN 0-86840-188-9. \$120.

Volume 4, covering all of the monocot families, completes the *Flora of New South Wales*, which has appeared at the rate of one volume per year. With 775 pages, it is 58 pages longer than *Volume 3*, which in turn is 143 pages longer than *Volume 2*. However, while the first three volumes all carried a retail price of \$80, this one has jumped to a dismaying \$120, a 50% increase that is quite out of proportion to the increase in size. In a period of near-zero domestic inflation, maybe the publishers will say that this is justifiable on the grounds of the effect of the fallen Australian dollar on production costs, but one can't help suspecting that there is an element of holding to ransom the buyers of the previous volumes. Certainly, for your money you get the biggest, fattest and most lavishly-illustrated state flora so far seen; though by the same token it is the one that you would be the least likely to throw in the vehicle for field use, far less into your pack when setting out on foot. Perhaps in a few years' time the publishers may be willing to issue a small-print version without the colour plates

and on thin paper; though with 2,667 pages even that would need two volumes at the very least.

Clearly, there is little point in reviewing this final volume in isolation, at least from the point of view of guiding anyone's purchase. Those people possessing the other volumes will presumably need to buy it, unless they are by now convinced that it is of no use to them, while those who do not will need to assess the work as a whole. Perhaps there is a small market for *Volume 4* on its own among grass, sedge, or orchid specialists, although I doubt it. For the first two of these families at least, it makes available for the first time ever a fully-illustrated and descriptive account that will be useful in temperate east Australia generally, and this represents a major breakthrough for botanists (amateur, as well as professional) and environmental scientists who do not have easy access to the collections of a major herbarium.

The treatments of the grasses, sedges, and rushes are those filling the greatest need, as the orchids are already covered by several comprehensive books. This might also be claimed for the grasses, but most of the grass books only scratch the surface species diversity, while Wheeler *et al.*, *Grasses of New South Wales*, lacks descriptions and is not fully illustrated.

It is therefore for the Cyperaceae and Juncaceae treatments that one is perhaps most grateful, these being the families for which comprehensive identification aids were conspicuously lacking until now. Both families receive impressive treatments, incorporating much recent work for the first time, and they are beautifully illustrated with overall inflorescence or spikelet drawings, as well as nuts and/or fruiting perianths as the genus may require. In the Juncaceae, Johnson's new taxa account for 19 of the total of 56 species of *Juncus* for the state, revealing N.S.W. and south-east Australia generally as a major centre of diversity for the genus.

The treatment of the grasses is also of major importance, but its approach is slightly less even with regard to the amount of descriptive detail and the organs illustrated. As a non-specialist, I must confess that reading a description of a grass species more often than not results in a mental picture that turns out to be quite at odds with the actuality, so I find that good illustrations are almost essential. It is thus slightly disappointing to find that some of the larger genera, notably *Panicum* and *Eragrostis*, are illustrated only by the individual spikelets (dissected in the latter genus), which can show a depressing degree of uniformity in these genera. What happened to the very helpful panicle silhouettes of *Eragrostis* as used in Wheeler *et al.*?

And while on the subject of grasses, whence comes the common name "Don't Panic" for *Panicum lachnophyllum*, a somewhat inconspicuous rainforest species? Has a joker had access to the manuscript?

Turning to the orchids, the treatments are all clear and easy enough to use until you get to some of the larger terrestrial genera, notably *Caladenia*. For we generalists, working our way through large piles of unknowns and coming to our miserable orchid specimens with flowers shrivelled to varying degrees, being confronted with a final choice between perhaps five species that are virtually identical apart from slight variations in the callosities on the labellum is guaranteed to cause a shrinking feeling. Many of the species that are differentiated by such small details have been named only recently, and one trusts that the names represent real and continuing populations in the wild. Comparing the orchids described here with those enumerated in Jacobs & Pickard, *Plants of New South Wales*, I find that the number of genera remains a constant 46 but that the number of species has increased from 263 to 319. This is an increase of 56 species, but in fact around 75 (at a rough count) of the species in the *Flora* are newly described or ranked since 1978, so some of the names in the earlier work must have been synonymized.

The treatments of many of the other monocot families follow fairly closely the *Flora of Australia Volumes 45 and 46*, which cover the Lilialean complex as well as the Zingiberales. It is mainly the family classification in the Liliales (*sensu lato*) that differs drastically in the *Flora of New South Wales*, the National Herbarium of N.S.W. being followers of the Dahlgren, Clifford & Yeo classification, whereas the *Flora of Australia* follows that of Cronquist; thus, the Liliaceae of the latter is divided among 16 families in the former. This discrepancy has little practical consequence for identification of the species, though having the potential to cause confusion among cataloguers. One might have wished for some preliminary revision in a few problem areas in some of these groups, especially *Dianella*, for which Henderson's treatment still needs refinement; but then any *Flora* can only represent the state of play in taxonomy at any one point in time.

As in the three previous volumes, the text and line-drawings are supplemented by a reasonably lavish selection of colour plates, arguably of a higher quality, both as to photography and printing, than are to be found in any other current botanical work. Botanists may question their prac-

tical usefulness, as opposed to their aesthetic appeal, and they must certainly have added substantially to the work's cost. The dustcovers of all four volumes are also minor masterpieces of design and colour printing. If you look at them all side by side, one of things that you may notice is the changing portrait of Gwen Harden on the back flyleaf. For *Volume 1*, the face is smiling, though somewhat tentatively, but in the three succeeding volumes her smile gets broader and more relaxed, until by *Volume 4* she looks positively self-satisfied!

So, how does the completed *Flora of New South Wales* measure up against other Australian *Floras*; and does it complement them adequately, i.e. does it fit into any structure of regional *Floras* in any practical sense? The only comparable state *Flora* is the current *Flora of South Australia*, also in four weighty volumes, though not as large as those for N.S.W. Its style is very different, though the essential descriptive and distributional data are similar in length and technicality. Overall, the taxonomy is reasonably consistent at the genus and species level but is radically different in places as to family assignments. Similar comparisons might be made between the N.S.W. *Flora* and the recently-completed regional floras of parts of Queensland and Western Australia, although these have slightly briefer descriptive formats.

So, is the *Flora of New South Wales* a must for you or your library? For anyone seriously involved in floristic or environmental work, I am afraid that the answer is an emphatic "yes", despite its large cost and bulk. Do not think that any other published works can effectively substitute for it, as all of those in existence are limited in their geographical coverage, or lack comprehensiveness in species coverage, or are outdated (or all of these). It is true that for the Sydney region you can probably get by with a combination of the books by Beadle *et al.* (for which a new edition is in the pipeline), Fairley & Moore, and Robinson, but these are still a poor substitute for the full *Flora*.

Any tertiary educational institution in N.S.W. teaching biology or environmental management will be letting its students down badly if they do not have this *Flora* available in the library. Likewise, any botanical survey required under environmental legislation will be deficient if the taxa identified are not related to this *Flora*; and it is likely that many rare species, brought to a wider public here for the first time, will be overlooked. For amateur enthusiasts, the decision may be more difficult; and, unless the cost is unimportant, it would perhaps be unwise to rush out and buy four volumes (at \$360)

without being confident that you can cope with the botanical terminology and that you will find it useful. As for herbarium botanists, most of those in Australia at least are likely to have seen it by the time that this review appears, and they hardly need my advice as to whether or not they should buy it.

Tony Rodd
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Balmain NSW 2041

History of Systematic Botany in Australasia

Edited by P.S. Short. Australian Systematic Botany Society, Melbourne. 1990. 326 pp. ISBN 0-7316-8463-X \$30 + \$10 postage; copies can be obtained from MEL.

This wonderful collection of articles on Australasian botanical history had its genesis in the proceedings of a symposium held at the University of Melbourne in May 1988. As such, it presents an incomplete and uneven coverage of the field, but it should be compulsory reading for all botanists in Australasia. It is more than a history of botany — at the same time it provides valuable insights into Australasian history generally.

I'm sure that we would all approach this book in a different way: I started with a few chapters that seemed particularly interesting, and then was hooked. Chapter 7, "Melbourne: a focal point for early botanical activity" was a logical starting point, since I'd started my own botanical activities there, and I also eagerly anticipated Jim Willis' forthright style. Next for me came I.C. Clarke's "The history of the herbarium, School of Botany, University of Melbourne", a great pleasure as a former student of that School with my own memories of Dr Mac(Ethel McLennan) and the ever-courteous Mr Sonenberg.

After that, I moved through chapters by Sophie Ducker, and "The botanical collections of John Buchanan FLS" by Nancy Adams. Then, as a phycologist, it was on to "The lean legacy of freshwater phycology" by Tim Entwistle, followed by collectors who made some contributions in phycology: "Ronald Campbell Gunn 1808–1881" (A.M. Buchanan) and "The Western Australian collecting localities of J.A.L. Preiss (N.G. Marchant). I then read the chapters on geographic areas of special interest: "Retracing the botanical steps of Leichhardt and Gilbert in June 1945" by Betsy Jackes,

and "Explorers, institutions and outside influence: botany north of Thursday" by D.G. Frodin.

After that, there were only a few of the 36 chapters left, so I read them anyway, and was pleased to be introduced to a range of new people, places and plants.

Despite the manner in which I made my way through this book, there is an order in its presentation. The chapters are grouped under a number of headings: Australian Herbaria, 5 chapters; Australian Botanists and Collectors, 15 chapters; New Guinea Botany, 2 chapters; New Zealand Botany, 2 chapters; Algae, 1 chapter; Bryophytes, 1 chapter; Fungi, 3 chapters; Cultivated Plants, 2 chapters; Botanical Art, 3 chapters; and Bibliography, 2 chapters. There is a very useful index of botanists and the names of ships mentioned in the text, and the editor is to be congratulated for undertaking this tedious task; it does greatly increase the value of the book.

This history was written at a time when many Australians looked backwards and pondered their heritage. It is appropriate, then, that the final chapter, by Alex George "History is now", reminds us forcefully that today's activities are tomorrow's history: a timely reminder when we are shown the value added to collections by proper documentation and curation combined with a knowledge of the people behind the plants.

I thoroughly recommend this book. It is much more than the title and its very ordinary presentation suggest. It is, foremost, interesting even exciting reading, and quite compulsive. In addition, it has a permanent role as a reference book. At \$30, it is also exceptional value.

Robert J. King
School of Biological Science
University of New South Wales

Cycads of the World

By David L. Jones. Reed, Chatswood. 1993. 312 pp. ISBN 0-7301-0338-2. \$45.

This is a very convenient book, aimed at the "middle" and scientific markets, being comprehensive, technical but not overly so, and well illustrated. It brings together information on all of the world's cycads, including, in Part One, chapters on their evolution, structure, biology, classification, conservation, uses, and cultivation. These are followed, in Part Two, by an account of all genera

and species, with keys to genera and species, descriptions, along with notes on distribution and habitat, relationships, variation, cultivation, and points of interest such as rarity and taxonomic history. The difficult state of the systematics of *Encephalartos* and *Zamia* is reflected in the fact that no key to species is given for either genus. The latest systematic classification at generic level and above is presented, but not at the species level, for which, despite the long history of research, relationships are still not adequately understood.

The text is generally well-written, although a little more editing could have tightened some of the phrasing. Typographical errors are rare, the only notable one being "Enneabba" instead of "Eneabba" in the heading of an undescribed species of *Macrozamia*. The colour plates are well-produced, and include reproductions of some early figures. There is a comprehensive bibliography, covering all of the important literature to date.

The only deficient part of the book is the Index, which gives entries to the systematic treatment and illustration of each name in Part Two, but does not cover any of Part One except for the treatment of fossil taxa. While an index to Part One would be large, it should have been done to assist the reader, who now has the list of chapters as a guide but has no quick means of finding subjects or names there.

Overall, a most useful book for reference and general interest.

Alex George
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Recent Publications

Plant Systematics Research in Australasia 5th edition.

Edited by K.J. Cowley and C. Puttock. Published by the Centre for Plant Biodiversity Research, Canberra, on behalf of the Council of Heads of Australian Herbaria. 76 pp. ISBN 0-642-19888-8. \$20. Available from CANB. All contributors (those who returned questionnaires) will receive a complimentary copy in December 1993.

Biological Systematics. The State of the Art.

By A. Minelli. Chapman & Hall, London. 1993. 408 pp. ISBN 0-412-36440-9. £45.

A Systematic Treatment of Fruit Types.

By R.W. Spjut. Memoirs of the New York Botanical Garden Volume 70, New York Botanical Garden, New York. 1993. 180 pp. ISBN 0-89327-383-X. \$US24.95.

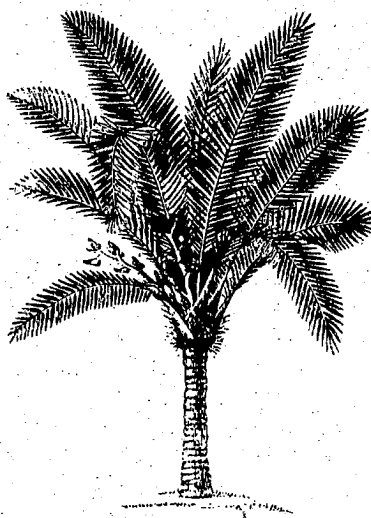
Índice de Toponimos do Distrito Federal, Brasil.

By Joseph H. Kirkbride and Tarciso S. Filgueiras. New York Botanical Garden, New York. 1993. 94 pp. ISBN 0-89327-382-1. \$US8.50.

Flora Europaea, Volume 1, Psilotaceae to Plantanaceae. Second edition.

Edited by T.G. Tutin, N.A. Burges, A.O. Chater, J.R. Edmondson, V.H. Heywood, D.M. Moore, D.H. Valentine, S.M. Walters, and D.A. Webb. Revised by J. Akeröyd. Cambridge University Press, Cambridge. 1993. 628 pp. ISBN 0-521-41007-X. £100.

David Murray, one of the six ASBS members whose visits to Hawaii in August 1992 were supported by the National Tropical Botanical Garden, has written two articles on Botanic Gardens in Hawaii, to appear in *The Australian Garden Journal* Volume 13, Numbers 1 and 2. These issues should be available in October and December from newsagents at \$4.50, or they can be obtained direct from the Australian Garden Journal, PO Box 588, Bowral NSW 2576. The Limahuli site of the NTBG on Kauai was the setting for the film *Jurassic Park*.



NOTICES

Expressions of interest:

Collaborative projects using continent-wide data sets — Eucalyptus

The collation of a large continent-wide eucalypt dataset of various types of data is nearing completion, and this would seem to present opportunities for some innovative research projects. The extensive eucalypt collections held by the nine major Australian herbaria, and several major survey agencies, will be computerized with ERIN assistance by the end of 1993. Thus, we will have a large distributed dataset of approximately 200,000 records, from point-source data to information on habitats.

The Australian herbaria wish to gain some added value from these specimen databases, and from their commitment of considerable resources to databasing the collections. Thus, we are calling for expressions of interest in the development of collaborative projects to analyse, synthesize and utilize the eucalypt dataset on a continent-wide basis.

This collaborative project proposal will be co-ordinated by the Centre for Plant Biodiversity Research and The Environmental Resources Information Network (ERIN).

The main objectives of the proposal are:-

1. To make available the Australia-wide eucalypt dataset, consisting of herbarium specimen records and survey data, to interested scientists and biologists who wish to have access to these data for various research projects; and
2. To develop collaborative projects using these eucalypt datasets to be completed in a limited time-frame, the results of which will be discussed in a workshop/symposium and published in book form.

Once we have received your expressions of interest, we intend to bring together those who may want to use the data, for a small workshop to discuss different projects and ways of analysing the data (see suggestions below). The workshop would function to familiarize participants with the type and quality of data available and some of the limitations of the data, and to discuss possible research and collaborative projects for planned utilization of the database. At this stage, it is intended that this workshop will be held in March 1994.

On completion of the projects, which should have limited time-frames, researchers would be brought together to present their findings and results in a small workshop/symposium. It is intended that the results of the various projects will be published in a refereed book, edited by staff of the Centre for Plant Biodiversity Research.

ERIN will provide infrastructure to support the program, including initial collation and distribution of the data and validation. ERIN will also provide some assistance with the proposed workshops.

Advantages:

There are many advantages to releasing a single distributed continent-wide dataset of this type, including:-

1. The data will be made available to a wide range of users;
2. The project will involve all herbaria, although it is likely that most analyses will be done by scientists elsewhere than in the herbaria;
3. Interested users will have equal access and opportunity;
4. It will allow the institutions who have put resources into establishment of the databases to benefit from their input, and to share the results;
5. It will provide additional arguments for curators and collection managers to convince their departmental managers of the value of the collections and the databasing programs;
6. It will help identify problems with present data-capture methods, e.g. varying levels of accuracy, and thus provide a proofing system;
7. It will give opportunities to those interested in analysing groups as a whole;
8. It will provide a unique opportunity to analyse one of the largest datasets of its type in the world;
9. It should stimulate analyses and projects to be completed in a limited time-frame;
10. It should provide an excellent example of added value to such a collection database — this can then be used for support and to seek further funding of such computerization projects; and
11. It will enable publication of some results and data analyses which may be difficult to publish in mainstream scientific literature.

Possible areas of interest for the analysis of the eucalypt dataset:

- Phytogeography
- Climate change predictions
- Validation and proofing

Rare & threatened taxa
 Functional groups
 Correlated patterns
 Systematics & biogeography
 Subgeneric/ecological correlations
 Patterns of endemism
 Landscape characterisation
 Testing of modelling methodologies
 Testing of reserve selection methodologies
 Survey analysis

If you are interested in being involved in analysis of any sort of this eucalypt dataset please provide information indicating the nature of your interest and the type of analysis you intend to perform. Indicate possible collaborators in the

project, expected outcomes and the time-frame in which you think it can be completed.

Send information to or contact:-

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 Australian National Herbarium
 Centre for Plant Biodiversity Research
 CSIRO
 P O Box 1600
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J. G. West
 On behalf of the Council of Heads of
 Australian Herbaria

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AUSTRALIAN SYSTEMATIC BOTANY SOCIETY

History of Systematic Botany in Australasia

Edited by P.S. Short. A4, case bound, 326pp. A.S.B.S., 1990.

Members \$30; non-members \$50. Postage \$10.

For all those people interested in the 1988 A.S.B.S. symposium in Melbourne, here are the proceedings. It is a very nicely presented volume, containing 36 papers on: the botanical exploration of our region; the role of horticulturalists, collectors and artists in the early documentation of the flora; the renowned (Mueller, Cunningham), and those whose contribution is sometimes overlooked (Buchanan, Wilhelmi).

Systematic Status of Large Flowering Plant Genera

A.S.B.S. Newsletter Number 53, edited by Helen Hewson. 1987. \$5 + \$1.10 postage.

This Newsletter issue includes the reports from the February 1986 Boden Conference on the "Systematic Status of Large Flowering Plant Genera". The reports cover: the genus concept; the role of cladistics in generic delimitation; geographic range and the genus concept; the value of chemical characters, pollination syndromes, and breeding systems as generic determinants; and generic concepts in the Asteraceae, Chenopodiaceae, Epacridaceae, *Cassia*, *Acacia*, and *Eucalyptus*.

Flora and Fauna of Alpine Australasia: Ages and Origins

Edited by B.A. Barlow. A.S.B.S. & C.S.I.R.O., 1986. \$21 + \$5 postage.

The alpine environments of Australia, New Guinea, and New Zealand differ from each other in terms of topography, genesis, climate, and biota. They also contrast strongly with alpine habitats in the northern hemisphere. Palaeoclimatology, palaeobotany, biogeography, ecology, and plant and animal systematics have been used here to give an understanding of the biohistorical relationships of these isolated islands of alpine terrain in the southern hemisphere.

Evolution of the Flora and Fauna of Arid Australia

Edited by W.R. Barker & P.J.M. Greenslade. A.S.B.S. & A.N.Z.A.A.S., 1982. \$20 + \$5 postage.

This collection of more than 40 papers will interest all people concerned with Australia's dry inland, or the evolutionary history of its flora and fauna. It is of value to those studying both arid lands and evolution in general. Six sections cover: ecological and historical background; ecological and reproductive adaptations in plants; vertebrate animals; invertebrate animals; individual plant groups; and concluding remarks.

Australian Systematic Botany Society Newsletter

Back issues of the *Newsletter* are available from Number 27 (May 1981) onwards, excluding Numbers 29 and 31. Here is the chance to complete your set. Cover prices are \$3.50 (Numbers 27-59, excluding Number 53) and \$5.00 (Number 53, and 60 onwards). Postage \$1.10 per issue.

Also available are sweaters (\$25), t-shirts (\$15), mugs (\$8 each, or \$42 for a six-pack), and scarfs (\$20).

Send orders and remittances (payable to "ASBS Inc.") to:

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Flora section, ABRS
G.P.O. Box 636
CANBERRA. A.C.T. 2601.
AUSTRALIA

A.S.B.S. Inc. MEMBERSHIP APPLICATION

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED (incorporated under the Associations Incorporation Act 1991)

APPLICATION FOR MEMBERSHIP

I,

of

.....
(address)

.....
(occupation)

hereby apply to become a member of the abovenamed incorporated association. In the event of my admission as a member, I agree to be bound by the rules of the Society for the time being in force.

.....
(signature of applicant)

.....
(date)

I,
(full name)

a member of the Society, nominate the applicant for membership of the Society.

.....
(signature of proposer)

.....
(date)

I,
(full name)

a member of the Society, second the nomination of the applicant for membership of the Society.

.....
(signature of seconder)

.....
(date)

Return this form, with the appropriate subscription, to the honorary treasurer:-
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This list will be kept up to date, and will be published in each issue.
Please inform us of any changes or additions.

The Society

The Australian Systematic Botany Society is an incorporated association of over 300 people with professional or amateur interest in botany. The aim of the Society is to promote the study of plant systematics.

Membership

Membership is open to all those interested in plant systematics. Membership entitles the member to attend general meetings and chapter meetings, and to receive the *Newsletter*. Any person may apply for membership by filling in an "Application for Membership" form and forwarding it, with the appropriate subscription, to the treasurer. Subscriptions become due on January 1 each year.

The Newsletter

The *Newsletter* appears quarterly, keeps members informed of Society events and news, and provides a vehicle for debate and discussion. In addition, original articles, notes and letters (not exceeding ten published pages in length) will be considered.

Contributions should be sent to one of the editors at the address given below. They should preferably be submitted as:- an unformatted word-processor or ASCII file on an MS-DOS or Macintosh diskette, accompanied by a printed copy; as an unformatted word-processor or ASCII email file, accompanied by a fax message reporting the sending of the file; or as two typed copies with double-spacing.

The deadline for contributions is the last day of February, May, August, and November.

All items incorporated in the *Newsletter* will be duly acknowledged. Authors alone are responsible for the views expressed, and statements made by the authors do not necessarily represent the views of the Australian Systematic Botany Society Inc. *Newsletter* items should not be reproduced without the permission of the author of the material.

Notes

ASBS annual membership is \$30 (Aust); full-time students \$15. Please make cheques out to ASBS Inc., and remit to the treasurer. All changes of address should be sent directly to the treasurer, as well.

Advertising space is available for products or services of interest to ASBS members. Current rate is \$100 per full page, \$50 per half-page or less. Contact one of the *Newsletter* editors for further information.

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