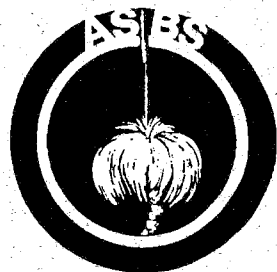


**AASBS**

*Australian  
Systematic  
Botany  
Society*



# **Newsletter**

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# AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

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## EDITORIAL

Thanks to everyone who provided feedback on the last issue. As a result the line spacing has been increased (slightly) and there have been corrections to the contact details for the Western Australian Herbarium. If you have any comments on style or layout I will be pleased to receive them. I would

also like to see more interest in the "Know your Botanical Institutions" segment. I am happy to include places other than Botanic Gardens and Herbaria in this (e.g. University departments). I think this is a worthwhile idea, but it needs your support.

## PRESIDENT'S REPORT

### Meeting with the Minister

Following another letter to Senator Robert Hill on behalf of ASBS, I received an invitation to meet with the Minister and his adviser on 13 May. The invitation included Andy Austin, President of the Society of Australian Systematic Biologists, and Jack Simpson, President of the Australasian Mycological Society (i.e. the three amigos of the Adelaide meeting). Also at the meeting were Judy West, representing the ABRs Advisory Committee, and Helen Haliday, acting head of ABRs.

In our agenda we asked about the budget of \$6 million recommended for ABRs in the program evaluation (see below), our concerns about the lack of opportunities and training for 'young' systematists, and a number of other issues related to the finances and priorities of ABRs. Although we didn't secure the \$6 million (of course we didn't expect to), the meeting was very positive. The Minister was sympathetic to our arguments but said the government had no plans to increase the total allocation to Environment Australia. He showed a good understanding of ABRs's role and its financial limitations. Prior to the meeting we had learnt that ABRs's core budget for 1998/99 was to remain fixed at \$2.2 million. This is the same as the 1997/98 budget, excluding the \$1.2 million top-up provided by the Minister following protests from the scientific community. In the meeting, the minister made a commitment to us to provide an extra \$1.2 million for the 1998/99 budget, maintaining it at last year's level. He also made a commitment to place the funding for ABRs on a more secure footing in the future. Hopefully this means a base funding level of \$3.4 million per year rather than having to top it up from \$2.2 million on an annual basis.

There has been some concern in our society about how the 'extra' \$1.2 million in the 1997/98 budget was spent. In a letter (dated 14 May) sent after the meeting, the Minister included a detailed allocation of this supplementary funding. Half of it went to the Participatory Program to fund all new programs in the 1998 calendar year, with an additional \$51,000 used to fund projects from the Reserve Grants list. The rest was spent primarily on the Publications Program, mostly making good shortfalls (resulting from earlier cuts to the ABRs budget) but including some new initiatives. A small proportion went to the ABRs program evaluation consultancy.

At the meeting and in his letter, the minister said that after appointing a new chair for the ABRs Advisory Committee he would direct them to examine and help implement the recommendations of the program evaluation. He would also like them to have a role in the allocation of the ABRs budget and in setting priorities within the unit. The society Presidents will work closely with the Advisory Committee and with ABRs staff to ensure that ABRs remains a strong and relevant organisation for Australian systematics. The meeting was a good start. The follow-up will include lobbying ministers prior to the next election and maintaining our good relationship with the Minister.

### ABRS Program Evaluation

The evaluation of the Australian Biological Resources Study and the Biodiversity Program is now available from ABRs. Its major recommendations for ABRs are (in summary):

- At least \$3 million annually for the ABRs Participatory Program
- \$0.5 million of that amount earmarked for joint ventures

- A scholarship program providing at least two new places per year and jointly funded
- At least \$3 million annually to ABRIS editorial and IT
- ABRIS should form partnerships to address community needs
- ABRIS should continue to develop electronic formats for taxonomic information

### George Scott

The recent death of George Scott was a great loss to his many friends in the botanical community. There is a tribute to George elsewhere in the newsletter but I wanted to recall a couple of my own memories. Firstly of the Bryophyte identification courses he held at Monash University. Not only did George teach the basics of bryophyte taxonomy but he found time to help anyone with a genuine interest related to his favoured group of plants. For me he helped make a small collection of aquatic bryophytes from his own herbarium. More recently, he coordinated and edited the *Overview of the Conservation of Non-marine Lichens, Bryophytes, Algae and Fungi in Australia* for Environment Australia, working with and helping fellow cryptogamists such as myself.

Since first meeting George (probably at the bryophyte course in 1985, where I also had my first single malt whisky), there has been a trickle of algal collections from his many forays across Australia. Only a few months ago he sent a collection of red algae from Roaring Meg Creek at Wilsons Promontory, a population I had been wanting to collect for many years. Typically, George unassumingly gave me the specimen saying I was under no obligation to keep it. Equally typically, it was a valuable collection and yet another of his diverse and important contributions to Australian botany.

### Vice President

Chris Puttock has accepted a position at the Bishop Museum in Hawaii, and has therefore resigned as Vice President. Chris served the society for three years as secretary, and for the last year and a half as Vice President. I wish Chris well for his future and thank him for his support and his contributions to the society.

Barry Conn was the only nomination received for the Vice-President position for the next election (in September) and council has appointed Barry to the position as of 18 May. Thanks Barry for stepping in to the position at such short notice. Barry's appointment will be particularly useful in establishing the Research Committee to assess the Eichler Fund applications.

### Constitutional Change

Thanks to everyone for their overwhelming support for the constitutional changes. We can now move quickly to get tax deductibility status for the society. Thanks particularly to John Clarkson for his hard work in getting this process completed quickly and effectively.

### Conference Profit

It is likely that there will be a sizeable profit from the Adelaide conferences, part of which will come to ASBS. In what is becoming a proud tradition, the ASBS conference was not only a scientific and social success, but also a financial one. On behalf of the society I would like to once again thank the organising committee for their hard work and financial diligence. As with the profits from the Kuranda conference, ASBS council (at the suggestion of the organising committee) would like to invest the money in the Hansjörg Eichler Scientific Research Fund. In this way we can use our finances to further the society objective to 'promote the study of plant systematics'.

Tim Entwisle

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## Reviewers required

The following publications are available for review (contact Bob Hill):

- Flora Malesiana Volume 13: Rafflesiaceae, Boraginaceae, Daphniphyllaceae, Illiciaceae, Schisandraceae, Loranthaceae, Viscaceae.
- Orchid Monographs Volume 8: Revisions of the Orchid genera *Agrostophyllum* (section *Appendiculopsis*), *Mediocalcar*, *Bromheadia*, *Acanthephippium*, *Chrysoglossum*, *Collabium*, *Diglyphosa*, *Pilophyllum*.
- Blumea Supplement 11: Taxonomy, Phylogeny, and Wood anatomy of *Alstonia* (Apocynaceae).

## ASBS INC BUSINESS

### Have you paid your 1998 subscription?

1998 subscriptions were due on 1st January. If your payment had not been received by the Treasurer by the time the mailing labels were printed in late March you should have noticed a coloured sticker on the mailing label of this newsletter. The Society would appreciate your early attention to this matter. A subscription form appears at the end of this newsletter.

As a service to European members Ken Hill, the Australian Botanical Liaison Officer at the Royal Botanic Gardens Kew, has offered to collect subscriptions in British currency and pass them on in Australian dollars. If you wish to avail yourself of this offer please contact Ken at the address given in the inside cover of this Newsletter before the end of April.

### Where does your Newsletter go?

This issue of the Newsletter has been bulk mailed to many institutions for local distribution. This has resulted in a considerable saving in postage. There are more savings to be made. If you are one of many members who have their Newsletter delivered to your home address, would you be prepared to have

it readdressed to your work place? If so please contact the Treasurer John Clarkson at the address given on the inside front cover. Your copy will still be personally addressed to you and sealed in the plastic mailing envelope.

### Back issues of the Newsletter

Last year quite a number of members paid subscriptions for one or more years for which they were in arrears in the expectation that they would receive the back issues of the Newsletter they had missed. The response to the membership drive at that time was so good that many back issues were soon exhausted. Arrangements were made to have

copies of these made but progress towards achieving this has been slow. I apologise to those who are still waiting. I have a list of who is waiting for what and I promise the back issues will be sent to you soon.

*John Clarkson*

### Changes to the Constitution

Results from the voting for the change to the constitution, included in the last newsletter, are as follows:

Number of votes cast 101. Of these 11 were invalid, either because they did not have a name or address or because the members were currently unfinancial.

Most people took the opportunity to vote above the line (84) and all of these votes were agreeable, leaving us in no doubt that the changes have been approved by the membership (a 75% positive vote is required for change).

Individually the votes for each of the boxes were as follows

#### **Eichler Fund**

39(1) 90 Agree  
39(2) 89 Agree 1 Disagree  
39(3) 90 Agree

#### **Life Membership**

90 Agree (4 membership categories)  
89 Agree 1 Disagree (all members same rights and privileges)  
90 Agree (Life membership conferred by Council for members making a significant contribution)

87 Agree 3 Disagree (number of Honorary Life members not to be more than 10)

89 Agree 1 Disagree (no more than 2 Honorary Life members per year)

89 Agree 1 Disagree (Honorary Life members to be exempt from payment of subscriptions)  
The changes are effective as of now.

Thank you to all of those of you who took the time to vote.

## CONFERENCES/WORKSHOPS

### Australian Systematic Botany Society

in association with

### Invertebrate Biodiversity & Conservation and

### Society of Australian Systematic Biologists

#### 1999 Conference

In August 1699, the English buccaneer William Dampier collected the first plant specimens from Australia, at Shark Bay and farther north. The strangeness of the environment made an immediate impression. Later discovery and research have revealed a vast physical and biological diversity and confirmed its uniqueness.

What have we learnt about the Australian environment in the succeeding 300 years, and where will the 21st Century take us?

Come to the last conference of the 1900s, hear what we have learnt about our land, and enjoy good company and tours among late spring wildflowers and well-matured wines.

The 1999 Conference—300 years in New Holland and Old Australia—will be held in Perth, Western Australia, from 6 to 10 December. There will be four days of lecture sessions, and a mid-week morning of poster sessions followed by an afternoon river excursion to the Swan Valley, the State's original wine-producing district.

The lecture program will include major geological, botanical and zoological overviews of our knowledge about Australia, with forecasts of developments in the 21st Century. At least one session will address the inter-relationships between the flora and invertebrate fauna. To commemorate the tercentenary of Dampier's visit

there will be several papers on his collections and the special features of the Shark Bay region. There will be papers on recent research projects. We hope to have papers on Aboriginal knowledge of the land and its biota.

The Conference will be preceded (3–4 December) by a two-day excursion to the northern kwongan (Eneabba, Badgingarra), and followed (7–10 December) by a four-day tour through the lower South-West (Augusta, Albany, Stirling Range—passing through some recently-developed wine districts). The dates may seem late in the year, but at that season there is still a great deal in flower, and those who have been here in spring will see different late-flowering genera and species including the spectacular arborescent mistletoe *Nuytsia*.

On 5 December we propose an aerial tour to Shark Bay, where Dampier collected specimens, and a region of great historical, geological and biological significance. Other early visitors there included Dirk Hartog (1616), Willem de Vlamingh (1697) and French expeditions around 1800. Hamelin Pool is the site of living stromatolites and significant seagrass banks. The flight, of about four hours, will be along the coast with detours over the Abroihos Islands, Kalbarri and the Murchison River gorge, the Zuytdorp Cliffs, Dirk Hartog Island, Shark Bay and Hamelin Pool, returning along the coast so that passengers on each side will

have a good view. The aircraft will be a high-wing, twin-turboprop Fokker 50, with good viewing from all seats. Whether we put on this flight depends on attracting sufficient passengers. The cost will be c. \$330. **Expressions of interest should be given to Alex George by 31 August 1998 and will be recorded on a first-in basis.** Should there be strong demand, a second aircraft will be available.

A first circular and a form calling for expressions of interest in the conference will be included in the next Newsletter.

Members of ASBS on the organising committee are:  
Jenny Chappill, University of W.A.

phone: (08) 9380 2212 fax: (08) 9380 1001

email: chappill@cyllene.uwa.edu.au

Alex George, Kardinya phone: (08) 9337 1655  
fax: (08) 9337 9404

email: alextris@mail.iinet.net.au

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phone: (08) 9334 0511 fax: (08) 9334 0515

email: brendanl@calm.wa.gov.au

Terry Macfarlane, W.A. Herbarium, CALM

phone: (08) 9771 7980 fax: (08) 9777 1183

email: terrym@calm.wa.gov.au

## **Preliminary notice, NZBS botanical symposium**

The New Zealand Botanical Society is organising a 2-day botanical symposium to be held in June 1999 to celebrate and honour Dr Eric Godley's eightieth birthday. This is particularly fitting since the Society was 'conceived' following the 'Godley Gaudeamus' held in May 1984 to mark Eric's retirement from Botany Division of DSIR. The symposium, titled "New Zealand botany at the end of the millennium: a celebration of Eric Godley's contribution", will encompass a range of themes reflecting Eric's major botanical interests, e.g.

- Reproductive biology
- Conservation
- Biogeography
- Plant morphology and function
- Systematics and collections
- Botanical history
- Popular botany

We envisage invited keynote speakers for each theme chosen, some from outside New Zealand, as well as offered papers. The symposium will be staged at Lincoln, Canterbury, using the facilities of Lincoln University and Landcare Research, with

accommodation available at the University Halls of Residence.

An interim organising committee of David Galloway, David Penman, Colin Webb and Anthony Wright are preparing a first circular for mailing shortly which will seek preliminary indications of interest, offers of possible presentations and other suggestions.

Following on from the successful joint meeting of ASBS and NZBS in the early 1990s it is hoped a good number of ASBS members will join us for the Godley Symposium. If you would like to receive the first circular and continuing information about the Symposium, please contact Petra Palmer by any of the following means:

Petra Palmer  
Landcare Research  
P O Box 69  
Lincoln  
New Zealand

Telephone 00-61-325 6700 Ext 3778  
Fax 00-61-325 2418

Email palmerp@landcare.cri.nz

## **A Voyage to Paradise**

South of New Zealand beyond the 'Roaring Forties' on the edge of the Antarctic Circle, in an expanse of ocean visited by few people, lies a group of pristine, uninhabited islands populated by the world's most extraordinary group of wildflowers - known as 'megaherbs' for their gigantic proportions. The amazing mega-herbs bloom during a brief period of Antarctic summer, in December and early January, cloaking the slopes of extinct volcanoes to the very

edge of desolate beaches inhabited by breeding elephant seals and miles of nesting penguins.

Recently on the verge of extinction as a result of feral animals browsing their habitat, the mega-herbs have now made a dramatic come-back since removal of foraging animals, re-establishing huge colonies that can extend several miles on the two main island groups of Auckland and Campbell. The islands are

now a paradise of botanical treasures few have ever witnessed.

Leading the expeditions will be award-winning horticultural photographer, Derek Fell, who has more than 60 garden books and calendars to his credit. The world's most widely published horticultural photographer and garden writer, Fell accompanied an expedition of New Zealand botanists to the mega-herb fields in December 1996, and will provide lectures aboard ship on all aspects of horticultural photography. Also accompanying the Expedition will be New Zealand scientist Dr David Given a world authority on these islands and their plants.

Also visited during the expedition will be the nesting sites of the rare royal albatross (the world's largest seabird with a wingspan of up to 10 feet), the largest breeding colony of the rare Hooker Sealion, and also breeding colonies of giant petrel that nest openly among the mega-herbs.

The Sub-Antarctic Wildflower Expedition will depart from Invercargill, New Zealand, aboard a Russian polar research vessel, the *Akademik Shokalskiy* with landing craft that allow wildlife viewing opportunities in otherwise inaccessible areas.

First landfall after leaving New Zealand will be the Snares Islands where miles of penguins will be observed nesting on rocky slopes below forests of giant tree daisies and where millions of breeding sooty petrels (known as mutton birds to ancient mariners) can literally blacken the sky during their homeward flights to nesting holes along the cliff-tops.

A day's sail from the Snares are the Auckland Islands where the largest colonies of giant gentian and giant bulbinella lilies can be seen colonizing cliff-top meadows for miles. The Aucklands have the largest rata forests in the world - a tree related to eucalyptus with such a dense canopy of red blooms that the islands can appear to be ablaze. Nicknamed 'the goblin forest' for the weathered sculptural forms of the trees and their coatings of lichen and mosses, the forest floor is the refuge of the world's rarest penguin, the yellow-eye. Normally a wary

bird that avoids human contact, the yellow-eyes in the Aucklands show little fear of mankind and allow close encounters.

The expedition is timed to coincide with the peak flowering of the principal mega-herbs, especially the Campbell Island lily (*Bulbinella rossii*), the giant Campbell Island daisy (*Pleurophyllum speciosum*) and the Macquarie Island cabbage (*Anisotome latifolia*) - an edible plant with huge, pink umbrella-like blooms that sustained castaways.

The closest relatives of the Campbell Island lily are in South Africa. One plant can produce as many as 50 large yellow poker-like blooms all open at one time. The Campbell Island daisy is remarkable not only for the size of its blue or purple daisy-like flower, but for its enormous ribbed leaves that resemble giant hostas. The dusky pink flowers of the Macquarie Island cabbage resemble gigantic heads of broccoli, while the huge leaves resemble rhubarb.

Administered by the New Zealand Department of Conservation, the sub-Antarctic Islands are off-limits to all visitation except by special permit. Only a small number of landing permits are granted each year, and many of them go to research scientists. The *Akademik Shokalskiy* has a spacious bridge from which passengers can view schools of whales and dolphins at sea. A comfortable dining room serving international cuisine from European chefs also serves as a lecture room with television and VCR facilities. The vessel also has a range of excellent accommodation, lounge/library, sauna and laundry. Weather is changeable, from warm and sunny to cold and misty. Rainstorms are usually brief, followed by intense rainbows, and the visual drama of changing light and weather offers some magnificent photo opportunities, such as the wildflower meadows shrouded in mist.

Rodney Russ  
Managing Director  
HERITAGE EXPEDITIONS (NZ) LTD

(editor's note: this item is somewhat misplaced here, but it is a botanical get-together. A separate flier is enclosed with this issue)



## ABRS REPORT

### Staff

Ian Cresswell, Director of Flora Section, has been offered a 2-year secondment to the National Land and Water Resources Audit unit in the Department of Primary Industry & Energy. He takes up this position from 1 June 1998. The position of Director, ABRS Flora Section will be advertised immediately, as a 2-year term appointment. In the interim, Tony Orchard will be Acting Director, and Helen Thompson will be Acting Executive Editor, Flora Section.

### Publications

*Flora of Australia* vol. 12, *Mimosaceae* (excluding *Acacia*), *Caesalpiniaceae* was published on 4 May 1998. It covers 38 genera, 153 species and 16 'form taxa' in the two families, and consists of 213 pages, with 64 colour illustrations and 32 pages of line drawings. Both families have a heavy bias towards tropical regions, although *Caesalpiniaceae* is well represented in arid and semiarid regions through the shrubby genus *Senna*. Both families treated have a sizeable number of taxa in horticulture. An innovation in this volume has been the recognition of form taxa in *Senna*, to try to deal with the problems engendered by the complicated breeding system of many taxa in that genus. The combination of polyploidy, hybridisation and polyembryony found in many arid zone populations makes Linnean taxonomic treatments unworkable, and it will be interesting to discover how this innovative approach of Barbara Randell and Bryan Barlow is received. The book can be ordered from CSIRO Publishing, PO Box 1139, Collingwood Vic. 3066; email: sales@publish.csiro.au; fax: (03) 9662 7555. Price is \$69.95 for the hard cover version and \$54.95 for the soft cover version.

*Flora of Australia* Volume 48, *Ferns, Gymnosperms and their Allies* was sent to the printers on 1 June 1998, and can be expected to be available by early September. This volume is the largest so far in the *Flora* series, and contains nearly 800 pages. It is heavily illustrated with both colour and line drawings, and is expected to be one of the more popular titles in the series. Amongst other features, it contains descriptions of many newly discovered cycads and several ferns, and introductory essays on the classification, biology and palaeobotany of all groups. Australia has a surprisingly high number of taxa in these groups. The fern allies are represented

by 44 native species of psilophytes and lycophytes. True ferns are found almost throughout the country, but are most numerous in wetter, tropical and subtropical areas. Australia has a native flora of 30 families, 103 genera and 390 species of ferns, with another 10 species being naturalised. Only about 40% of the Australian species are endemic. Native pines are distributed through 3 families, 14 genera and 43 species, of which 39 species are endemic. Most are species of wetter mountainous areas, with the exception of *Callitris* (17 endemic species), found mainly in drier open woodlands. Australian cycads number 69 species, all endemic, in 4 genera and 3 families. They are confined mainly to the forests of eastern and northern Australia, with a few in south-western Western Australia and central Australia. The book can be ordered from CSIRO Publishing, PO Box 1139, Collingwood Vic. 3066; email: sales@publish.csiro.au; fax: (03) 9662 7555. At the time of writing a price had not been determined.

### Editing in Progress

The following volumes are well-advanced in the editing process, and should go to press during 1998, roughly in the order listed:

*Flora of Australia* Volume 17, *Proteaceae* 2  
*Flora of Australia* Volume 1, *Introduction* (2nd edn)  
*Flora of Australia* Volume 39, *Alismatales to Arales*  
*Flora of Australia* Volume 43, *Poaceae* 1  
*Flora of Australia* Volume 44, *Poaceae* 2  
*Flora of Australia* Volume 51, *Mosses* 1

Work is underway on an additional group of publications, which will go to press in late 1998 or early 1999:

*Flora of Australia* Volume 2, *Magnoliales to Papaverales*  
*Nature's Investigator: The Diary of Robert Brown in Australia 1801-1805*  
*Flora of Australia* Volumes 11A & 11B, *Acacia* 1 & 2  
*Fungi of Australia* Volume 2B, *Catalogue and Bibliography of Australian Macrofungi* 2

### Grants

As a result of some budgetary uncertainties this year, the call for Grant applications under the Participatory Program was delayed from the usual 10 April closing date. A supplementary *Biologue*

has now been distributed, giving details of preferred groups, and a advertisement was also placed in the *Australian* newspaper. Closing dates for applications this year will be 17 June, but the refereeing and consideration process will be telescoped to ensure decisions will be available at the usual time. Closing date for applications for the ABLO position in 2000–2001 is 1 September 1998.

Further details, and copies of application forms, can be found on the ABRS World Wide Web site, at <http://www.anbg.gov.au/abrs/index.html>

*Tony Orchard*  
Acting Director, ABRS Flora Section

## ABLO REPORT

ABLO activity has increased a little during the months of March and April, with about 70 enquiries over the 3 months. I have visited BM several times, LINN, P on an overnight visit and the Irish National Botanic Gardens at Glasnevin to follow up on queries during this period. I presented short lectures on the Wollemi Pine and on the biogeography of the cycads to staff at Glasnevin. About 85% of the queries have been from Australia. I have not included queries relating to my contributions to *Flora of Australia*, identification of eucalypts or papers that I have submitted on cycads and eucalypts in this count.

Time has been available to do my own work, and I have continued working on several manuscripts that had been almost completed in collaboration with Lawrie Johnson before his death. The first of these has now been published in *Telopea*. I am also continuing with molecular work on cycads in the Jodrell Laboratories, and I am building up a body of data on several molecular markers. This has developed into a multi-level study, one phase of which is a collaborative study of relationships within the Cycadales, with Mark Chase of the Jodrell Labs and Dennis Stevenson of New York Botanical Gardens.

At this stage, I have unfilled requests for material in B, FI, G and LE in Europe, and MANCH in Britain. I

still plan to visit some of the European herbaria in late June.

### Visitors to Kew

Australian visitors during this quarter have been Belinda Pellow and David Keith (HO) and Gillian Smith (MEL).

### News from Kew

Building work continues, with extensions to wing D of the herbarium complete and now being occupied. The staff tea room has now moved to the top floor, with views over the Thames. The new reception area is still under construction, and the bottom two floors of wings D are under renovation. This has put the library photocopy service out of action until at least mid June

My submission for an exemption from the ban on "foreign" computers on the Kew network has been accepted, and I now have a network connection for my laptop, and for future ABLO laptop computers. The building extensions have also vacated space in the old buildings, and the ABLO will from now on have a private office on the top floor of the original herbarium building. This will not be ready for occupation until July, so I will be able to move the ABLO possessions in just in time to hand the office over to the next ABLO

*Ken Hill*

## EXCHANGE PROGRAM

### Australian Academy of Science International Exchange Programs Science and Technology

The Australian Academy of Science administers exchange programs which support collaborative research between professional Australian scientists and technologists and their colleagues in the UK, France, Germany, Korea, Taiwan, China and Japan. The programs provide funds for living and travelling costs.

Most of the programs support short-term visits of up to six weeks, but there are provisions for longer-term visits to Korea (up to three months) and Japan (up to one year). Support will not be given when the primary purpose of a visit is to attend a conference. Applicants must submit letters of invitation from host scientist with their proposals. Australian citizens and permanent residents who hold PhD degrees or the equivalent may apply.

Information sheets and application forms are available for visits to China and Japan during the

1999-2000 fiscal year and for visits to the other countries during the 1999 calendar year. Closing dates for the different country programs vary between 1 June and 1 November 1998.

Application forms and more information about the programs are available at

<http://www.science.org.au/internat/exchange/contscix.htm>

International Programs  
Australian Academy of Science  
GPO Box 783  
Canberra, ACT 2601

Fax: (02) 6257 4620  
Email: [is@science.org.au](mailto:is@science.org.au)

## SUBSCRIPTION TO CSIRO JOURNALS

ASBS members can receive CSIRO journals at the following discount prices:

Journal Title	Volume number	Concessional Price
Australian Journal of Agricultural Research	50 (8 issues)	\$180.00
Australian Journal of Botany	47 (6 issues)	\$120.00
Australian Journal of Chemistry	52 (12 issues)	\$200.00
Australian Journal of Physics	52 (6 issues)	\$150.00
Australian Journal of Plant Physiology	26 (8 issues)	\$140.00
Australian Journal of Soil Research	37 (6 issues)	\$120.00
Australian Journal of Zoology	47 (6 issues)	\$150.00
Australian Systematic Botany	12 (6 issues)	\$150.00
Invertebrate Taxonomy	13 (6 issues)	\$170.00
Marine & Freshwater Research	50 (8 issues)	\$120.00
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## OBITUARY

### A Tribute to George Anderson McDonald Scott

I first met George more than 40 years ago, one cold October day in a postgraduate laboratory in the then University College of North Wales, Bangor. Three of us came together on that day, recent graduates in botany from Imperial College in London, the University of Nottingham and a medallist from the University of Glasgow. That day remains clearly etched in my memory for a number of reasons, not only because George was a kilt-wearing Scot with verbal and footwear brogues to match, but also because he told us with a studied modesty that he had been born in Barlinnie Prison, a Glaswegian penitentiary for hard men, not noted for producing scholarly inmates of George's calibre.

It took some time and some sensitive probing to elicit the fact that George had been born within the prison precincts because his father had been the resident prison medical officer of the day. And longer still to discover that this robust, rugby-playing songster and very fit hill walker had commenced his university life as a medical student, only to be laid low for two years as he fought from his sanatorium bed the invasive effects of tuberculosis.

The loss of an undergraduate student to medicine was a scholarly gain for plant science. Possessed of a capacious memory for and an ability to distil the essence from his eclectic reading of both literature and poetry, George also had the eagle eye of the born naturalist. Notwithstanding the fact that he commenced a Ph.D. program which focussed his attention on the ecology of shingle beaches, his student herbarium of mosses and liverworts enlarged progressively as he became even in those early days, with the encouraging support of his supervisor Paul Richards, an authority on the local bryophyte flora.

The three postgraduate years we shared between 1957 and 1960 were among the most enriching of my life. The three young men who came together through happenstance from different parts of Britain, researched together, ate together, played together and taught together.

Ever the pragmatic can-do person, George installed a deep-fry chip basket in the lab fume hood to complement the cider keg we installed in the cupboard below. Oftentimes we walked the hills of

Carnedd Dafydd and Carnedd Llewelyn and camped below their summits as dusk fell on a long summer evening. And when love entered our hearts, and when Ann in particular found her place in George's heart, we would on occasion, when accumulated funds permitted, hire a car and visit a hostelry for dinner and a shared bottle of French or German wine in a faraway village in Anglesey.

They were halcyon days, in reality as well as in reflection. Halcyon not least because a friendship born in a work-related setting blossomed into a comradeship - perhaps in this country I should refer to mateship - that remained steadfast throughout our working lives, notwithstanding the infrequency of our meetings, and especially because George was himself a steadfast man, as well as a man of courage, determination and principle.

His determination showed itself in many ways, but I remember particularly his commitment to fieldwork, a trait that stayed with him throughout his life. The need during his time in Bangor, to visit his numerous shoreline shingle sites around the North Wales and Kentish coasts, saw him commit to the purchase of a motorbike and sidecar. Determined never to wear 'breeks' unless he had through accepted custom no alternative, he rode his new machine with legs akimbo, the tartan plaid of his McDonald kilt draped apron-like and oh so symmetrically on either side of his petrol tank.

George was enormously and properly proud of his Scottish heritage, and it was for us to learn under his expert tutelage where to put one's keys in a sporran, in which sock to wear a skian dubh, how to prepare and cook a haggis, to enjoy the rounds of cheese with oatmeal cakes which he brought back every summer from his sojourn on the Isle of Arran, and to savour on the palate a single malt whisky without benefit of water.

He married his first love Royce Ann Sutton from Rauceby in Lincolnshire. I was proud to be his best man, not least because Ann had been one of our cherished students, and because my own folk came from the same county and I appreciated the standsure countryside values of the family he had chosen to join.

It was in 1965 that I joined him as a working academic in Australasia, and a year later that I visited him and Ann in Dunedin, where he lectured in the Botany Department at Otago and looked after his young protégés in College with the pastoral concern that was to mark his later college life in Melbourne.

It was during those brief few days in 1966 that he introduced me to New Zealand bryology, and the Antarctic beech country of the south-west that remains as a Gondwanaland relic today. I remember clearly his well-tutored Scottish acceptance of the mild drizzle that unremittently permeated the south-west in those few days; his delight at discovering a new species he had not seen in that part of the country before; his intellectual generosity in being able to explicate his already deep well of knowledge of that part of the Antipodes; and perhaps above all things, his acute pleasure at being reminded of his ability to display what the Scots call 'giz' - the ability to recognise in the field from the picture in the mind's eye, in its entirety, a formal Latin description of a Linnaean species.

Indeed George Scott was the epitome of a Fellow of the Linnean Society of London, a naturalist with acute and discriminating observational power who would have naturally graced the circle in which Carolus Linnaeus himself moved. George loved his Latin, to the extent that he pursued a bachelor's degree as a focus for his linguistic amour. And he loved giving formal artistic expression to his observation, to the extent that he persuaded and encouraged Celia Rosser not only to illustrate his own book, but also to undertake the task of drawing and painting the many species of *Banksia*, the genus that pays homage to that famous man of the Royal Society, Joseph Banks of Lincolnshire, the county which also spawned his beloved wife Ann.

George Scott emigrated from New Zealand to strengthen the ranks of Australian botanists in 1970, when he joined Monash University as a senior research fellow. He was recognised progressively for his teaching quality and research contributions to ecology and bryology and was promoted to a readership in the same University 14 years later. In 1986 he left Monash to accept the Mastership of Queen's College in the University of Melbourne, and finally retreated from the rich joys and mixed tribulations of university life just six years ago.

When I say retreated, I do him an injustice, for in retirement George continued an active collaboration with both staff and students in progressing his

studies on Australian liverworts. He continued to contribute to workshops and gave much assistance in the planning of the bryophyte volumes for the *Flora of Australia*. The Australian Bryology Workshop to be held later this year in the Grampians will owe much to his lifelong commitment to fieldwork.

In his later years I heard George rail against the weakening body that would not always meet the physical demands he so much wanted to place upon it. For a man who engaged his manual skills with a passion to match his intellectual endeavours, who enjoyed building with bricks as much as he enjoyed creating with words, his acknowledged physical infirmity was for him a harsh burden to carry.

Six years on and the gracious, intellectual and humane man I knew as George Anderson McDonald Scott is no more. His hands and his voice are both stilled. Sadly, his accumulated scholarship is only partially published. But the legacy of this multifaceted and enlivening man will live on, in his written word, in the pleasure he brought through his choral singing, through his teaching and pastoral student care, and perhaps most importantly of all, through the four sons he created with Ann.

I trust those five special people in his life, his wife and sons, will remember George as I am sure all of his friends and colleagues will remember him: a man who fought valiantly against the odds of ill health in early manhood to mould a career and create a family of which he could be justly proud. A man who contributed so positively to the communities he shared with all the many talents at his command; who engaged his discipline with flair and a very special insight; who brought deep knowledge and consummate understanding to the editorial boards of botanical journals such as *Brunonia*, just as he did to the publication policy considerations of the Australian Biological Resources Survey; a man whose intellectual generosity of spirit is exemplified again by the donation of his herbarium to the University of Melbourne; whose richly modulated Scottish voice on his answering machine after his death caused tears to flow for the man we have lost.

George Anderson McDonald Scott - we are indeed all the poorer for your passing, but we salute you today for all you have meant to the world of scholarship; to the many students who have benefitted from your humanity, knowledge and wisdom; and especially for the many ways in which your life and its living have enriched the numerous friends, colleagues and family members who are left to mourn your all too early departure.

We will continue to remember you with great gratitude for what you shared with us, and what you meant in particular ways to each of us. And we will as we honour you today also attempt to emulate Thoreau's advice: that on the death of a friend, we should consider that the fates through confidence have devolved on us the task of a double living, that we have henceforth to fulfil the promise of our friend's life also, in our own, to the world.

Farewell, dear friend: vale, George Anderson  
McDonald Scott.

Derek Anderson

(editor's note: this is the eulogy presented by Derek Anderson at George Scott's funeral. I thank him on your behalf for allowing us to reprint it here)

## ARTICLES

### 100 Years ago Botany in decay

"I am in the full enjoyment of sore throat, influenza and a general state of depressing stuffiness which recalls vividly to my mind the only occasion -, never to be forgotten, - upon which I saw Baron V Mueller. Poor old Ernest Giles, 'The Intrepid', - for whom I fancy you had a sort of Contempt - but who was nevertheless a fine generous natured man and a fearless and brilliant explorer, once took me to see the Baron whom we found swathed in flannel and

emitting an odour as of the world of botany in a state of advanced decay."

Alice Springs, June 1898. F.J. Gillen to B. Spencer, letter 40 in 'My Dear Spencer' edit J. Mulvaney et al., Hyland House, Melbourne, 1997.

per David E. Symon

### Problems with Apomicts

The president asks for some controversy in the Newsletter. I can't offer that but offer a problem not yet resolved amongst taxonomists. A relatively few genera are notorious for the numerous variants produced through agamospermic seed production in which the embryos are formed from maternal nucellar tissues without normal sexual fertilisation.

The phenomenon of agamospermy is often closely associated with polyploidy and with varied fertility. Partial sexual reproduction may occur in some while others are obligately apomictic. Well known genera include *Alchemilla*, *Hieracium*, *Rubus*, *Senna* (arid Australia) and *Taraxacum*. There are several thousand names published in *Rubus* and *Hieracium* and scarcely fewer in *Taraxacum*. Current European authorities in these last three genera, at least, continue to publish names at the rank of species.

In their recent book "Brambles of the British Isles", Edees & Newton (1988) describe 306 species of *Rubus* in the United Kingdom. Weber (1973)

describes almost as many for northern Europe, Dudman & Richards (1997) describe scores and scores of *Taraxacum*.

To identify these innumerable variants usually requires specialised and standardised plant collections. For *Rubus* one needs primocane leaves, floricanes and floral preparations and you may become a batologist! For *Taraxacum* one needs flowers, ripe achenes and leaves from the first flush of growth. For *Hieracium* only plants in the first flush of growth can be identified with any surety. No wonder it is difficult for the non-specialist to be confident.

That these species are discounted when it comes to flora writing and equating them with normal sexual species can be seen in two well-known accounts. Flora Europaea Vol. 2 (1968) groups the hundreds of *Rubus* species into some 70 "circle species" which are keyed out and then "related species" are grouped with these - neither keyed out nor described to produce an unworkable account. The 1,200 or so

*Taraxacum* described for Europe are reduced to 30 species or groups, again with related species listed by name only.

Stace (1997) in the second edition of his "New Flora of the British Isles" goes further and reduces the 300 *Rubus* to 13 series only and the several hundred *Taraxacum* to 9 sections, the 260 *Hieracium* are reduced to 15 sections. However, the fewer *Alchemilla*, all described as obligate apomicts, are given full specific status. So perhaps how you treat them depends on number.

In my treatment of *Cassia* (now *Senna*) numerous variants were treated at specific rank. Randell has since shown the apomict and polyploid chaos of these varied populations, which could be further divided into innumerable minor variants. In her publications Randell uses a restricted number of species names under which are grouped subspecies, some subspecific hybrids as well as 'forms' not formally published. Many of these subspecies contain a wide array of variants for example, those under *S. artemisioides* spp. *petiolaris*.

In any of these apomicts distinct variants may occur as single plants when first formed or eventually as populations over wide regions.

Is it worth naming all these variants? In *Rubus* (and *Chondrilla*) there are differential responses to herbicides and to rusts introduced for biological control so there is interest in their identify. From a purely academic point of view they give information on one important by way in evolution.

To call them species is misleading and does not alert the general reader to their peculiar nature.

To call them nothospecies may be inaccurate as it equates them with the many hybrids of conventional sexual species.

To call them agamospecies is more accurate and alerts the general reader to the fact that they are of a different origin and different status to species.

Postscript: Vol. 12 Fl. Aust. just to hand. See *Senna* p. 89 for the use of 'form' taxa.

David E. Symon

## Serendipity

In vol. 17 no. 1 of *Uniview* (a magazine for graduates of the University of Western Australia), a familiar face looks out from p. 29. Lo, it is a portrait of the redoubtable Trevor Clifford (President of ASBS 1981-83), painted by UWA graduate Kerry Holland, who now lives in Brisbane.



Browsing through *Kondinin-Karlgarin-Hyden: Community, Time and Place* by Audrey Webb (Shire of Kondinin, 1988), I read in a caption on p. 199: 'Edwin Ashby from Wilunga [sic], South Australia'. He figures (somewhat diminutively) in a photograph of the first home on the block of Horace J. Nicholl, who took up land near Wave Rock in September 1926. The 'home' is of bush poles, corrugated iron and hessian. Ashby has white hair and is holding a mug as well as what could be papers and specimens.



Recently I visited my old primary school (Applecross) for the launch of both a book of reminiscences by early students and a heritage/conservation project. Among the stories I found the following. In 1937, the secretary of the local church committee wrote to King George VI to ask if plants of ivy from Sandringham Castle could be sent out for growing over the church. The King replied that he would be pleased to arrange this. He requested the Director at Kew to strike the cuttings, and they were given to Charles Gardner, Government Botanist of W.A. and then at Kew as the first ABLO. Gardner apparently brought the plants back on his voyage home. Shades of the early shipment of plants between Britain and Australia! Although the original planting was later removed, further plants have been grown locally and the ivy was replanted at the church in 1995.

Alex George, 'Four Gables', 18 Barclay Road, Kardinya, Western Australia 6163

# HERBARIUM NEWS

## Western Australian Herbarium address list

My apologies for the out of date listing in the last newsletter. The following is a corrected version. My thanks to Brendan Lepschi for bringing this to my attention. For email messages, add "@calm.wa.gov.au" to all names listed in the first column.

email	First Name	Surname	Extension	Position
pamb	Pam	Burgoyne	370	Admin. Officer
suec	Sue	Carroll	121	Database technical officer
alexc	Alex	Chapman	506	Research Scientist
davidc	David	Coates	490	Principal Research Scientist
annec	Anne	Cochrane	502	Manager Threatened Flora Seed Centre
rayc	Ray	Cranfield	497	Collections Technical Officer
changf	Chang Sha	Fang	504	Manager Herbarium Services
paulg	Paul	Gioia	506	Research Scientist
terenai	Terena	Lally	508	Technical Officer
nickl	Nicholas	Lander	487	Principal Research Scientist
brendanl	Brendan	Lepschi	511	Consultant Botanist
margl	Margaret	Lewington	587	Consultant Botanist
terrym	Terry	Macfarlane	08 97711 7980	Senior Research Scientist
bengm	Beng Siew	Mahon	494	Librarian
nevillem	Neville	Marchant	505	Head of Herbarium
bruce	Bruce	Maslin	510	Principal Research Scientist
grazynap	Grazyna	Paczkowska	506	Consultant Botanist
suep	Sue	Patrick	485	Research Scientist
patrickp	Patrick	Pigott	513	Research Scientist
barbarar	Barbara	Rye	511	Senior Research Scientist
phils	Phil	Spencer	586	Loans Officer
judyw	Judy	Wheeler	08 9842 4520	Senior Research Scientist
paulw	Paul	Wilson	509	Research Associate
adam	Adam	Winzca	493	Technical Officer

## AD Update

You may recall that in the last Newsletter it was reported that the State Herbarium of South Australia, together with the Administration, glasshouses etc. of the Adelaide Botanic Gardens were to be demolished to make way for a new National Wine Centre. The Herbarium would be relocated in the presently derelict Tram Barn A and the Administration of the Gardens within the not quite as derelict Goodman Building.

The surprising fact is that there is very little of substance to report. Most of the information available still stems from the original press release by the Premier and a March community update from the Project Team for the Botanic Wine and Rose Development. A feasibility study presumably continues and the architects are still regular visitors to the Herbarium. The matter has been

discussed in the South Australian Parliament where the discussion was predominantly about the Wine Centre and its benefits to the State. Late in the debate there was some encouraging defence of the work of the State Herbarium by the former Minister for the Environment, who quoted extensively from a letter of concern from Barbara Randell. However by this time it is probable that most of the Cabinet had departed for the concurrent Billy Joel/Elton John concert. The new Minister has visited the Herbarium for an half hour tour.

There have been numerous letters of outcry to the local paper and to politicians. Professional interest groups such as ASBS, SASB, Field Naturalists etc. and conservation groups (Nature Conservation Society of S.A.) among others, have specifically sought reassurance that the essential work of the



Herbarium and its collections will not be endangered.

More general debate about the whole project was ignited when the architects reported to the adjoining local council (who are very concerned about parking provisions) that the Wine Centre would be "no more than 5 stories high". This has caused considerable angst since the original concept plan certainly did not show a building of anything like this size.

Some of you may have seen a recent article in *The Australian* by the wine writer Philip White. A proposal has been made that vacant CSIRO land adjoining the O'Halloran Hill campus of the Onkaparinga TAFE be used to create a specialist "hands-on" wine teaching institute, and the article suggests that the Wine Centre be made a part of that. This could give considerably more scope for the activities of the Wine Centre and would seem to be a sensible suggestion.

A paid board for the administration of the Wine Centre was announced in the middle of May, but

there was no mention of funding for the whole project in either the Federal or the State Budget.

In the meantime, the Herbarium administration continues to work with the architects on plans for relocating the Herbarium in Tram Barn A. Already it would appear, as feared, that the Herbarium will not be better housed and the refurbished building will merely be of equivalent standard to that which already exists. Thus the plans fail in the only thing which could make relocation attractive, superior housing of the Herbarium within a building for the future. Indeed, not only does it appear that facilities in the Tram Barn will be status quo, but it is also proposed that it will house facilities for the International Rose Garden (another commercial venture in conjunction with the Wine Centre) and possibly the Interpretive Centre for the Botanic Gardens. Certainly not a lot of incentive to want to relocate to this site.

Robyn Barker  
3rd June 1998

## BOOK REVIEWS

### False Economy

William J. Lines

Fremantle Arts Centre Press

South Fremantle, 1998.

pp. 364. \$22.95

All who are involved in politics, business and administration, all who are concerned about the future of *Homo sapiens* and our planet, should read this book. Through a review of Australia's development through the 20th Century, it paints a damning picture of the relentlessness with which our political, scientific and business leaders have pursued human domination of the planet and all it contains, in the mistaken belief that population growth is good and that material goods are the

answer to human happiness. Even many so-called environmentalists have fallen for their propaganda and are now embracing 'sustainable development' and the concept that Nature cannot be left to itself anywhere, that Man must learn how to control the planet. We are in danger of losing the natural world altogether, and with that our future.

Alex George, 'Four Gables', 18 Barclay Road, Kardinya, Western Australia 6163

## Wörterbuch der Botanik: Morphologie, Anatomie, Taxonomie, Evolution. Die Termini in ihrem historischen Zusammenhang.

G. Wagenitz 1996. *Publisher.*

Gustav Fisher Verlag, Verlagssitz Stuttgart Wollgrasweg 49 70599 Stuttgart  
Germany.

*Distributor.* Sigloch Distribution GmbH. Am Buchberg 8, 74572 Blaufelden,  
Germany.

*Specifications.* 190mm x 128mm, 508pp, 10 figures.

*Retail Price.* German Marks DM 36,80 (soft cover).

This is an excellent book and will be invaluable to anyone interested in the history and derivation of many of the descriptive terms used in botany. It is one of those essential publications like Stearn, and Mabberley, that every personal and work library should have. Terminology, and a knowledge of the origins and history of these terms, underpins all of our concepts, and developments in the botanical sciences. The description of botanical terms in this book will, therefore, be particularly useful for those interested in tracing the derivation, and evolution, of many of the terms currently used in the study of plants. It is important to recognise that terminology is not static and as Wagenitz pointed out in this translation of an earlier quote:

*Motto: It lies in the nature of every scientific development, that there is also an ongoing metamorphosis in the terminology (A. Braun in a letter to Fürnrohr from 17.6.1831, Mettenius 1882, S.195).*

What is the book about? The title is a "Wörterbuch der Botanik, Morphologie, Anatomie, Taxonomie, Evolution, Die Termini in ihrem historischen Zusammenhang". The book is essentially a dictionary of botany and covers such areas as morphology, anatomy, taxonomy and evolution. The features that make this book so useful is that the author has traced the origins, history, etymology and the key literature that is pertinent to this terminology.

A translation of the description of this book is:

*"Some 4000 botanical terms in the areas of morphology, anatomy, cytology, taxonomy and evolutionary research (incl. reproductive biology) are briefly defined. The origins and*

*history of the important terms are explained and in many cases the details of the discovery are also given.*

*Detailed records from the original literature, and summaries, as well as indexes in two foreign languages, provide for an excellent cross referencing of terms."*

The book is divided into a number of parts. A short introduction gives a brief synopsis of the development of botanical terminology, along with the major sources the author used to provide information on the various fields of botany e.g. morphology, cytology and genetics etc. The major part of the book is the dictionary with nearly 400 pages and a bibliography of over 100 pages. The dictionary is arranged alphabetically in German. The equivalent English and French terms are listed, and the gender of the French word is indicated. For each term a definition, or multiple definitions, in German is given. The history of the term is given, along with the etymology of those words with Latin or Greek roots. Key literature records are also cited. There are also English-German and French-German Indexes that allow access to the book for English and French speakers.

There are a number of features that I think make this book invaluable. One of the features that I particularly like about the book is the synthesis of botanical terminology across these languages. Each entry lists the equivalent French and English words, e.g., *Geschlechtsmerkmale*, E: sexual characters, F: *caractères sexuels*, {E:English; F:French}. The listing of the German term with equivalent French and English words is an extremely useful feature for those of us who have had to struggle through standard German/English dictionaries trying to glean the correct transliteration.

The second feature that will be of interest is the referencing of terms back to an original publication. The history of the use of botanical terms is a fascinating area of research, and this book is an important reference for tracking down the first and/or significant records of many of the terms that are commonly used in the botanical sciences. Examples from the book are that the concept of *Gewebe* E: Tissue, F: *Tissu*, can be traced back to the illustrations of von Malpighi (1675) and Grew (1682). Or, an additional example is the origins of the term *Ligula*, E: ligule, F: *ligule*, and how it has been applied to structures in the Poaceae (Schreber, 1769), *Selaginella* (Müller, 1846) and Asteraceae.

Key literature citations are also extremely useful as the author has cited the major paper/s dealing with a particular concept, or term. A key reference to 'fasciation' is Georgescu C. C. (1927). *Beiträge zur Kenntnis der Verbänderung und einiger verwandter teratologischer Erscheinungen*. 129 S., 76 Abb. = Bot. Abh. 11. - Jena. The author has clearly spent

considerable time, tracking down, collating, and combining a widely dispersed, vast, multi-lingual literature to produce this publication. The end result is a remarkable cross-lingual synthesis of the history of many botanical terms.

For those who are partially fluent, or have some botanical German, I found the descriptions of the terms relatively easy to translate/transliterate. Non-German speakers will find this part of the book challenging. Anybody interested in tracing the origins of the botanical terms through the literature will find it invaluable, as only a rudimentary knowledge of German is needed. I suspect some, in desperation, will wait for the English translation, but with the cross indexing to English and French many parts of the book are easily accessible to non-German speakers, and I think most researchers, once they get past their initial scepticism, will find it exceedingly useful.

Andrew C. Rozefelds

## George Bentham Autobiography 1800–1834

Edited by Marion Filipiuk.

University of Toronto Press, Canada, 1997.

pp xlviii, 597. US\$100.00

Buy (or at least read) this absorbing book for background on one of our 'favourite sons' and the times he lived in, not for anything on Australian botany. It takes us through Bentham's early years, up to Tuesday 11 November 1834 and hence ends long before he became particularly involved in our flora.

An extensive Introduction by Marion Filipiuk describes the Bentham family (his uncle Jeremy was a prominent philosopher and his father Samuel an important naval administrator, engineer and inventor), summarises his life to 1834, and explains how the text was edited. The notes are a model of how such a work should be annotated, with explanations and full references for works cited. The autobiography itself occupies 437 pages. Following it are 74 pages of notes on the text, and four appendices in 83 pages—of textual emendations, textual variants, an index of plant names, and an index of persons and works. The only Australian plants mentioned are *Acacia* (3

spp.), *Banksia*, *Doryanthes excelsa*, *Drosera*, *Goodenia* and some 'Metrosideros', all in reference to plants seen in glasshouses or herbaria.

Bentham began the autobiography in 1867, largely for the benefit of his wife Sarah, and later (after her death in 1881) for his own pleasure in recalling his early life, as well as for the benefit of those who would come after him. It consists of his recollections, liberally interspersed with quotes from his diary and from letters. From 1805 to 1807 his family lived in Russia where he learnt Russian, French and Latin and 'German from a Finnish nurse', leading to a strong interest in languages (he later picked up some Swedish, Spanish and Hebrew). From 1814 to 1826 they lived in France, and during a visit to Britain in 1823 he felt a foreigner, so 'French' had he become.

We learn how he became interested in botany in the spring of 1817 while the family was staying near Angoulême, in southern France. After idly picking

up a copy of de Candolle's *Flore Française*, bought by his mother, he was 'struck by the analytical tables for the determination of plants, which fell in with the methodical and tabulating ideas I had derived from the study of some of my uncle's works and from what I had attempted in geography and statistics. I immediately went out into the backyard, picked up the first weed I met with and set about finding out its name. It was the *Salvia pratensis*—not the easiest for a beginner—on account of the abnormal structure of the stamens—and I had not the slightest idea of what was meant by a calyx, a corolla or any of the most common botanical terms.' On 22 August 1818, at Montauban, 'I first began to dry specimens for preservation . . . , carelessly perhaps at first, but before the season was over, I had collected between one and two hundred species.' He subsequently built up his herbarium through collecting, exchange and donation. There is a detailed account of his long botanical excursion with George Arnott through the Pyrenées in the summer of 1825 that led to his first botanical publication.

Travel seems to have held quite some interest, for he describes his journeys in detail—the kind of transport, the countryside traversed, the time taken, stops for meals, the hotels etc. At every opportunity he visited botanists and botanic gardens.

A fascinating aspect is his mention of meeting many of the 'big' names of the day—the de Candolles, Brown, Lindley, William Hooker, Agardh, Kunth, Meisner etc.—often with observations on them and botany. Also absorbing are his accounts of a meeting of German naturalists in Hamburg in 1830

and the Vienna Congress of 1832. Then, as now, the 'extra-curricular' discussions were commonly more beneficial than the lectures. I was struck by the fact that many herbaria were private (like Bentham's own at that period).

Although of a somewhat retiring nature, Bentham enjoyed his social life, which included visits to friends, dancing, the theatre and opera. Even during overnight stops on his travels he would go to a dance or performance. He clearly had an eye for the ladies, and was engaged once and almost a second time before marrying in 1833. From our viewpoint he appears somewhat arrogant, referring on a number of occasions to the 'lower classes'.

His account of the struggle between his interest in law and botany reads almost like a novel, ending when, after his marriage, he decided that his means were sufficient to enable him to devote himself to botany, 'a determination which I never, during the long period of my subsequent career, had on any occasion any reason to repent of.'

He was no conservationist, regarding man-made 'improvements' favourably. In Britain, for example, he considered Norbury Park near Wimbledon 'as particularly beautiful, in the manner in which the planters have profited of the hills and valleys and other accidents of nature, which are all improved by art.'

In summary, a very readable book.

Alex George, 'Four Gables', 18 Barclay Road, Kardinya, Western Australia 6163

## Biological Systematics. The State of the Art.

By Alessandro Minelli

Chapman & Hall, London. 1993. xvi+387 pp.

ISBN 0-412-62620-9. \$68.25.

This is the second book on biological systematics, as opposed to botanical systematics, in this renewed series of reviews. The previous review (A.S.B.S. Newsletter 93: 53-57) considered one of the better-known books (by Donald Quicke), often recommended as a textbook. I concluded that this book was probably quite acceptable as an introductory textbook, but that it has certain obvious biases (e.g. entomology, parsimony cladistics) as well as weaknesses (e.g. typographical errors, poor coverage of some

important topics). It was thus, in many ways, a compromise between several competing influences (e.g. botany versus zoology, detailed versus broad coverage); but that seems to be the inevitable fate of undergraduate textbooks.

The book by Alessandro Minelli is a very different kettle of fish. He doesn't even attempt to present an introduction to everything, reasoning that to do so would produce a superficial treatment. Instead, Minelli's avowed aim is to present all of the 'main

facets of biological systematics" as an essay for reading (and discussing) rather than for use as a reference book. He claims to have "sacrificed depth of treatment to the advantage of broadness of coverage", but you will find that this is often a very modest appraisal of his work.

So, the book is neither a real textbook for an undergraduate biology course nor a real reference book. Instead, it is aimed at "fellow systematists, [and] other people in the field of evolutionary biology or in biology at large, who are interested in getting a comprehensive idea of what is occurring today within the broad field of systematic biology". The subtitle of the book is therefore something of a pun - the author's emphasis is that, as a result of "tremendous developments, not just since Aristotle or Linnaeus, but particularly in the last two or three decades", systematics is no longer an art (as opposed to a science) but that it is now up-to-date and uses state-of-the art equipment and techniques. Minelli certainly is at pains to emphasize and re-emphasize that systematics is a scientific pursuit, or at least that it should be.

I should therefore start by saying that I like this book very much. In particular, the author has achieved what he set out to do - to write an essay (or set of essays) that could serve as a focal point for discussions of the various topics of current interest in systematics. He has clearly steeped himself in the literature, with particular attention to rarely-quoted non-English sources (some of which are provided with new translations for their quotations in this book), and the references cited make his discussions excellent introductions to the topics that he covers. The topics include all of those that should be included in a broad concept of what constitutes systematics, although everyone will find some of their own pet issues ignored. The author holds very firm views on each of the topics, and never fails to let you know where he stands. However, there are no obvious taxonomic biases, and the examples are drawn with equal facility from micro-organisms, invertebrates, insects (the author's own area of expertise), vertebrates, fungi, and plants - Minelli even recognizes when botanists and zoologists do things differently as a result of the nature of the organisms they are dealing with. There is, though, a very strong evolutionary bias - cladistics is taken as a self-evident part of systematic work, as "systematics (according to its very name) should proceed with building up a phylogenetic system of monophyla".

The problem with the book, if one is to be identified, is that it is sometimes difficult to find a thread uniting all of the different topics covered. Any single chapter can be read on its own, and can be very interesting as such; but it is often problematic to work out why those topics are gathered together in the same chapter, and why that chapter was included at that place in the book as a whole.

Neither the introductory nor the postscript material really addresses this issue, nor does the division of the book into three Parts (Problems and Methods; The State of the Art; Epilogue). If a book is to be taken seriously as a coherent whole, then a structure needs to be clear; and the lack of structure here definitely makes the book look more like an aggregation than an entity.

Another quibble would be the essay or review-like nature of the book. This format means that there are almost no illustrations to break up the text, although there are plenty of tables (some of them covering several pages, and which are only referred to almost as an aside!). There are also many lengthy quotations, something that readers of the journal *Systematic Biology* have come to expect but not necessarily book readers. Nevertheless, the publication quality of the book is good, with relatively few typographical errors. The three indices (author, subject, taxonomic) are effective; but the inclusion of a glossary would have been very helpful, as many technical terms are introduced without explanation. Also, the reference list is very erratically alphabeticized, with, for example, *De Pamphilis* and *De Pinna* under "d" and *De Queiroz* under "q".

The book starts with a consideration and comparison of Systems and Classifications (12 pages). Classifications, the arrangement of taxa into a hierarchical set of classes, is usually seen as the obvious outcome of systematic work, but this is not the only (nor necessarily the best) way to represent the results of systematic analyses. In particular, the representation of the structure of the living world as being the result of natural processes, such as inter-breeding and common descent, is not easy when the output is constrained by the Linnean concept of classes. It then becomes an important point whether scientific systematics, which is involved with the production of systems representing evolutionary history (currently using trees as the representation), should be divorced from the production of commonly-used classifications. In this chapter, the discussion of the problems of systems versus classifications is facilitated by a broad overview of the development of consequential concepts (such as keys versus hierarchies), along with a debate concerning the practical uses to which systematics is put. As far as classifications are concerned, Minelli suggests that "consensus is dangerous in science, but can sometimes be useful in practice. Accordingly, consensus approaches cannot shape systematics, but they can help to obtain a classification for applied purposes. Both aims (science and applied use of scientific knowledge) are worthy of effort, provided that their non-equivalence is always borne in mind."

Chapter 2, *Some Steps in Comparative Biology* (29 pages), considers the data and analyses used in systematics, including the concepts of characters,

monophyly, polarity, and cladistics. Each of these topics has a good introduction, but rarely is the topic covered completely. For example, an informational concept of homology is preferred to an historical one, and therefore primary versus secondary homology is not touched. Furthermore, the inclusion of topics sometimes seems to be rather arbitrary; and some of the topics are not as contemporary as might be liked, either. For instance, much is made of pattern cladistics, and yet this has become somewhat irrelevant with the development of explicit models for molecular data (nowhere is this change more obvious than in the update of the chapter on phylogenetic analysis between the first and second editions of the *Molecular Systematics* book).

As usual with introductory books, the discussion of cladistics is the most deficient part of this chapter. For example, distance methods are treated as being phenetic because they "do not acknowledge character polarity", whereas polarity actually comes from the choice of outgroup not from the method of tree construction. Furthermore, distance methods are claimed to be popular for the analysis of molecular data because some molecular data come only as distances, whereas it is popular because the use of explicit models of evolution allow problems of inconsistency to be overcome. As well, the production of multiple equally-optimal trees is discussed as though it is a problem peculiar to parsimony methods, as is the problem of inconsistency resulting from unequal evolutionary rates along branches, both of which in reality affect several tree-building methods. The lack of understanding of the problems of consistency reappears later in the book, for example in the discussion of the molecular data favouring birds+mammals as a monophyletic group, which has now been shown to be based on the similar GC-content of homeotherms affecting the cladistic analysis.

The chapter on Biochemical and Molecular Systematics (18 pages) is possibly the weakest one in the book, because its coverage is now rather out-of-date. The discussion itself is very balanced and fair, but the topics covered and the references cited often do not deal with true contemporary issues. Along with this, the discussion often reads like a summary of the results of selected papers rather than a synthesis of ideas - however, this might just reflect the volatile nature of the topic rather than an inherent inadequacy in the book.

Minelli gets back into stride with the chapter on *The Species* (25 pages), but even here there is no real context for the chapter, with no real explanation for why this group of topics was included together. The reader will, nevertheless, learn a lot about species concepts, intra-specific diversity, hybrids, and speciation. The only real weakness is that the non-hierarchical nature of much of intra-specific

variation is treated as an aside, whereas it deserves detailed consideration.

*Resources and Media* (17 pages) covers people, institutions, literature, and nomenclature, with most of the pages devoted to the latter topic. Much is made of organisms with both botanical and zoological names, but nowhere is it mentioned that protistologists tend to ignore the rules of nomenclature completely. The consideration of a consensus system of biological nomenclature is timely, but nothing is said about non-binomial names. Minelli also has to be forgiven for using the word "museum" to refer collectively to museums, herbaria and culture collections.

*The Inventory of Natural Diversity* (23 pages) is a good coverage of just where systematics fits into the biodiversity debate, with yet another quantitative answer to the question: How many species do we know?

In many ways, *Towards the System* (38 pages) is the heart of this book, although it is the least essay-like part of it. It provides an interesting historical summary of the classification of each major group of organisms, along with an extremely useful introduction to the most recent literature. Furthermore, there are some example classifications in the Appendices (55 pages), although these are not intended to serve as a new classification scheme. If you need a guide to a group of organisms with which you are not familiar, then this is as good a place to start as any. There is even a consideration of the practical problems, such as that of blue-green algae (which have to be typified with a living culture if they are treated as bacteria but with a herbarium specimen if they are treated as algae). In this chapter, Minelli needs to be forgiven for the comment that "many of these problems [with angiosperm classification] are simply the result of an unwillingness to reclassify angiosperms using phylogenetic systematics. Things are changing, however." Indeed!

The next three chapters are the most eclectic in the book. It is unclear why they are here, although each on their own is quite interesting. The first, *Interviews on the Daily Work of Systematists: Problems and Trends* (17 pages), considers practical aspects of being a systematist, and whether different taxonomic groups are treated in different ways by the people working on them. The *Unequal Distribution of Taxonomic Diversity* (13 pages) continues the same theme, by comparing large versus small genera and families. Finally, *Domesticated Animals and Cultivated Plants* (8 pages) covers the practical problems associated with the nomenclature of these organisms.

The book ends with *Some Dangerous Trends and a Hope for the Future* (6 pages). The trends turn out to be the fact that systematists are often less than

critical about what they do, and that there is often a big gap between theory and practice and between practice in one group of organisms compared to another, while the "hope" consists of only one sentence (that things are getting better). The dangerous trend is quite real - systematists have a less-than-worthy reputation as being natural historians rather than scientists, and a critical self-appraisal with respect to methodology and data would therefore not go astray. The hope is to be sincerely wished for, but only time will tell whether it becomes a reality.

So, in the final analysis, this is a very interesting book, which all practising systematists and research students would find of value. Any

systematist who is at all interested in the theoretical and practical development of their science will find a wealth of thought-provoking ideas within the covers. Therefore, it would also serve as a good focus for a postgraduate course in systematics (although such a thing does not appear to exist in Australia). Much of the value of the book would probably be wasted on undergraduate students, as the topics are not introduced in the fashion expected from textbooks; however, the undergraduates would certainly learn a lot if they took the time to understand the author's approach.

*David Morrison*  
Department of Environmental Sciences  
University of Technology, Sydney

## **KNOW YOUR BOTANICAL INSTITUTION**

### **The dynamic tropical Top End, Darwin Botanic Gardens – reflections on its past, present & future.**

The Lord Mayor of Darwin will happily tell any visitor to Darwin, the story of the early days. In those developing times, there were only two places you could go for a family picnic and be able to sit on green lawn in the dry season in Darwin. One was the lawn's of Government House and the other was an area of lawn, now the centre of a gazetted heritage area, in the Darwin Botanic Gardens. The Gardens always have and always will hold a special place in the hearts of the Darwin community and be a testimony to the dynamic development potential of the Top End.

The Gardens were established on its present site in 1886 by the first Government Gardener, Maurice Holtze. Initially established to introduce and evaluate plants for economic uses in the NT, they now provide a window into the world of plants for our enjoyment, scientific research, conservation and education. The 42 hectares of the Gardens, some of which is natural vegetation, are managed by the Parks and Wildlife Commission of the Northern Territory, utilising the skills of 17 staff. The site is situated 2km from Darwin City and is one of the most lightening prone sites in Australia. Since its establishment, the Gardens have survived major storms, cyclones and wildfires, and the effects of World War II are still evident. It is now considered to be one of the most important tropical botanic

gardens in the world, with several of the world's best collections of tropical genera. It is also using some of the latest in technological advances to manage the curation of its significant living collection, including differential GPS and GIS systems. The Gardens not only acts as a interpretive window for the other Top End national parks, it has direct and supportive links with the world class facilities of the Alice Springs Desert Park and the Territory Wildlife Park, also managed by the Commission.

Many of the classical tropical plant groups are displayed in the Gardens, including orchids, bromeliads, gingers, heliconias, foliage plants and ferns, as well as has hundreds of palm and cycad species, hundreds of tropical tree species, top end native plants, the best botanic gardens collection of baobab's in the world, natural mangroves and coastal areas, a spectacular rainforest gully and areas of redeveloped open woodland. The educational story of plant group change through time is depicted in a evolutionary pathway which is incorporated into an artistically designed, children's playground. The traditional aboriginal culture of the NT is emphasised through aboriginal plant use trials, both self guided walks and talks given by Commission staff. The enthusiastic Friends of the Darwin Botanic Gardens also play a vital

role in fostering public support for the Gardens and in the progression of selected Gardens projects.

Current developments are focused on designing and building a new Nursery and Workshop Complex, Visitor's Centre and upgrading many of the existing facilities like the two main visitors entrances and associated car parks, and the water management

system. Seeking to achieve best practice for staff management, horticulture, curation and interpretation are always being addressed. The Gardens is also reviewing and revising the 1994 Master Plan, to assist its further development into the future.

*Leonie Scriven*

## NEWS FROM FASTS

### FASTS release on the 1999 Budget

#### **The Budget of lost opportunities**

The peak body for scientists and technologists in Australia said today (Wednesday) that it was disappointed in the Budget brought down last night.

Professor Peter Cullen, President of the Federation of Australian Scientific and Technological Societies (FASTS), said that once again Australia seemed to be missing opportunities.

"By dithering we are likely to continue to miss the boat in the biotechnology revolution in the same way as we missed the boat in information technology in the 80s and 90s.

"The Government seems bereft of ideas. Competitive success in the next century will be won by countries which follow the knowledge-based path, to generate real and enduring employment.

"This requires a strong science base and smart programs to link industry with science. This needs strong leadership from Government."

Professor Cullen said the Government had clawed back considerable funds from the university sector and by winding down the tax R&D incentive to industry. This was on the grounds that it wanted to target its investments more strategically.

"But we are still waiting. There is nothing in this Budget to stimulate innovation and new technology," he said.

He noted that the START scheme - an incentive for industry R&D - appeared to be failing, and urged the Government to develop new and better ways of stimulating the innovation process.

He said that the foundations for innovation lie in higher education and basic research, and these areas continued to be eroded.

"The parlous state of the universities has not been addressed despite widespread concerns over the last year," he said. "The level of public funding appears to have decreased by over seven per cent as the cost burden is shifted to students and their parents."

Basic research funding through the ARC has collapsed, with a drop from \$445 million to \$383 million over two years.

"These cuts appear to be in the funding of research infrastructure and the funding of collaborative research. Such cuts are very short sighted," he said.

"On the bright side, we welcome the Government's strong support for the CRC program and that they have restored the cuts they made last year to the National Health and Medical Research Council."

Professor Peter Cullen  
Phone (02) 6201 5168

For information:  
Mr Toss Gascoigne (FASTS)  
Phone (02) 6257 2891, 0411 704 409



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# A.S.B.S. INC. MEMBERSHIP RENEWAL

**AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED**  
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Subscriptions for A.S.B.S. membership for 1998 were due on 1 January, 1998. If you have already paid your subscriptions for 1998, please ignore this pro forma notice. The *Australian Systematic Botany Society Newsletter* will not be sent to unfinancial members. Correspondence concerning membership and subscriptions should be sent to the Treasurer at the address below.

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## A.S.B.S. PUBLICATIONS

### History of Systematic Botany in Australia

Edited by P.S. Short. A4, case bound, 326pp. A.S.B.S., 1990. \$10; plus \$10 p. & p.

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 horticulturists, 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 concepts; 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*.

### 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.

### Ecology of the Southern Conifers

Edited by Neal Enright and Robert Hill.  
ASBS members: \$60 plus \$12 p&p non-members \$79.95.

Proceedings of a symposium at the ASBS conference in Hobart in 1993. Twenty-eight scholars from across the hemisphere examine the history and ecology of the southern conifers, and emphasise their importance in understanding the evolution and ecological dynamics of southern vegetation.

### 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.

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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.





# AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

## 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 a "Membership Application" 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 the editor at the address given below. They should preferably be submitted as: - an unformatted word-processor file on an MS-DOS or Macintosh diskette (Microsoft Word 6 or an earlier version is preferred), accompanied by a printed copy; as an email message or attachment, accompanied by a fax message reporting the sending of the file; or as two typed copies.

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

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