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AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

Office Bearers

Affiliate Society

Papua New Guinea Botanical Society

PRESIDENT'S REPORT

WELCOME - to misuse and abuse a metaphor, I'm a half-breed. I study and publish on the systematics of one of the orphan groups (the freshwater algae), but I have prepared floristic accounts of vascular plants. My published work includes new species, new genera and, in a few months, a new family. But thats pretty easy for algae. Whats harder are the phylogenetic studies. However, a collaborative study combining molecular (SSU rRNA & *rbcL*), ultrastructural and morphological data is close to giving us the first informative cladogram for the Batrachospermales (red algae).

So why mention all this? Firstly, because its the first time the president of ASBS has been a phycologist (even if a half-breed). Secondly, as someone who also manages a research group I like to tally up what I achieve now and then to make sure that I can still call myself a scientist (and then check whether I am a taxonomist and/ or a systematist). Thirdly, I think the focus for ASBS should remain the vascular plants and it is best that someone with my background makes this sort of statement.

With the newly formed *Australasian Mycological Society*, there are now specialist groups for all the orphans. None of the societies are devoted entirely to systematics, but they include a large contingent of systematists. So how does this affect our society?

There seem to be two options for ASBS. One is to broaden our taxonomic coverage to include fungi, algae, protists, invertebrates, kangaroos... (there is obviously no logical cut-off point), and to attract members of the orphan societies (and others) to the fold. This would turn it into the ASBiologicalS. From discussions with fellow councillors and members, this option is not popular. I can understand this. Part of our membership is not interested in a general systematic society; their interests are the plants *s. str.*, whether as professional systematists or amateurs.

Option two, as I see it, is for ASBS to remain an essentially vascular plant society. The focus of the newsletter and conferences will remain vascular plant systematics. This will not exclude other botanical elements (e.g. algae, fungi) but these will remain subsidiary interests. As in the past, ASBS will meet on occasions with other societies, whether they be ecological, mycological or entomological.

The newly formed society for biologists interested in systematics (no matter what the organism) will have an overlapping membership. Thats fine. Currently I am a member of the *Australian Society for Limnology*, the *Australasian Society for Phycology* and *Aquatic Botany*, and the *Australian Systematic Botany Society*. I have attended and presented papers at conferences by each of these societies, nestling comfortably in the overlap zone (the systematics of freshwater algae). I learn from limnologists working in the same habitat, from phycologists working with the same sort of organisms, and from

systematists looking at the same sort of problems. I also have interests in ecological research and I can dip into the same societies with a different net.

My view until recently was that ASBS would eventually broaden in scope, merging or growing into a society that encompasses all biota. But this would still leave the need for a general botanical society, perhaps devoted to vascular plants. This may well be the ultimate outcome, but for now ASBS serves us well. One can try to make life too neat. Like devising a research program to fit the annual report. It is important that we create and mould our societies to serve our best interests rather than to create some edifice that seems to cover all taxa and scientists once and only once.

I thoroughly enjoy being a member of ASBS and I am now honoured to be its president.

LOCAL CHAPTERS

I am in the process of contacting all Chapter Conveners to discuss whether they wish to remain in their position. If not, we will search for enthusiast members to take their place. For example, there will be a change in Melbourne. In some regions, it may be preferable to have both a university and a herbarium representative.

I will also be talking with Conveners about how their branch can remain, or become, active and relevant. Some initial suggestions for regions where there is already a surplus of institutional seminars are: discussion groups (*a la* Coopers & Cladistics in Canberra or our own fledgling, untitled group in Melbourne) and a yearly field trip (where members can exchange expertise as well as socialise). Ill report back in the next issue with any further ideas.

The other key task for the new or continuing convener will be to get Andrew Lyne to email them a list of financially recalcitrant members. Through gentle prodding or public humiliation these members should be coaxed back into the fold.

AUSTRALIAN SYSTEMATIC BOTANY

As reported at the Annual General Meeting, the proposal to change the name of the journal *Australian Systematic Botany* to *Systematica* was put on hold. Following further discussions with Deborah Penrose (editor) and other Advisory Committee members, we have decided to shelve the name change indefinitely. It is essentially a decision for the editor, but if (e.g. following market research, as suggested at the AGM) a name change is considered desirable, a case will be put to interested parties (e.g. ASBS members) for comment.

Keep in mind, however, that the prime reason for changing the journal name was to attract more papers. When you publish quality systematics research, consider submitting to *Australian Systematic Botany.*

Tim Entwisle

ANNUAL GENERAL MEETING

MINUTES OF THE 18TH GENERAL MEETING

Held at Copland Theatre, University of Melbourne, Melbourne, Victoria, Thursday 3 October 1996.

Meeting opened at 5.45 pm.

Attendance
43 members were in attendance at the General Meeting. The president, Gordon Guymer, welcomed those in attendance.

Apologies
J.Conran, R. Henderson

Minutes of the 17th General Meeting held in Canberra, 28 September 1995
It was proposed that the minutes of the 17th General Meeting (as published in the *Aust. Syst. Bot. Soc. Newsletter 81:24-29*) be accepted as a true record of that meeting (moved Mike Crisp, seconded M. Bayly). Unanimously carried.

Business arising from minutes
No business arising from previous meeting other than regular items to be delts with under reports.

Presidents Report:
The presidents report was presented by Gordon Guymer.

Treasurer's report
Peter Wilson tabled the Treasurer's report [see attached report].

Hansjoerg Eichler Research Fund
Council had decided that there are now sufficient funds available to start offering grants and the first would be in 1997. The question of the fund being placed into a high interest bearing deposit was raised. J. Clarkson to follow up.

Annual Subscriptions
Council recommended that there be no increase in subscription for 1996-7. Motion: That there be no increase in subscription in 1996-7 (moved by Peter G Wilson, seconded by T. Entwisle). Unanimously carried.

G. Scott requested that council investigate the use of direct debiting of fees. J. Clarkson to follow up.

The Treasurer tabled the Auditor's Report as a true statement of the ASBS Inc. financial accounts (seconded by A. George). Carried.

As Peter was retiring as treasurer, he was congratulated by Gordon Guymer for his work as Treasurer over the past three years.

Newsletter Editors' report
No written report was tabled but Greg Leach made the following points to the meeting.

The team at Darwin was prepared to undertake the Newsletter editing for another 12 months. There had been a few production hiccups in the last 2 issues which had delayed printing. Philip

Short was expected to take an increasing role in the newsletter to replace Greg Leach who was now geographically disjunct at the Botanic Gardens.

Initial concern at possible increased cost of newsletter production due to the location at Darwin have not been realised. While there have been some increases in postage costs these have been balanced by cheaper printing costs. An experimental electronic copy was distributed to Council members for comment. Although this was well received there seems to be a strong majority who prefer to have a hard copy. Unless a significant number of members are prepared to receive electronic copy only then there is no economic benefit to the Society by reducing printing costs.

The last 2 issues had seen a decline in articles. The editors had been concerned that the remoteness of Darwin may have been contributing to this. However, Council did not see this as a problem. Members were reminded that Darwin did not have a David Morrison and so we would not create copy for the *Newsletter*.

It was suggested that effort should be made to obtain abstracts of systematics post graduate theses for the *Newsletter*. Herbaria should also endeavour to forward more material about happenings in the institutions. Chapter convenors were also in a position to solicit articles.

FASTS

Council recommended the continued subscription to FASTS. Over the past 12 months there had been a marked improvement in communication between the FASTS committee and our society. There were monthly reports from Joe Baker and the profile of science was raised before the government.

Motion : That ASBS continue in FAST in 1997. (Moved by B.Briggs, G. Leach seconded). Carried.

Society Meetings

Adelaide 1997

Bill Barker reported that preparations are well in hand. The theme of the conference will be "Software in Systematics". There would be an emphasis on computerisation in herbaria with co-organisation with HISCOM.

Sydney 1998

Barbara Briggs reported on the progress towards the Monocot conference. The second circular will be out soon.

Perth 1999

Alex George gave an expression of interest to have a meeting in Perth in 1999.

Canberra 2000

Mike Crisp suggested the possibility of linking with 2000 conference on legumes in Canberra.

Hanjörg Eichler Research Fund

Individual grants would be offered in 1997. Applications would go out in the *Newsletter*. Applications would close on 30 May.

Individual grants of $1000 maximum would be presented at the Adelaide conference.

The matter of tax deductibility was still being investigated. G.Guymer to follow up.

National Biological Council
Tim Entwisle reported on the first 18 months of the National Biodiversity Council. The first council is now at the end of its term and elections via the assembly (including ASBS representative Judy West) will be held by early 1997. None of our current councillors (Tim Entwisle, Bob Hill, Judy West) are standing for re-election.

NBC councillors have been involved in State (Tim Entwisle, NSW) and National (Judy West, National) biological diversity councils (BDACs). The NBC contributed to public debates on forestry and quarantine regulations, as well to a general awareness of the importance of biodiversity. The new council will focus on funding a permanent secretariat and seek to attract enthusiastic councillors with time to contribute regularly to State and national issues.

Australian Systematic Botany
Opinions were sought concerning a change of title for this journal. [See Tim Entwisle's President's report at beginning of this *Newsletter*.]

New Members
Ten new members were welcomed to the society: J. Burke, W. Eddie, S. Gleed, H. Horton, P. Neish, C. Pearce, A. Sharma, G. Shaughnessy, I. Thompson and K. Wills.

Elections
The following were elected unopposed:

President: Tim Entwisle
Vice president: Christopher Puttock
Secretary: Robyn Barker
Treasurer: John Clarkson
Councillors: Terry Macfarlane & Peter Weston
Membership officer: Andrew Lyne (ex-officio member of Council)

Tim Entwisle gave a vote of thanks to the retiring president, Gordon Guymer.

Meeting closed 7.00 pm

TREASURER'S REPORT

Membership
At the end of 1995, the active membership stood at 268, a decline of almost 25%. A lot of these were memberships given as part of student awards at Kuranda, but which were not renewed. The membership was made up as follows:

Gratis members (most herbaria, ABLO, a few others)	16
Institutional members	10
Student members (full-time students)	10
Ordinary members	232

Income

Subscriptions
As always, subscriptions were the Society's major source of income. At $8,388, this was slightly up on the figure for the same period in 1994, despite the drop-off in membership numbers. Late payment of subscriptions remains a perennial problem. As of the end of September, 1996 there were still 79 members unfinancial for this year. Our current practice of putting reminder notices on the carrier-sheets of Newsletters has been paying dividends but many unfinancial members appear to have overlooked these notices. The Treasurer does not have time, nor does the Society have the

resources, to send out reminders to everyone. The increasing availability of e-mail may change this in the future and improve our follow-up of unfinancial members. Members are reminded that late subscription payments mean back-issues have to be sent out individually at regular postage rates which is an extra expense for the Society and also creates extra work for our ASBS sales officer, Jane Mowatt, who has to package and mail them.

Conferences

The Monsoon Tropics conference account was closed in April 1995, when it was clear that no further liabilities remained. The balance of $5386.11 was paid into the ASBS's Hj. Eichler Research Fund.

The Society held a very successful Cladistics Worshop in Canberra in 1995. This conference left a small surplus of $358 after payment of all expenses.

ASBS Merchandise and Book Sales

Merchandise sales were down on 1995, with only $87 received. Book sales were slow with only 7 copies of the *History of Systematic Botany in Australia* book being sold. There were continuing low-level sales of both the Arid Australia and Alpine books, with the Society's holdings of the latter now exhausted. The Society also sold 3 copies of the *Ecology of the Southern Conifers* book.

Expenditure

As usual, the major item of expenditure is the Newsletter, comprising 56% of our subscription income. Printing & postage costs were down on the previous year but note that only 3 issues' worth of postage is represented in the financial statement. Printing costs have been reduced by the move to Darwin, presumably due to lower overheads.

Our other main expense for the year was our subscription to FASTS ($1000.40). As noted in the minutes of last year's AGM, the Society has rejoined FASTS.

The entry 'Cost of Goods Sold' covers the difference between the income received and the 'at cost' value of the assets to the Society.

The Society purchased a box of 18 of the *Ecology of the Southern Conifers* book. We were given a substantial discount and are offering them to members virtually at cost. Under current accounting practice, these are not listed under expenditure but the value of the unsold books is to be found in the 'Assets' section of the balance sheet.

Assets

As for last year, the Society's assets (books & merchandise) are listed at their 'at cost' value. In the case of some of the books, this is an amount equal to our percentage investment in the original production costs of the books.

Research Fund

The Hj. Eichler Research Fund is in a very healthy condition with a balance of over $25,500 at the end of the year.

Financial Position

The Society had a surplus for the year of $9363 but $6302 of this was research fund income or donations. However, the Society's cheque account balance has risen for the second consecutive year. End of year balances for the

last few years are shown for comparison:

31.12.1990	$15489.44
31.12.1991	$20018.17
31.12.1992	$16677.78
31.12.1993	$10971.66
31.12.1994	$14372.35
31.12.1995	$15540.75

The bottom line is that our financial position is reasonable but we need to continue to monitor our expenditure and keep an eye on overheads like postage. The cost of postage for books and merchandise is rising and the postage & packaging component of book sales may need to be adjusted. However, as the financial position seems to have remained relatively stable, I am not moving for an increase in Membership subscription levels for 1997.

Members are reminded that the Society will benefit from any increase in number of members and through increased sales of books and merchandise.

New treasurer

Under the provisions of the constitution of ASBS Inc., I have now served the maximum of three consecutive terms as Treasurer. As I leave the position, I can't say that I am not relieved! The workload is not huge but the peaks of membership renewals at the beginning of the year and towards the end of the financial year, and the struggle to get motivated to get the books up to date and to the auditor will not be things I will miss. However, being at the financial helm does have its positive side. I have gained new insights into the Society and have enjoyed my interaction with the other Council members. I wish the incoming Treasurer all the best.

Peter Wilson
Hon. Treasurer, ASBS Inc.

AUDITOR'S REPORT

Scope

We have audited the attached financial report of the Botanic Association of Australia [*sic*], for the year ended 31st December 1995. The association is responsible for the preparation and presentation of the financial report and the information contained therein, and the committee has determined that the accounting policies used are consistant with the financial reporting requirements of the associations constitution and are appropriate to meet the needs of the members. We have conducted an independent audit of the financial report in order to express an opinion to the members of the association on its preparation and presentation. No opinion is expressed as to whether the accounting policies used are appropriate to the needs of the members.

Our audit has been conducted in accordance with Australian Auditing Standards. Our procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial report and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial report is presented fairly in accordance with the cash basis of accounting whereby revenue is recorded when it is

received, expenses are recorded when they are paid. Statements of accounting concepts and accounting standards are not applicable to the cash basis of accounting adopted by the association.

The audit opinion expressed in this report has been formed on the above basis.

Qualification

As is common for the organisation of this type, it is not practicable for the association to maintain an effective system of internal controls over donations, subscriptions and stock until their initial entry in the accounting records. Accordingly, our audit in relation to fund raising was limited to the amounts recorded.

Audit Opinion

In my opinion, subject to the effects of such adjustments, if any, as might have been determined to be necessary had the limitations discussed in the qualifications not existed, the financial report presents fairly in accordance with the cash basis of accounting, as described above, the payments and receipts of the association for the year ended 31st December 1995 and its cash and bank balances as at that date.

25 September 1996

201/174 Cathederal Street Maxwell R Pegler

Woolloomooloo NSW -2011 M.R. Pegler & Co.

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INC.
BALANCE SHEET AS AT 31ST DECEMBER 1995

31 December 1994		31 December 1995
	Members equity	
18,291	Net Surplus (Deficit)	9,363
33,579	Retained Surpluses at beginning of the financial year	51,870
51,870	**Total Members' Equity**	61,233
	Current Assets	
	Cash	
14,372	Bank a/c - cheque	15,541
18,537	Bank a/c —research fund	25,655
10,000	Term Deposit	10,000
1,400	Term Deposit	1,400
0	Cash on Hand	30
	Inventories	
2,715	T-shirts, sweat shirts, mugs	2,658
238	Books - Evolution F & F	175
4,922	Books - Systematic Botany	4,874
0	Conifer Books	900
52,184		61,233
	Current Liabilities	
	Other	
315	Accrued expenses	0
315		0
51,870	**Net Assets**	61,233

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INC.
RECEIPTS & PAYMENTS STATEMENT
FOR YEAR ENDED 31ST DECEMBER 1995

31 December 1994		31 December 1995
	Receipts	
75	Advertising	200
13,180	Donation to Research Fund	145
	Interest received	
255	- Cheque account	311
527	- Term Deposit	774
165	- Research Account	771
0	Conference Registration etc	3,954
	Sales	
417	- History Book Sales	210
0	- Alpine Australia Books	17
0	- Arid Australia Books	41
0	- Conifer Books	192
288	- Merchandise incl. Newsletter	87
8,276	Subscription to ASBS Inc	8,388
0	Balance Kuranda Conference a/c	5,386
3,385	Subscription CSIRO Journal	2,185
4,700	Sponsorship-AIDAB	0
3,000	Symposium Refund	0
150	Sundry Income	0
34,418	**Total Receipts**	22,661
	Payments	
0	Arid Book Profit Distribution	7
300	Auditors remuneration	300
57	Bank charges	41
5,463	Conference Expenses	3,596
221	Cost of Goods Sold	347
500	Donations	0
27	Filing fees	35
5,328	Newsletter Expenses	4,671
39	Postage & Stationary	91
347	Refund-AIDAB	0
3,270	Subscriptions	4,210
547	Travel and accommodation	0
16,126	**Total Payments**	13,298
18,291	Net Surplus (Deficit)	9,363

LETTERS TO THE EDITOR

TOWARDS A UNIFIED SYSTEMATICS SOCIETY

Members who attended the Melbourne Conference in October will know that a meeting was held on the Friday evening to discuss the foundation of a broadly based, but yet to be named, Australian systematics society (see report elsewhere in this Newsletter). Steps have now been set in train for this to happen. The aims of the society include bringing together biologists with interests in systematics for discussions and symposia, and to improve communication within the systematic community. There is also the express intention of informing the broader community of the importance of systematic studies as the foundation for informed decisions on conservation, and to lobby for support for systematic teaching and research.

In my view these aims are entirely laudable. However, I believe this move has implications for the Australian Systematic Botany Society, and I want to draw these to the attention of members while the manner in which the new society is to be formed is still open to discussion.

The Australian systematic community is quite small compared with our counterparts in Europe and North America, and I am concerned as to whether two systematic societies will be viable given the overlap in membership and aims of ASBS and the proposed society. In a small community such as ours I see considerable benefit in the larger membership and greater diversity of interests of a more broadly based society. One of these would surely be a reduced administrative load on those willing and energetic members who have made the society function. I see some active committee members of ASBS, past and present, on the working party set up to formulate ways and means for the new society. Many other members have expressed their intention to join the new society. Hence considerable overlap in membership is a certainty. This would not be a problem in a larger community, but I am concerned that this will be to the detriment of the activities of and service provided by ASBS.

Could we not be more effective as a single society? Will this not allow more time for selling systematics to the broader community, scientific and general, and for lobbying funding agencies and politicians for support? We could formalise representation of various interest groups (plant systematists, entomologist, etc) on the council if members are concerned that a particular group might come to dominate in the future. Surely a single society can meet the needs of all its members. Simply because it is not exclusively botanical does not mean that it cannot cater to its botanical members, run workshops of special interest to herbarium taxonomists as well as cladists and gene jockeys. The annual meetings would still have symposia that were primarily or exclusively botanical. It is up to us to organise the symposia we want. I see the increased breadth of membership as likely to add to the vigour of

some debates, and hence the general health of the society.

Will not a single large society have the resources to improve the services provided to our members? The larger society will draw more participants to its conferences, reduce the overhead costs and spread at least the central organisational load.

It would increase the benefits on offer to members of the new society. Because of costs, a newsletter is not contemplated. A broader membership would reduce the costs per head of our Newsletter, increase the flow of contributions and the breadth of views and news coverage. I consider the Newsletter one of the most valuable products of our Society, it is an effective vehicle for communication within our highly dispersed systematic community. If this Sydney-sider finds it so, how much more it must be appreciated by our more far-flung members as a means of keeping in touch with events and developments.

These days botanical systematists have much in common with their colleagues from other fields, be they zoological, entomological, mycological or microbiological. This comes from a both a broadening of our individual fileds of interest, as well as from an increasing commonality of techniques of data acquisition and analysis. Despite a significant number of non-botanists having joined our ranks in the absence of any other society expressly interested in systematics, I suppose we should not be surprised to hear from Mike Crisp and XYZ that among many others there is resistance to joining a society that appears exclusively botanical. Hence the present move to found the new society as a means of catering to a broader membership and building a wider power-base for the urgent task of seeking increased support for the field.

It is noteworthy that in North America the entire systematics community has banded together to formulate the Systematics Agenda 2000 White Paper that addresses many of the issues that are of concern here. This indicates one of the benefits of a united organisation, rather than division into separate societies.

I would urge members to resist isolationism, and to be magnanimous in supporting the merger of ASBS with the new society on its foundation, and to work for the success of this venture. My view is that it will, in the end, prove to be in our own best interest. I see the alternative as leading to a diminution of resources, a depletion of the active membership and ultimately a decline in the services provided by ASBS. While many of us will continue to belong to both societies, will we continue to attend ASBS conferences as regularly if there are competing systematic meetings? And if meetings are always to be held jointly, as is sensibly proposed in Adelaide, why the need for separation of the organisations? On the other hand, there is no reason why the new society should restrict itself to a single meeting each year, nor is there any need for every meeting to appeal to the entire spectrum of members. I cannot see that a single society would be unable to cater effectively for needs of the community of plant systematists, so long as we want it to do so and are prepared to become involved in the organisation.

While the question of broadening the society has been raised previously in the Newsletter and

at more than one annual general meeting, the alternatives open to us are now quite different. The formation of a broadly based systematics society is now going to happen. Are we going to become involved, throwing our weight behind the move for the greater good of systematics? I see the alternative as leading at least to the marginalisation of our society, and its becoming overshadowed by a larger and better resourced competitor.

I urge members to consider these points and to contribute to an informed debate, so that our committee can better judge the wishes of members. If we end up with two systematic societies, let it be because the majority of members have thought about the issues and have decided that this is in their best interests. Don't let it happen just by default. My view is that a single society has much more to offer members of ASBS as well as intending members of the new society.

Christopher Quinn
School of Biological Science
University of New South Wales
[Received 29 Nov. 1996]

ARTICLES

PORT ESSINGTON AND THE PLANT COLLECTIONS OF JOHN W. ARMSTRONG

Tony Bean
Queensland Herbarium, Meiers Road, Indooroopilly, Queensland, 4068

John W. Armstrong was one of the earliest plant collectors in northern Australia, but little is known about him. His specimens are cited frequently in *Flora australiensis*, mostly with the annotation 'Port Essington, Armstrong'.

Armstrong is said to have come from Belize in British Honduras (Britten & Boulger 1931). However he was certainly in England in 1838 as he sailed from Plymouth aboard the *Alligator* in February 1838 (Spillett 1972). The route of the *Alligator* apparently included Brazil, Cape of Good Hope and Sydney, as Armstrong collected specimens from these places. Armstrong arrived at Port Essington (not far from present day Darwin) sometime in 1838.

A plant list of Armstrong's collections (up to No. 442) exists at Kew, of which numbers 339-442 were collected at Port Essington, with the last date of collection being July 1839.

The lectotype of *Syzygium armstrongii* (Benth.) B.Hyland is 'Port Essington, Armstrong 621', so it is clear that Armstrong's Australian collections extended beyond July 1839.

Most of Armstrong's correspondence (now held at Kew) relates to his unhappiness with his lot at Port Essington. He had visions of being a plant collector for the Royal Gardens at Kew whereas in fact he seemed to be employed as 'a common gardener' engaged in producing vegetables for

the garrison. As a result of his discontent, he left Port Essington on 5th November 1840 aboard the *Lulworth*, and travelled to Kupang (sometimes spelt Coepang) in Timor.

Armstrong continued to send specimens from Timor and in a letter to Aiton at Kew dated 5 January 1841 from Kupang he mentioned a parcel of 937 specimens that had been dispatched in December 1840 (D. Foreman *in litt.*). He was at Raffles Bay on the north coast of NT, as late as August 1846.

Armstrong died at Kupang on 21 January 1847 (Britten & Boulger 1931). A further box of specimens was sent back to Kew after his death.

I first became interested in John Armstrong while revising Australian members of *Rubus*. Bentham (1864) cited a specimen of *Rubus moluccanus* L. collected by Armstrong from Port Essington. There has been no other recorded occurrence of *R. moluccanus* from the Northern Territory before or since. This made me suspect that either the specimen was misidentified or the locality was erroneous. I have recently obtained the relevant specimen on loan from K and find that it belongs in *R. moluccanus* var. *discolor* (Bl.) Kalkman, a taxon not otherwise recorded for Australia, but common in many parts of Malesia, including Timor.

I have been informed of other species with puzzling distributions:

The type specimen of *Croton armstrongii* S.Moore (Euphorbiaceae) is one of Armstrong's collections reputedly from Port Essington. No plant matching the type specimen has ever been found in NT or elsewhere in Australia (P. Forster pers. comm.).

Dichrostachys cinerea (L.) Wight & Arn. (Mimosaceae) was collected by Armstong reputedly from Port Essington. This species has recently been found (or re-found) growing near the old Governor's house at the Port Essington site. This species was probably introduced there, and it is not clear whether it was cultivated and has persisted or if it has established by itself (I. Cowie pers. comm.).

Indigofera cordifolia Heyne ex Roth (Fabaceae) was collected by Armstrong reputedly from Port Essington. Until recently, no further specimens had been recorded from either the NT or elsewhere in Australia. A few years ago, Ian Cowie collected the species at Macassan occupation sites at Port Bremer and at Fort Wellington in Raffles Bay (I. Cowie, pers. comm.).

I think it is reasonable to conclude that some 'Port Essington' specimens e.g. *Rubus moluccanus* and *Croton armstrongii* originated in Timor and were subsequently mis-labelled. Other species collected by Armstrong which have a very restricted distribution along the north coast of NT may be explained by deliberate or accidental introductions by Macassan seafarers.

Further research into Armstrong's correspondence and the numbering of his specimens would undoubtedly be very enlightening, and may determine the extent of specimen mis-labelling.

Acknowledgements

I am grateful to Don Foreman (ABLO) who located some of the correspondence and plant lists relating to John Armstrong, and conveyed the information to me. Ian Cowie (DNA) and Paul Forster (BRI) alerted me to other anomalous records resulting from Armstrong collections.

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A LITTLE MORE ABOUT C.A. GARDNER

George Chippendale
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In Alex George's story about CAG, most interesting to me, in ASBS Newsletter 88 (Sept 1996), was the sentence 'He collected widely in Western Australia but little elsewhere (a trip to Alice Springs in the early 50's is the only one outside the State that comes to mind)'. I must add a little to this.

When I arrived in Alice Springs in mid 1954, the only herbarium was a small collection of specimens mostly collected by Ray Perry (CSIRO), various veterinary officers and stock inspectors of the Animal Industry Branch, plus a basic collection made by CAG in 1953 in central Australia. These specimens were housed in a hut used by CSIRO, and which I shared for a while, with Bob Winkworth (CSIRO). These specimens were the basis for the present Northern Territory Herbarium. I recall that CAG's specimens were most useful to me in those early days, being carefully mounted and with handwritten labels. The contribution of these specimens at that time was invaluable.

Charles Gardner had been invited to the Territory by Mr (or Colonel) Alfred Lionel Rose, Director of the Animal Industry Branch, mainly to help identify the poisonous plants. Col. Rose, or Rosey, as he was often spoken of, was a shrewd, resourceful man with a good knowledge of botany. He went on several field trips with CAG, and he told me of several incidents, but I give one here.

They drove north on 'the bitumen', and were to look for *Isotropis atropurpurea* and *Gastrolobium grandiflorum*. After some hours of driving, Rosey pulled off the road and CAG jumped out and vanished into the distance. Rosey lit a fire and boiled the billy, and after a little while CAG returned and said that the *Isotropis* was not to be found. Rosey casually kicked some dust onto a small plant near the vehicle, and said 'What's this, Charles?'. CAG apparently responded in great spirit with shouts of glee. From what I know of Rosey, he certainly knew that the plant was where he pulled up. He played similar tricks on me. However, I gathered that the two men got on very well together.

An anecdote of my only meeting with CAG, 3 March 1967, was when I visited him at his home one morning, after phoning. It was about 11 am. He was about to have breakfast of a boiled egg and a sherry! I was offered the same but declined. He went on to comment not too kindly about the Eastern State people, and he showed me '... the whole Flora is there, already written', pointing to some shelves under a window. He knew I was there at that time to get information about eucalypts in the goldfields area, and he looked rather slyly at me and said 'There is really only one species, you know'. I asked which one he meant, and he replied that there was only one species, but the operculum varied a lot! It seemed like a good joke, but he seemed serious.

ARE PLANTS INTELLIGENT?

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[At the meeting held Tuesday 15 October, George Chippendale gave a talk 'Are Plants Intelligent' to the Canberra Chapter of ASBS. Stimulated by an article written by Malcolm Wilkins, Regius Professor of Botany, Glasgow University (*Proc. Roy. Soc. Inst. Great Britain* 1994: 119-133), George expanded the possibility of plant intelligence and subsequently provided a précis of that talk for the *Newsletter*.]

Intelligence can be defined as '... the capacity to meet novel situations by new adoptive measures, the ability to perform tests or tasks, involving the grasping of relationships' (*Dict. Psychology*, 1955).

Sensitive plants, e.g. *Neptunia* spp., exhibit a nervous system, for if any plant is touched, all the leaves close almost immediately. The Venus fly trap also exhibits such a system, with sensor cells 15 mm away from the motor cells which cause it to shut a few seconds after an insect enters. Climbing plants unerringly aim towards the nearest support and begin curling and climbing within 20 seconds; this was evident in David Attenborough's TV session.

The orchid *Angraceum esquipedale*, from Madagascar, has a spur 30 cm long. Charles Darwin predicted there may be a moth with a tongue of that length, and this was discovered as fact 40 years later. The moth normally kept its tongue coiled. Tompkins and Bird in *The Secret Life of Plants* (1974) ask 'is it chance that plants grow into special shapes to adapt to the idiosyncrasies of insects which will pollinate them ... ?' Did the flower develop the spur first, or did the moth develop the tongue first? Bristow, in his the *Sex Life of Plants* (1978), suggests co-evolution. Is this possible? Whatever, this suggests deliberate thought on the part of the plant or insect, the force of 'evolution' or an omnipotent being.

There has been avoidance of accepting that plants are sexual beings. L.H. Bailey (*Manual of Cultivated Plants*, 1924, 1977) gives the meaning of *Clitoria* as 'an old name of no significance', whereas Bristow (*l.c.*) states 'the flower looks very like a woman's sexual organs with a rather well-developed clitoris'.

Flower colours and scents are used by plants to attract the correct vector to ensure pollination. Is this again just chance? Is there some thoughtful deliberateness?

In the *Journal of African Zoology* (1991), an investigation into the death of 3,000 kudu (an African antelope) after grazing on an *Acacia* showed that plants produced tannin in lethal quantities, and also emitted ethylene into the air. Other plants of the *Acacia* picked up this signal and stepped up their tannin production in protection. This must be a form of communication, and similar situations have been found after insect attacks. It was also suggested this may help to explain the deaths of cattle which graze *Acacia georginae* in the NT and Queensland. I was in a team investigating this problem in the mid 1950s.

The aril in *Acacia* spp. is attractive to ants as food, and so the seeds are carried further away from the tree from which they fell. Is this planning?

Recorded in *Supernature* (Watson 1973) are experiments where Backster used a polygraph (lie detector) to test plant reactions. Using *Dracaena massangeana* he decided to burn a leaf .... before he could actually do this, the plant showed great stress! Sauvin, in Tompkins and Bird (*l.c.*) replicated this and other experiments by Backster, but also carried out further tests. He wired up a plant in his home and established rapport with the plant by talking. Then in his holiday home some 80 miles away, he lightly tortured himself with static electricity, and later found the plant registered stress at that time. Then, he had sexual intercourse with his girl-friend, and later found the plant had gone off the recording paper at this time! He concluded that the plant showed both stress and joy for him.

Many other examples of situations with plants were mentioned in the talk, at least giving rise to serious thought that plants may have some intelligence. If the answer is thought to be purely chemical, then this is comparable with animals.

THE END OF BOTANY?

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[The following article is the 'after dinner speech' presented at the 'Beyond the Floras' symposium, Melbourne]

My first, and most important task tonight is to express all of our thanks to Philip Moors and the Organizing Committee of Beyond the Floras consisting of Helen Cohn, Andrew Drinnan, Ian Endersby, Tim Entwisle, Sara Maroske and Jim Ross - together with Andrew Douglas and Tom May - for organizing such a spectacular meeting - indeed four meetings - that have not only been a model of organization, but that have also challenged and stimulated us to think about the future of our science. Anyone who has ever organized a meeting on this scale realizes the vast number of details that quickly accumulate and that demand attention. It is a huge task and you have made it look easy. You have really done a great job. Everyone will come away from this meeting with the clear understanding that systematic botany is flourishing in Australia.

It is also important to thank again the very generous sponsors whose underwriting of Beyond the Floras has really made all this possible. These include the State Government of Victoria, The Royal Botanic Gardens Melbourne, The University of Melbourne, Pacific Dunlop Ltd., The Goethe Institute Melbourne, The Australian Systematic Botany Society, The Royal Society of Victoria, and Quantas. Our sincere thanks go to all of them.

When I was asked to give these remarks back in July I said that I would be pleased to do it, but that I needed some kind of guidance on what the Organizing Committee felt was appropriate. I hoped that they would ask me to take a couple of hours to describe the nuances of my favorite flowers or fossils, but my worst fears were realized when the message came back 'something light and humorous would be good'. So what I've come up with is the ideal light and uplifting title for the end of a tiring day toward the end of a long conference - just the thing we need to send everyone away on a positive note - 'The End of Botany'.

Perhaps the title is a shade darker that I might have ideally preferred - but it seems to have so many inherent advantages. First, it provides a nice clear answer to the rhetorical question inherent in the title of this symposium 'Beyond the Floras?' - The End of Botany. Second, it seems topical because on July 30th I picked up the Chicago Tribune and found right there on the front page in a banner headline 'Endangered Species: Botanist' - and underneath the kind of nasty pun that seem to be the specialty of newspaper editors 'Seeds not Growing in Field of Botany' -'High Tech Study Lures Scientists from the Field' reiterating the pessimistic views expressed in a recent report from the Botanical Society of America. Third, my catchy title The End of Botany - seems to be following in such a fine recent literary tradition. In 1992 we had Francis Fukayama's book 'The End of History' in which he puts forward the notion that liberal democracy is the final form of human government. He suggests that there will be no future development of underlying principles because the really big questions have already been settled. You get the drift. Similarly, earlier this year we have the appearance of John Horgan's book 'The End of Science' - in which he asks a succession of great men - whether all the really big questions have all been answered and whether science today is reduced to just adding details to the existing theories. You can get a glimpse into Horgan's perspicacity by the fact that he could only find one great woman to ask, and needless to say he couldn't find any great botanists. In fact the only mention of botany is on p. 112 where in a discussion of cosmology he makes the statement 'As more data flood in in years to come, cosmology may become more like botany, a vast collection of empirical facts only loosely bound by theory'. Not a comment that immediately makes me warm to the man.

In fact of course, The End of History, The End of Science, and The End of Botany as ideas all fall into the category of what the political press in the US used to call 'bomfoggery' - a term that has several shorter Anglo Saxon synonyms, which no doubt come quickly to mind. In fact, if you go your local bookstore and ask them to query their database for titles containing 'The End of .....' you will get back a list of 30-40 titles ranging from The End of Nature to The End of Marriage. Such 'Limitology' - as Horgan

calls it - seems to be the product of introverted soul-searching fueled by an identity crisis. In Horgan's view such self-consciousness and doubt is a natural by-product of scientific efforts that are yielding diminishing returns. My own view is that this line of argument does not bear closer scrutiny and I especially don't think that the current state of systematic botany justifies that kind of thinking - no matter what the Chicago Tribune or the Botanical Society of America might say.

It seems to me that any current scientific insecurity derives more from sociological and political factors than any real inherent limitation in science or a slow down in scientific progress. Furthermore, notwithstanding the prospect of diminishing resources, in the case of systematic botany I think we have every reason to be optimistic about the future. Yesterday, Ian Prance made the case persuasively that systematic botany is of great societal relevance - and that relevance will only increase as public concern with environmental issues and other biological questions intensifies into the next millennium. Similarly, Mike Donoghue and Jim Grimes demonstrated how an uncompromising phylogenetic approach is necessary for the work of ecologists, evolutionary biologists, paleontologists, developmental biologists and many others. Mark Chase and several other colleagues demonstrated the exciting possibilities for comparative studies based on sequence data - not only in terms of the results and the new marriage of molecular biology and systematics -but also in terms of international collaboration. Similarly, Pauline Ladiges and others demonstrated how new approaches to biogeographic analyses expand our understanding of the nature of geographic distributions and how this has broad relevance for studies in many areas ranging from earth history to conservation biology.

Against this background I believe that we should feel good about there we are now - and we should be encouraged by what we've seen at this conference. Plant systematics has never had a stronger methodological and philosophical foundation, it has never had better tools available to do its job - in terms of computers, molecular techniques and microscopy - and its never been more relevant - both to the work of other biologists and to issues that ordinary people - and eventually governments - really care about. It is true that the governments - who support the science of most people in this room - are all looking to pay off their debts, and that in real terms government funding of science is likely to stay flat or even decline drastically in the coming decade. But the fact is that this is just the latest in a long series of challenges through the twentieth century - and as always how we fare in the long term depends on how creative and innovative we can be in the short term.

My view is that systematic botanists should be up-beat but that we also need to think carefully about how we practice our trade. Specifically, while we aggressively seek new resources we must also try to get more out of what we already have, we must try to build new partnerships that help us work in more creative ways, we must try to be outward looking rather than introverted, we must try to connect with our colleagues in other areas of biology, we must try to appoint multifaceted people who can contribute to our institutions in more than one way, and we must

expect more from ourselves and from others.

However, arguably the two most important things that all systematic botanists must do Beyond the Floras are first, to attract good students and young colleagues into the field by making sure that it remains intellectually exciting and relevant, and second, to engage the public and excite them about what we are doing. It is simply wishful thinking to expect public support if they don't know what we are doing and why it is important. I think that both these points are crucial to keep in mind as all of us in plant systematics contemplate the future Beyond the Floras.

In 1991 a report commissioned by the American Academy of Sciences painted a gloomy picture of 'an academic community beset by flagging morale, diminishing expectations and constricting horizons'. We shouldn't want any part of that world view. What we should recognize however is that what Henry Adams said in 1904 about the Twentieth Century applies equally to the Twenty First Century - 'that the greatest challenge will be change, volcanic and tumultuous change, accelerating with each decade by a kind of geometric progression'. If systematic botany is going to realize its potential in the next century we need to embrace change as an opportunity and fight the tendency to see it as a threat. We need to figure out innovative ways to maintain our intellectual vitality, stay relevant and stay fresh. It may be true, to borrow a phrase from Yogi Berra, that 'the future ain't what it used to be', but we do have the opportunity to influence what it looks like. There has been plenty of food for thought at this conference and the organizers again deserve our thanks for turning our attention to the future and for making all this possible.

A TERCENTENARY

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On the night of 29 December 1696, the Dutch ship *Geelvinck*, captained by Willem de Vlamingh, together with the *Nyptangh* and *'t Weseltje*, anchored off what is now Rottnest Island on the west coast of Australia. The next day members of the crew went ashore where they were impressed especially by the many large 'rats' (Quokka, *Setonix brachyura*) and the hard timber of the teatrees (*Melaleuca lanceolata*). On 4 January 1697, Vlamingh landed on the mainland opposite and went inland, discovering the Swan River, which he explored by boat during the next eight days, and Black Swans (*Cygnis atratus*). He then sailed up the west coast, landing on Dirk Hartog Island, and continued to Batavia.

It is possible that the first Australian plant specimens collected by Europeans, and the first to be named under the Linnaean system of nomenclature (in 1768), were gathered by Vlamingh or one of his crew. These are *Acacia truncata* (Burm. f.) Hort. ex Hoffmannsegg and *Synaphea spinulosa* (Burm. f.) Merrill. The types of both are sterile and bear no collection details. In the protologue, Burman gave the locality as 'ex Java'—presumably he received them among other collections from the East Indies. He considered them to be ferns, naming the acacia as *Adiantum truncatum* and the

synaphea as *Polypodium spinulosum*. During the Seventeenth and Eighteenth Centuries a number of Dutch ships touched on the Western Australian coast but there is no information on whether any crew member gathered specimens. *Synaphea spinulosa* is common along the lower west coast between Bunbury and Kalbarri and is highly variable, but the type matches closely specimens collected later from the coastal plain either side of the Swan River. *Acacia truncata* occurs from Leeman to Bunbury.

An intriguing question, of course, is: 'Did the collector gather only these two somewhat prickly plants, or did he gather others?—some plants would have been in flower, and surely fruits such as eucalypts and banksias would have attracted attention. Are there further specimens lodged in some European herbarium that might throw light on this matter?

NOTES ON AUSTRALASIAN SPECIMENS IN THE NATIONAL BOTANIC GARDENS, GLASNEVIN, DUBLIN (DBN: HERB. MCNAB) RELATING TO THE SECOND EDITION OF AITON'S HORTUS KEWENSIS

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The problems of determining the correct application of the binomials used in the second edition of William Aiton's *Hortus Kewensis* (1810) are well known. In particular, the herbarium of the Royal Botanic Gardens, Kew, contains few specimens that can be directly associated with the plants cultivated in the Royal Gardens, Kew, during the first decade of the nineteenth century when many gatherings of Australian seeds were received, and when the revision of *Hortus Kewensis* was being prepared.

One of the gardeners in the Royal Gardens during this decade was William McNab (1780-1848), whose herbarium, now in the National Botanic Gardens, Glasnevin, Dublin (DBN), provides some materials that may be used to determine what species were cultivated in Kew during this crucial decade. McNab was employed in Kew from 1801 to 1810 (see Desmond 1995) when he went to the Botanic Garden, Edinburgh. He had unique opportunities at Kew to observe recently introduced plants and to collect specimens from the many new and often unnamed species for his own study. For example in the same year that McNab joined the Kew staff, H.M.S. *Investigator* set sail for Australia and consignments of seeds collected mainly by Peter Good reached Kew in 1803 (Edwards 1981). There are at least 24 specimens with Good's name on them among McNab's gatherings. McNab may have been responsible for the propagation of Good's seeds, and he certainly collected herbarium specimens from the seedlings when they bloomed. Robert Brown's name appears on about six of McNab's specimens, and three of these also bear Van Dieman's Island as the locality of origin of the seed.

When William McNab died his herbarium passed to his son James (1810-1879) and

subsequently to his grandson, William Ramsay McNab (1844-1889), who brought it to Dublin where he was Professor of Botany in the Royal College of Science. W. R. McNab was probably instrumental in acquiring duplicates from Robert Brown's Australian field collections (Powell & Morley 1976). Professor McNab died suddenly on 3 December 1889, and his widow, left in straitened circumstances, was obliged to sell the collection. Most of the herbarium specimens were acquired for the National Museum of Ireland, and incorporated into the Museum's botanical collection (Nelson 1980, 1990b). In 1970 the Museum's botanical specimens and library were transferred to the National Botanic Gardens, Glasnevin, Dublin (DBN).

A catalogue of the William McNab Kew and Edinburgh specimens has been prepared and this note is intended only to draw attention to this taxonomic resources. Further particulars of the specimens, including specific epithets, collectors and other annotations are found in Nelson (1997). Only a very small proportion of these specimens have been studied by botanists, so the vast majority of McNab's Kew gatherings retain only the original name used in the Royal Gardens, Kew, when McNab worked there. When the herbarium specimens were annotated by McNab these name may not have been published Aiton's revised *Hortus Kewensis* was published in 1810. Indeed, some specimens bear names which have never been published (for some discussion of these specimens see Nelson 1990a).

Following is a summary of the genera of Australasian origin (a few principally New Zealand taxa are included) represented in McNab's herbarium; the generic names are those McNab used, reflecting the generic concepts of his period, and they have not been updated.

Genera	**Approx no. of specimens, dates of collection**
Acacia	30, 1805-1809
Acaena	2, 1804
Andersonia	1
Anigozanthos	1
Anthocercis	1, 1806
Araucaria	1, 1809
Atriplex	1, 1806
Banksia	20
Bauera	1, 1809
Beaufortia	1, 1809
Billardiera	1
Bossiaea	1, 1805
Brachysema	1, 1809
Burtonia	1
Calothamnus	4, 1808, 1809
Casuarina	1, 1804
Ceanothus	1
Chorizema	1
Clematis	1
Cluytia	1, 1806
Correa	1
Cotula	1, 1807
Crowea	1
Cupressus	2, 1807, 1808
Cyperus	4, 1805-1807
Daviesia	2
Dianella	2
Digitaria	2, 1804, 1806
Dillwynia	1
Dodonaea	5, 1806
Donia	1, 1805
Dracaena	2, 1805, 1810

Dryandra	10
Edwardsia	2
Epacris	1
Eriocalia	1, 1811
Erodium	1, 1808
Eucalyptus	5
Euchilus	1, 1808
Eugenia	4, 1806
Euosma	1, 1806
Eutaxia	1
Gastrolobium	1
Geranium	1, 1805
Gnaphalium	2, 1805
Gompholobium	3
Goodia	2, 1805, 1808
Grevillea	4
Hakea	20
Haloragis	1
Haxtonia	1, 1806 [also Edinburgh 1815 specimen]
Helichrysum	2, 1805
Hovea	2, 1807, 1809
Humea	2, 1805
Ilex	1804
Isopogon	4
Jacksonia	3
Juncus	1, 1806
Kennedia	4, 1805, 1807, 1809
Lambertia	1
[*Lawrencia*]	1, 1806
Leptospermum	10
Leucopogon	1
Lobelia	1
Lolium	1
Lomatia	1
Lotus	2, 1805, 1807
Melaleuca	32, 1804-1810
Metrosideros	3
Mirbelia	1
Myrtus	1
Notelaea	4, 1804, 1807, 1809
Oxylobium	1
Panax	1
Panicum	1, 1805
Pelargonium	1, 1807
Persoonia	1
Petrophila [sic]	3
Pimelea	3, 1807
Pinus	1, 1806 [= *Agathis loranthifolia*]
Pittosporum	6, 1808
Plantago	1, 1806
Platylobium	1, 1805
Poa	1
Pomaderris	4, 1806, 1808
Prunella	1, 1805
Pultenaea	8
Rottboellia	2, 1808, 1809
Scottia	1, 1806
Swainsonia	2, 1807, 1808
Templetonia	1, 1806
Thesium	1, 1806
Tristania	4, 1808, 1809
Viminaria	1
Westringia	3

Following is a summary of the collectors of Australasian plants represented in McNab's herbarium. McNab obtained specimens from gardens (other than Kew and Edinburgh) and nurseries, and sometimes acquired plants through other gardeners; a few of these people, who contributed Australasian specimens, are included below.

Collector	Number of specimens and examples
BLIGH, Gov. William	2 specimens, including *Clematis aristata* annotated 'New Holland, 1808, Govr.Bligh. This species is not taken up in Hort.Kew. edit 2'.
BROWN, Robert	*c.* 6 specimens, including e.g. *Acacia*, *Dodonaea*, *Pomaderris*.
CALEY, George	*c.* 14 specimens, including e.g. *Actinotus helianthi* (flowered 1811) *Cotula* , *Cyperus* (4 specimens), *Digitaria*, *Lawrencea spicata*.
DICKSON, Mr	*c.* 2 specimens; *Boronia pinnata*, *Correa reflexa*
GOOD, Peter	*c.* 24 specimens, including e.g. *Acacia*, *Callitris*, *Eucalyptus*, *Olearia ramulosa* [as *Haxtonia foliosa*: Kew 1806; Edin. 1815], *Pimelea*, *Pultenaea*.
KING, Govr Philip	1 specimen, *Notelia ligustrina* [sic]
KNIGHT, Thomas Andrew	12 specimens, including *Brachychiton populneus* ['Croton']
LODDIGES, Charles	3 specimens, *Epacris*
MAC COLLUCH, Dr	1 specimen, *Telopea speciossima*
MACKENZIE, Sir G.	4 specimens, including e.g. *Adiantum hispidulum*
PATTERSON, Col. William	2 specimens, *Acacia* sp.; *Daviesia linearis*
ROXBURGH, Dr William	e.g. *Acacia glaucescens* ('not native of St Helena but of New Holland')
SINCLAIR, G	e.g. *Leucopogon lanceolatus*, *Logania floribunda*
SMITH, James	e.g. *Lolium arvense* ('who had it from Botany Bay')

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THESIS ABSTRACTS

SYSTEMATIC STUDIES IN *HOMOPHOLIS* (POACEAE: PANICOIDEAE: PANICEAE).

K.E. Wills

Abstract of a thesis submitted by Karen Elizabeth Wills, October 1996, in partial fulfilment of the requirements for a Graduate Diploma in Science, University of New England, Armidale, NSW

Homopholis C.E. Hubb. is a genus of two species (*H. belsonii* C.E. Hubb. and *H. proluta* (F. Muell.) R.D. Webster) both of which are endemic to Australia. The discovery of a putatively new species of *Homopholis* has prompted this investigation of the relationships among the species within the genus, and of the relationships between *Homopholis* and other genera within the Paniceae. Data for 95 morphological and anatomical characters for *Homopholis* (*H. belsonii*, *H. proluta* and *Homopholis sp. nov.*), *Digitaria* (*D. coenicola*, *D. divaricatissima* and *D. papposa*) and *Panicum* (*P. effusum*, *P. queenslandicum* var. *queenslandicum* and *P. simile*) were analysed phenetically and cladistically to determine their relationships. The value and contribution of characters to the findings was assessed.

The phenetic analyses produced three distinct clusters of taxa. The three species of *Digitaria* formed a cluster which was widely separated from the remaining species. Within this cluster, the specimens of *D. papposa* formed a distinct group, but there was considerable overlap between the specimens of *D. coenicola* and *D. divaricatissima*. The second distinct cluster included *Panicum effusum*, *P. queenslandicum* var. *queenslandicum* and *P. simile*, with the specimens of each of the three species forming distinct groups within the cluster. The third cluster included the specimens of *Homopholis sp. nov.*, *H. proluta*, *H. belsonii* and *P. subxerophilum*. Within the cluster *H. belsonii* was noticeably separated from the other three species. Separate clusters were clearly formed for each of the four species in the cluster.

For the cladistic analyses, *Entolasia marginata*, *E. stricta*, *Thyridolepis mitchelliana* and *T. xerophila* were used as outgroup taxa. One most parsimonious tree was produced using the branch and bound method of tree construction. *Homopholis belsonii* was well supported as the most basal member of the ingroup, and was never in the same clade as *Homopholis sp. nov.* or *H. proluta*. *Panicum subxerophilum* was in a clade with *Homopholis sp. nov.* and *H. proluta*, with *P. subxerophilum* and *H. proluta* as sister taxa. The support for this clade, however, was weak. *Panicum effusum*, *P. queenslandicum* var. *queenslandicum* and *P. simile* formed a well supported clade, and were the sister group to *Entolasia marginata* and *E. stricta*. The three species of *Digitaria* formed a well supported clade.

The results of the phenetic and cladistic analyses provide good evidence to support the acceptance of *Homopholis sp. nov.* In addition, there is strong evidence to support the circumscription of *H. belsonii* as a monotypic genus, and some support for the creation of a new genus which includes *Homopholis sp. nov.*, *H. proluta* and *P. subxerophilum*. The findings highlight the need for a broad scale phylogenetic analysis of the Paniceae.

TAXONOMY AND REPRODUCTIVE BIOLOGY IN *HIBBERTIA* ANDR. SUBSECTION *SUBSESSILES* BENTH.

C. Nano

Abstract of a thesis submitted by Catherine Nano, June 1996, in partial fulfilment of the requirements for the degree of Bachelor of Science with Honours at the University of New England, Armidale, NSW

This study comprised two parts. The first was concerned with determining the phenetic relationships throughout *Hibbertia* subsection *Subsessiles* Benth. Special attention was given to the status of two putative taxa, known informally as *Hibbertia sp. B* and *H. sp. aff. obtusifolia*. As a result of this study, recommendations were made that both these taxa be accorded species status. It was also suggested that they be considered for ROTAP listing. The analysis indicated the presence of a further number of phenetically discrete clusters, many of which correspond with current notions of species boundaries within this subsection. Others are in need of taxonomic work however, as certain of their characters were found not to conform with their accepted descriptions. The phenetic analysis did not provide insight into general relationships throughout subsection *Subsessiles*, as the different methods used, produced highly incongruent results with regard to the disposition of the separate taxa.

The second half of the study was concerned with ecological relationships involving *H. obtusifolia* and *H. sp. aff. obtusifolia* (*Hibbertia sp. nov.*). It was determined that both are pollinated primarily by bees, though beetles and flies may also play some part here. The seeds of both taxa are removed by foraging ant species, with removal rates clearly influenced by the presence of an elaiosome. Overall, it was found that an integration of ecological and taxonomic approaches provided enhanced insight into the genus as a whole.

ABRS REPORT

Australian

Biological

Resources

Study

BUDGET BLUES

A modification is necessary in the figures reported in the September Newsletter. Subsequent adjustments meant that the final figure for the ABRS Publications Program budget represented a cut of 54% over the equivalent figure for 1995/96. As this is the budget area that supports small contracts, including those for illustrations, 'hole-plugging' Flora writing and other short-term tasks, as well as the major costs of publishing our completed volumes, it is clear that we have major problems in the coming year. With less than half the previous year's budget, we will not be in a position to support much, if any, of the small contract work that we have undertaken recently. One noticeable effect will be a much lower level of original line drawings in forthcoming volumes. We will try to cover this as much as possible by reusing illustrations from previously published works where possible.

ROBERT BROWN DIARIES

My statement in September that ABRS after all might not be able to publish the Robert Brown Diaries brought a dismayed reaction from several quarters. Simultaneously, Kew/HMSO also ran into problems in finding funding. As result the matter was revisited within ANCA, and a guarantee of some funding was obtained. This, together with expressions of interest from a number of private and corporate bodies in providing partial subsidies of the printing costs, has allowed us to reactivate the project. ABRS is now definitely committed to publishing the book. Editing of the manuscript is expected to take about 12 months, which would result in the book going to press in late 1997 or early 1998, in plenty of time for the bicentenary of Brown's voyage to Australia. The Diaries contain a fascinating commentary on Australian plants, animals, geology and anthropology, and with the extensive annotations and maps provided by the authors, the publication should be of enormous interest and value to biologists in particular.

PORTFOLIO REORGANISATIONS

As many of you will have heard already, there have been major realignments of responsibilities and organisations within the Federal Environment portfolio in the last few months. These changes are designed to streamline actions, reduce overlap and improve efficiency within the multi-faceted environment area.

One of the more obvious manifestations of this reorganisation has been the disappearance of our umbrella organisation, the Australian Nature Conservation Agency (ANCA), formerly known as the Australian National Parks & Wildlife Service (ANPWS). This Agency, along with several others, has been absorbed into the Department of Environment, Sport and Territories (DEST), the environmental wing of which will in future be known as Environment Australia. The old ANCA programs, along with some others transferred from the old DEST, form the Biodiversity Group within Environment Australia, and are headed by the previous CEO of ANCA, Dr Peter Bridgewater, now Head of the Biodiversity Group. ABRS , together with the Indigenous Programs Section, Reserves System Section, Indigenous Protected Areas Unit and the Biodiversity Convention & Strategy Section form the Biodiversity Conservation Branch, with Alison Russell French as Director.

Confused? Don't worry. Our old address, telephone and fax numbers remain the same. However, our Email system is being changed, and our new addresses will now be of the form name1.name2@dest.gov.au. Thus my new Email address will be Tony.Orchard@dest.gov.au and Gwen Shaughnessy's address will be Gwen.Shaughnessy@dest.gov.au.

PUBLICATIONS

Fungi of Australia Vol. 1B, Introduction-Fungi in the Environment

This book was published on 2 October 1996, just in time to be launched on the same day by the Minister for the Environment, Senator Robert Hill. The launch of the Fungi of Australia series, and the first two parts, took place at the 1st Australasian Mycological Congress in Melbourne. The series was warmly welcomed by the large audience, and feedback from those who have had a chance to read the introductory volumes has been very encouraging.

Flora of Australia Supplementary Series No. 7: Checklist of Australian Lichens and Allied Fungi, by Rex Filson

This book went to press in late November and will be in print in time to appear under Christmas trees across the land. It documents approximately 2800 lichenised, lichenicolous and allied fungi, providing accepted names, synonymy, place of publication, and State and Territory distribution. It is available from ABRS (Flora), GPO Box 636, Canberra ACT 2601 for $25 plus $2.50 surface postage. A brochure will be inserted in this newsletter.

Fungi of Australia Volume 2A, Catalogue and Bibliography of Australian Macrofungi 1. Basidiomycota p.p.

This mammoth work, by Tom May and Alec Wood, was expected to be in press by now. However, final checking and corrections have taken a little longer than expected, and the book is now expected to go to press in January 1997, with publication about April. The wait will be well worth while. The book (with its companion Vol. 2B) will provide an up to date list of names used for macrofungal species in Australia, place and date of publication, synonymy and a comprehensive list of all works in which the name has been used in an Australian context. As such they will form the launching pad for the revisionary work that will be needed over coming years, leading

eventually to the descriptive volumes of the Fungi of Australia.

Tony Orchard
Executive Editor
ABRS Flora
5 Dec. 1996

GRANTS AWARDED UNDER THE ABRS PARTICIPATORY PROGRAM FOR 1997

The following Grants have been offered for 1997 by the Minister for the Environment. An asterisk (*) indicates a new project for 1997.

Australian Capital Territory

Australian National University
MD Crisp
Division of Botany and Zoology
Revision of *Daviesia* (Fabaceae)
$20,385

MD Crisp *
Division of Botany and Zoology
Systematics and Biogeography of the Pittosporaceae in Australia
$8,645

JA Elix
Department of Chemistry
A Taxonomic Revision of the Lichen Genus *Lecanora* in Australia
$43,432

C Weiller *
Research School of Biological Sciences
Integrated Descriptive and Interactive Identification and Information Retrieval Packages for the Poaceae
$60,557

CSIRO, Division of Plant Industry, Centre for Plant Biodiversity Research
LA Craven
Systematic Studies in Australian Myrtaceae (*Syzygium* Group, *Callistemon* Group and *Asteromyrtus*)
$42,650

JG West *
Revision and Flora of Australia Treatment of Eastern Australian Species of *Pultenaea* (Fabaceae)
$44,360

New South Wales

NSW Herbarium, Royal Botanic Gardens, Sydney
PH Weston *
A Taxonomic Revision of *Dillwynia* (Fabaceae: Faboideae: Mirbelieae)
$17,364

University of New England
JJ Bruhl *
Department of Botany
Systematic Studies in Abildgaardieae (Cyperaceae)
$17,364

Victoria

Royal Botanic Gardens, Melbourne
TJ Entwisle
Taxonomic Revision of Batrachospermales

(Rhodophyta) in Australia
$20,638

Institute for Horticultural Development
VC Beilharz *
Cercosporoid Fungi on Australian Native Plants
$18,532

University of Melbourne
GT Kraft *
School of Botany
Generic Monographs of Australian Siphonous Green Algae
$21,400

Queensland

James Cook University
WA Shipton
Department of Biomedical and Tropical Veterinary Sciences
Taxonomic Studies of the Family Saprolegniaceae and the Order Leptomitales in Tropical Australia
$20,364

Department of Environment, Queensland Herbarium
DA Halford *
Flora of Australia Euphorbiaceae Accounts: (a) *Euphorbia* L. *s. str.*, (b) Family Introduction and Description, (c) Generic Key
$25,980

AE Holland
Revision of *Crotalaria* L. (Fabaceae) in Australia
$8,820

University of Queensland
JA Phillips *
Centre for Microscopy and Microanalysis
Taxonomic Studies on the Dictyotales (Phaeophyta)
$32,167

South Australia

Unattached
RM Barker
C/- State Herbarium of South Australia
Zygophyllaceae: Treatment for Flora of Australia
$13,146

Western Australia

CSIRO, Forestry and Forestry Products
NL Bougher
Taxonomic Revision of the Truffle-like Cortinariaceae (Hymenogaster s.l. and Thaxterogaster) in Australia
$5,000

Murdoch University
JM Huisman
School of Biological and Environmental Sciences
Revision of the Nemaliales (Rhodophyta)
$63,867

Tasmania

Tasmanian Herbarium
WM Curtis/DI Morris/ AC Rozefelds
A Flora of Tasmania (Dicotyledons)
$5,000

Hong Kong
KD Hyde
Department of Ecology and Biodiversity, University of Hong Kong

Flora Accounts of Family Phyllachoraceae
$20,364

New Zealand
PR Johnston
Landcare Research, New Zealand
Rhytismatales of Australia, Part 1
$8,000

Other Funding
Australian Botanical Liaison Officer
$35,000

Herbarium Loans
$32,000

ABLO REPORT

Australian Botanical Liaison Officer

After a very quick year for me, Don Foreman (MEL) has now taken over as ABLO for 1996-7. The ABLO postal and fax contact details remain the same, with e-mail still as ablo@rbgkew.org.uk; the phone number has however changed, and is now +44 181 332 5270.

My thanks to Don for cheerfully taking over a number of incomplete or unanswered enquiries that had accumulated during my recent time away at other herbaria, and apologies to any enquirers who have been wondering what has happened to their requests over July and August. Herbarium visits were made to E, PR, P, LY, and G, although as most visitors would have found, one rarely allows enough time to do more than the bare essentials in these rich collections.

Thanks from the outgoing ABLO, as always, to RBG Kew for its long-standing support of the ABLO program, which is of continuing scientific value to both countries and to the institutions involved. Thanks also to the staff of Kew, especially those of the Library and of Wing C, the latter having now had several successive itinerant colonials to cope with. Particular thanks to Brian Stannard, Bob Johns, and Sandy Atkins for continuing help, hospitality and friendship throughout the year, and to Jeff Wheatley of the Computing Section for answering all those computer-distress calls (invariably on a Friday afternoon).

DRAFT BIOCODE LAUNCHED

In August I attended part of the International Congress of Systematic and Evolutionary Biology (ICSEB V) in Budapest. Of particular interest was a symposium session on 'The New Bionomenclature', essentially a public launch of the 'Draft Biocode - prospective international rules for the scientific names of organisms',

recently published in booklet form by the International Union of Biological Sciences (IUBS). This document was also published in full in *Taxon* 45: 349—372 (May 1996).

A full outline of the proposed Biocode cannot be given here, but if adopted it would be the sole nomenclatural framework for new names of all organisms except viruses (and with certain rules specific to cultivated plants). It draws on features of the existing Codes, and proposes a new standard terminology where this is currently divergent between the disciplines. Many of the standardisation features seem workable and useful on their own merits. Controversially, however, the draft incorporates as more or less requisite features the idea of registration of scientific names, and (though not by the same title) the notion of 'Names in Current Use' lists, both debated at length in recent years.

The draft also proposes significant changes to current botanical practice in relationship to orthography and citation of names, typification, language of protologue (Latin or English), and the introduction of co-ordinate status of names (effectively autonyms across a bracket of related ranks).

Powers of supervision and amendment of the Biocode, if it comes into force, are proposed to lie with the International Committee on Bionomenclature (ICB), which is a joint arm of the IUBS and the International Union of Mycological Societies. The ICB currently comprises an IUBS-appointed Chairperson, and 8 members appointed by the IUBS 'in consultation with the five international bodies concerned' (in our case the General Committee on Botanical Nomenclature [GCBN] of the IAPT). As proposed, the ICB would have 2 botanists, 2 zoologists, 2 bacteriologists, one virologist, and one cultivated plant specialist.

The ICB would set the starting date for the new Biocode, if adopted, and assuming transfer of authority from the bodies responsible for the present separate Codes. In our case, the next International Botanical Congress (IBC) will be presented with the proposed Biocode and asked to vote on it (probably in-toto), and to approve a permanent cession of nomenclatural authority to the ICB.

The ICB would have power to 'resolve present and future ambiguity concerning the provision of the Biocode, in particular those rules that affect only certain categories of organisms'. It would also have full authority to 'edit future editions of the Biocode, and to amend its provisions where necessary ...[following] ... public discussion, [with] any proposal for change being published beforehand in the appropriate official organs' [e.g. in *Taxon*], and a comment time of one year The various nomenclature bodies of the separate disciplines (e.g. the GCBN of the IAPT) would then each 'inform the ICB of their opinions and recommendations concerning the proposal'.

Proponents of the draft Biocode, at the symposium and in the literature to date, have pointed to some general and specific problems which they blame on the partial discordance of the existing Codes:

* Problems with naming of organisms of uncertain kingdom placement (protists);

* 'Wasted time' in purely nomenclatural research, claimed as equivalent to 52 of the world's 7,000-odd taxonomists;

* Perceived dissatisfaction among many (unspecified) user groups with 'constant non-scientific name changes', and hence erosion of the credibility of taxonomy as a discipline;

* Need for reliable, protected lists of names, to aid in biodiversity inventory in resource-poor, biota-rich countries;

* Problems (especially re databases) of inter-regnal homonyms. (Data presented to the meeting by Hawkesworth indicated that of 16,419 names of plant genera, 8,784 are homonymic with zoological generic names; of these, 3,554 were on Greuter's recent NCU lists for botany. The number in current use in zoology is not known. Bacteriological homonyms with eukaryotes are of the order of a few dozen).

Here ends the objective part of this item.

As recent papers by Orchard *et al.* (*Taxon*, May 1996) and Brummitt have pointed out, several of these problems either have more complex causes or will not be resolved by a new unitary Code, especially given that pre-existing names will continue to be governed by the present separate Codes unless and until conserved or rejected. Some of the other problems raised could in principle be resolved or ameliorated by simple amendment of the existing Codes and by extra-Codical measures. It is also highly questionable whether rapid biodiversity assessment would be materially assisted by a new Code and associated lists, and the notional 'release' of 52 taxonomist-equivalents to do real science is also dubious, given the stated hope of some Biocode advocates that the new system 'would force specialists to start preparing lists' of names for conservation.

Concordance of citation requirements would certainly be a boon for librarians, databasers, and indexers, but the benefits are immediately compromised by the allowance in the Draft of optional citation of transferring authors.

There remains also in the Draft Biocode a clear vision that the mechanism for registration of new names (and presumably also for the co-ordination of lists of conserved and rejected names), would be centralised. Not having been at the last IBC, I am not sure to what degree this centralising notion was a factor in the defeat of proposals for the earlier Greuter NCU proposals, but it does seem that the option of a polycentricmodel, which perhaps would be more responsive to user needs, has not been widely canvassed. The restriction of amendment rights to a highly collegiate body is also likely to be of concern to botanists, who are used to having the right to debate and exercise authority on nomenclatural matters at IBCs, even if this is normally delegated to a relative few.

As with the recent articles on the Biocode in *Taxon*, the symposium at ICSEB was heavily weighted in favour of speakers supporting the proposal. Indeed, five of the seven papers presented were presented by members of the IUBS Committee which drafted the document. One strongly dissenting paper (by Brummitt, who was unable to attend) was read to the session. There was relatively little sniping at

botanical taxonomists, thankfully, but there was something of tendency to erect straw-man arguments. It was unfortunate that the only critical responses, to specific features of the draft or to the proposal as a whole, came from botanists present or contributing in absentia. David Ride of CSIRO, speaking from a zoological perspective, endorsed the general proposal but did emphasise that in his view any lists of protected zoological names would have to be very inclusive, to allow flexibility for the future.

The final plenary session of ICSEB adopted a fairly measured resolution on the Draft Biocode, welcoming the formation of the ICB, commending the proposals for harmonisation of terminology and 'welcoming the prospect of their introduction in these [existing] Codes by the appropriately mandated competent organisms [sic]', and encouraging contributions to develop the proposals further. A draft call for 'eventual adoption' of the Biocode by the separate disciplines was deleted on an amendment from the floor (from a non-botanist, and accepted by Hawkesworth as mover).

The draft Biocode is undoubtedly a nice peace of constitutional drafting, but the question remains - is it the most useful initiative for taxonomy that these leading bodies of biological science can take?

ENGLER MEDAL FOR AUSTRALIAN BOTANIST

Three Engler Medals were presented at ICSEB V, including one (for 1993) to Don McGillivray, formerly of herbarium NSW, for his 1993 species revision of Grevillea (Proteaceae). Congratulations Don! Other medals went to Grady L. Webster and to Peter Boyce of Kew.

DOMIN COLLECTIONS SECURED

The National Museum of the Czech Republic, which includes Prague Herbarium (PR), has now secured ownership of the herbarium of Karel Domin, including his significant Australian collections. This follows some years of uncertainty as to the future of the collections. They were originally deposited with the Museum by Domin in early 1950, and transferred to the Museum as property by a nationalisation law of 1960.

In 1992, following the 'Velvet Revolution', a 'Law of Restitution' was passed, privatising nearly all State property that had formerly had private owners, where they or their descendants could be traced. The Domin herbarium fell into this category, and (while remaining housed at the Museum building at Pruhonice), in mid-1993 became the property of three of Domin's grandchildren. The possibility of sale and export of the material had been raised, but thankfully a 1992 declaration of the collections as being of national heritage value precluded the latter event.

In December 1994, the Museum was able to buy two parts of the herbarium by courtesy of funds from the Ministry of Culture. In December 1995, sufficient funds were raised to purchase back the remaining third part. Title is now secure, and the collections remain accessible by arrangement with PR, at Pruhonice.

Bob Makinson

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At the time of writing this rather brief initial report we have had our first frosts, many of the trees have lost most of their leaves, the days are getting noticeably shorter and the Christmas decorations are up in London.

Although we had travelled nearly half way around the world it was nice to see some friendly faces and renew acquaintances that stretched back more years than one cares to remember.

The first few weeks prior to taking over from Bob Makinson were taken up with opening a bank account, finding a flat and getting to know the ropes at Kew and the Natural History Museum.

The search for a flat close to Kew presented the most problems, particularly for my wife Joy who ended up with blisters and had unprintable things to say about whoever it was that decided some years ago that it was not a good idea to purchase a house/flat near Kew for future ABLOs. The effort was worth it. Our flat is only 5 minutes walk from the Herbarium. The only down side is the noise of the planes going overhead at the rate of about one per minute. Given the proximity of Kew to Heathrow I can't believe the taxi fare came to £22 ($44).

CONFERENCES

Both conferences I attended focused on Biological Collections. One was in Cambridge, the other in Belfast. If I had to summarise the main feeling from both I could do no better than recommend you read the article by K. Elaine Hoagland, which appeared in the most recent Association of Systematics Collections Newsletter and has been circulated widely on the electronic media by Mike Crisp entitled 'The Taxonomic Impediment and the Convention of Biodiversity'.

ENQUIRIES

So far I have dealt with nearly 70 enquiries that have seen me visit the Natural History Museum regularly and the Linnean Society once as well as using the facilities at Kew. Please note that requests for photocopies exceeding 25-30 pages are not likely to be processed. A report in the *Daily Mail* about *Lomatia tasmanica* claiming it to be the worlds oldest plant brought a flurry of requests for further information.

VISITORS

It was nice to see Jill Thurlow (Assistant Librarian at MEL) here for a brief visit. Penny Hohnen from CANB is expected in mid December and Kristina Lemson from the University of Western Australia hopes to come to K and BM in early January.

NEWS FROM KEW

Professor Charles Stirton has been appointed the first Director of the National Botanic Garden of Wales, taking up the appointment on October 1.

The newly restored Japanese Gateway was officially opened on October 8 by her Royal Highness, Princess Alexandra and her Imperial Highness Princess Sayako. Previous ABLOs

might remember this has a rather neglected structure near the Pagoda.

Don Foreman
18 Nov. 1996

NEWS FROM FASTS

OCTOBER CIRCULAR*

ANZAAS

ANZAAS was a disappointing affair this year, with less than 180 delegates attending the three day meeting in Canberra. It's a far cry from less than a decade ago, when ANZAAS meetings regularly attracted audiences of 2,500. FASTS is discussing ANZAAS with a range of organisations, to see if there are ways of injecting new life into what was the premier public science event of the Antipodes. It will need concerted action from the science community if ANZAAS is to be saved.

Parliamentary members with S&T qualifications

An encouragingly high proportion of MPs hold qualifications in science, engineering, medicine and health. Parliament has 224 members, and they collectively hold 38 qualifications in S&T. Several members have dual qualifications. FASTS met with the recipient of a science degree recently, Mr Martyn Evans, who is shadow spokesperson for Science and Information Technology. Toss Gascoigne and I had a preliminary discussion with him on how FASTS might usefully provide ideas on S&T policy.

Deans of Science

Congratulations to the Deans of Science on formalising their organisation. They have very quickly established a media presence in science policy. FASTS has addressed their last two annual meetings, and regularly discusses issues with new President John Rice of Flinders University

Media

We have had had an active presence in the media, with articles in the *Sydney Morning Herald*, *Lab News*, *R&D Review*, *Search*, *The Australian*, *The Canberra Times* and *Nature* all featuring FASTS. Headlines include: 'Students will suffer and staff may be sacked, says lobby group'; 'The voice of reason: scientists influencing government'; 'Australian Universities face disruptive changes'; 'Cuts hit marine study'; 'Scientists praise policy plan for economic zone'; 'Australian children need science spark'. This sort of coverage is read by the policy makers, and helps keep science on the agenda as an issue.

*Abridged version as much of the content is repeated and/or updated in the November circular. (Eds.)

NOVEMBER CIRCULAR

FASTS has written to the Minister for Education Senator Amanda Vanstone to ask her when the review of the Higher Education system will begin. The Review was announced on August 9 when the Minister made a pre-Budget statement, ostensibly to clear up a confusing situation in the Higher Education sector. Since then the situation has worsened. The sector is simultaneously grappling with savage funding cuts, the proposed differential HECS allowance, and mounting industrial trouble over claimed salary increases. Confusion and uncertainty reign. All notions of strategic planning seem to have gone out the window, to be replaced by a market-driven 'reform' of the Higher Education system. Science departments have been closed or amalgamated as university administrators scramble to balance their budgets, and FASTS is concerned that these actions do not prejudice the gains of the past two decades. Clearly, the universities need a sense of purpose and direction. They need to know what the universities are expected to do and what sort of funding s available to them. Science is particularly vulnerable in this climate of uncertainty. Science departments can be expensive to run, and the benefits lie beyond the time-horizon of most of the people who make policy decisions. It's time to set a clear and steady path for Higher Education, and it's time for Minister Vanstone to announce the terms of reference for her Review.

FASTS supports Reef fishing experiment

A series of experiments planned for the Great Barrier Reef to establish best management practices came under threat from the Australian Democrats in Parliament last month. FASTS was contacted by the Australian Marine Sciences Association (AMSA) when the Democrats issued an media release using terms 'rip the heart out', 'science gone feral', 'absurd experiments' and 'plundered'. FASTS helped AMSA counter the Democrat release, and contacted politicians in all parties. ALP Science spokesperson Martyn Evans spoke directly to the scientists involved, and took up the issue within the Labor Party. The ALP eventually agreed to support the research. The experiment has now been accepted by Parliament, but FASTS has followed up the issue with Cheryl Kernot. I have written to her to express concern at the approach the Democrats took, and offering to act as a source of expert scientific reference on other S&T matters.

FASTS Council

Both Minister Peter McGauran and Shadow Minister Martyn Evans sparked vigorous discussion when they addressed Council on November 20. Representatives of Member Societies were able to question them directly on a whole range of issues. The meeting was surprised to hear the Minister's perception that basic research was well-funded and thriving in Australia. The Board is preparing a submission to acquaint the him with the real picture and the real importance of basic research. Position papers are being prepared by the following Board and Executive members, and Members with a particular interest should contact these people directly:

Basic research support

Chris Powell - cpowell@geol.uwa.edu.au

Patricia Angus - pma@rschp1.anu.edu.au

HECS

John Humble - John.Humble@phys.utas.edu.au

Jan Thomas - JanThomas@VUT.edu.au

S&T and maths and science teaching

Jan Thomas - JanThomas@VUT.edu.au

Jaan Oitmaa - otja@newt.phys.unsw.edu.au

University restructuring

Chris Powell - cpowell@geol.uwa.edu.au

Patricia Angus - pma@rschp1.anu.edu.au

Marine exclusive economic zone

Peter Rothlisberg - Peter.Rothlisberg@qld.ml.csiro.au

Chemical deficit

Graham Johnston - grahamj@extro.ucc.su.oz.au

Career paths

John Humble - John.Humble@phys.utas.edu.au

Jaan Oitmaa - otja@newt.phys.unsw.edu.au

Emerging diseases

Dick Groot Obbink - dickgo@med.su.oz.au

University-industry collaboration and R&D funding

Graham Johnston - grahamj@extro.ucc.su.oz.au

Peter Cullen - cullen@science.canberra.edu.au

Peter Cullen, new President-elect

I am delighted to announce that Professor Peter Cullen, Director of the CRC for Fresh water Ecology and Professor of Resource and Environmental Science at the University of Canberra, has agreed to serve as President-elect of FASTS. He will become President in November 1997. Peter Cullen has been an outstanding advocate of the problems facing Australia as the driest inhabited continent, and has worked tirelessly to convey the concerns of the scientific world to Parliament and the public.

Former President Professor Graham Johnston finishes his term with the special thanks of scientists and technologists across Australia. His great contributions helped to revitalise FASTS and to build effective organisational and communication structures.

I would like to welcome Board newcomers Dr Peter Rothlisberg, Professor Jaan Oitmaa and Professor Snow Barlow; and to thank retiring Treasurer Marion Burgess and Board members Barry Fox, Ron Macdonald and Jason Middleton for their work.

Chief Scientist

John Stocker is an admirable person to fill the role of Chief Scientist and we congratulate him on his appointment. I have arranged to meet him this week. But FASTS raised two concerns in a media release following the announcement. The first is that he will only work in the role one day a week, which seems hardly enough to fill this important and sensitive position as well as to chair ASTEC. He will continue to work for the consultancy group Foursight and for Pratt Industries; and the issue of potential conflict of interest is one for the Government to address rather than ignore. I believe Dr Stocker's wide experience will serve Australia well.

FASTS Mathematics and Science Education Forum

The FASTS Forum in Canberra in November brought together 80 teachers, academics and industry people concerned about the looming crisis in maths and science education. Australia expects a shortage in trained school teachers before the turn of the century. FASTS Board member Jan Thomas organised this successful Forum, and said that although neither Minister

Vanstone nor Kemp was able to attend, they have been receiving very clear messages from the subsequent media coverage! (President Clinton's visit was head-on competition for the time of the Ministers.)

Ideas for PMSEC

Member Societies are invited to suggest ideas FASTS could raise at the next PMSEC meeting scheduled for May 30 1997. Members are also invited to suggest ideas for a special afternoon session devoted to a more entertaining aspect of science, technology or engineering. Planned to run 30 minutes, it might be a video-based presentation on highly visual science, such as the work of the Anglo-Australian telescope, or computer graphics research.

Differential HECS for S&T degrees

FASTS Policy Chair Ken Baldwin and secretary Chris Easton made a submission to the Senate Committee on Employment Education and Training to oppose the new HECS fees. The full text is available on the FASTS' web site. HECS is currently being considered by the Senate. The Committee's Report showed that FASTS' arguments appear to have struck home, and we are hopeful that the final result will be a good one for S&T.

Budget submissions

FASTS has been invited by the Treasury Department to make a submission for next year's Budget. Last year we raised several matters, including the short supply of trained science and maths teachers in high school and the chemical deficit issue. Members are invited to bring issues to our attention. Final submissions have to be in by January 10, so please let me have your ideas by Christmas. Fax or email them direct to me: (06) 207 2630; environment_commissioner@dpa.act.gov.au

Careers for young scientists

FASTS is planning a high-level Forum to devise solutions and raise public awareness of an acute problem facing young research scientists in Australia today. A draft program is being discussed with groups such as the NTEU, the Academy of Science and the CRCs Association. We hope to announce firm details shortly. February 12997 is the target month.

Media

FASTS has built an active presence in the media, with articles in the *Sydney Morning Herald*, *Campus Review*, *The Australian*, and *The Canberra Times* all featuring FASTS. Headlines include: 'Scientists back reef research', 'Crisis forecast in maths', 'Reformers move on wide maths-science curriculum', 'Numeracy levels under spotlight', 'Maths decline adds up to division', 'Chief scientist role raises fears', 'Crisis in student science numbers'. Please keep in mind that coverage at local levels and in your own Society's interests, are equally of great value. Policy makers read and are influenced by this constant exposure in the media.

Joe Baker
3 December 1996

FIELD TRIPS

GREGORY NATIONAL PARK: THE 1996 MUELLER COMMEMORATIVE EXPEDITION

Neville Walsh
National Herbarium of Victoria,
Birdwood Avenue,
South Yarra, Victoria 3141

Between the 9th and 20th of April, 1996, botanists and zoologists from the National Parks and Wildlife Commission of the Northern Territory, botanists from the Royal Botanic Gardens, Melbourne (RBGM), 2 artists, a photographer and an Australian Geographic journalist embarked on an expedition to commemorate the RBGM's sesquicentenary and the centenary of Ferdinand von Mueller's death.

The area chosen for the expedition, Gregory National Park, some 400 km south-south-west of Darwin, was on the route of Augustus Gregory's North Australian Expedition (1855-1856) in which Mueller participated as expedition botanist. Gregory, Mueller and others travelled for about 17 months from the mouth of the Victoria River, into arid north-eastern Western Australia, then retracing their steps before heading overland back to Brisbane. This mighty effort is rarely mentioned in histories of Australian exploration, yet it pre-dated nearly all excursions into the central and northern inland (including that of Burke and Wills). The success of Gregory as a leader, losing none of his crew through misadventure in a time where exploratory tragedies were sadly commonplace, may have cost him (and the expedition) a bigger place in Australian history than it currently fills. Mueller's own success can be measured in the volume of botanical collections he made - some 2,000 specimens, many new to science, and many becoming type specimens for species subsequently named by Mueller or others.

Gregory National Park includes the catchments of the East Baines River (named for the artist on Gregory's expedition), Humbert River, Wickham River and Depot Creek, all major tributaries of the lower Victoria River. It covers an area of some 13,000 square kilometres (about one-third the area of Tasmania!), and includes large areas of sandstone plateau, escarpment and gorges, riverine plains, and areas of prominently layered and intricately weathered limestone (including an extensive cave system). The park has been recently extended, but never thoroughly surveyed for its botanical or zoological attributes. It seemed an appropriate venue for a Mueller commemorative expedition, providing an historic link with the man, and worthy of an inventory of its vegetation to assist in appropriate future management and development.

The elaborately prepared base camp had unfortunately been washed down the Humbert River, courtesy of seven inches of rain in the preceding two days. No worries (in the great tradition of the Territory), base camp was hurriedly shifted to the banks of the East Baines River, at Bullita outstation.

The aim for the botanists was to get even coverage through the parks while sampling all major habitat types. Targeted communities included vine scrub, often replete with dripping rock-faces or waterfalls, woodlands of *Eucalyptus miniata* on sandstone plateaus, stunted *E. brevifolia* stands on slopes, or mixed woodlands of *E. pruinosa*, *Corymbia terminalis*, and the many species of *Terminalia* on riverine plains, and black-soil plains with *Astrebla* grasslands. About 2500 numbers were collected during the trip. Duplicates will be held at DNA and MEL, and monographers are likely to receive sheets of their speciality where names could not be readily provided. An initial assessment suggests that four or five new species were collected, and a couple not collected in the area since Mueller's time were also gathered.

The work of the artists, photographer and journalist will result in a feature photo-article in 'Australian Geographic' (early 1997), and a botanical exhibition ('In the footsteps of Mueller') of art and photographs from the expedition, and Mueller artefacts is showing at the RBGM until 26 January 1997.

The Wildlife Commission of the Northern Territory supported the expedition, by providing botanists from Darwin and Alice Springs Herbaria, zoologists from the Wildlife Research Division, and logistic expertise. Catering and helicopter transport costs (the park is largely inaccessible by ground vehicles) were borne by the Commission and by the Royal Botanic Gardens, Melbourne, largely through the generosity of the Friends of the Royal Botanic Gardens, Melbourne Inc. Qantas kindly provided air travel to and from Darwin, and Hoechst are sponsors of the exhibition.

All the participants on the expedition will undoubtedly carry some memories of this trip,* but for those RBGM staff members, the special significance of this expedition, rekindling the association with this remote area that Mueller began 140 years ago, is particularly humbling. We are grateful to all those individuals and organisations whose planning and financial support made the commemorative trip possible.

*The standard of the camp cooking and the performance of 'Dance of the Fireflies' by Ranger staff will undoubtedly linger for many years! (Eds.)

BOOK REVIEWS

Wildflowers of Southern Western Australia. Margaret G. Corrick & Bruce A. Fuhrer. Edited by Alex S. George. Published by The Five Mile Press Limited, 22 Summit Road, Noble Park, Victoria, Australia 3174 in association with Monash University. 1996. 224pp., *c.* 750 colour photographs. ISBN 1 87597 149 1. Recommended retail price $AU39.95.

If Bruce Fuhrer thinks of me then it is probably to relate, at my expense, an incident with a leaking bottle of chloroform. The aforementioned event, upon which I do not intend to elaborate, took place in Western Australia in August 1986 when Bruce, Nick Lander and I were collecting in the Shark Bay region. Bruce was accompanying me on some field work to collect daisies. Some of the photographs taken at that time are now published in the work under review. Rightly or wrongly I like to think that this field trip was, at least in part, the impetus for this book. In any case, Bruce subsequently revisited WA to take more photographs, i.e. I know that he and David Albrecht spent time in the Kalbarri region and Bruce also spent time in the Stirling Range, with *Wildflowers of the Stirling Range* (Fuhrer & Marchant) being published in 1989. They are predominantly Bruce's photographs that adorn the work under review although, of the approximately 750 colour photographs included, 37 were by others, i.e. Margaret & Bill Corrick and Mary & Basil Smith. The photographs are grouped alphabetically by family and genera and species are also presented in alphabetical order. Importantly, voucher specimens for the majority of photographs were collected. They are housed in MEL.

Margaret Corrick was already on the staff at MEL when I joined that institution in 1980. That same year Margaret, Bruce and I spent a week or so in Victoria's Sunset Country. It was a short and enjoyable trip and I soon learnt just how well both Bruce and Margaret know their plants. In subsequent years, when stuck at the identification counter with a difficult plant and an impatient 'customer', I would often race off to find Margaret for help. Margaret officially retired in 1987 but her love of plants and the Australian bush continue and I feel sure she has already, and rightly so, received many accolades for compiling the captions for *Wildflowers of Southern Western Australia.* The captions are short, but informative. They give the botanical name (up to date at time of writing), available common name, size of plant and flower, the habitat and the distribution. The distribution is by numbers, each number referring to botanical regions recognised by Beard (1980), adapted by Blackall and Grieve (1988) and numbered by Hnatiuk (1990) and will be familiar to all who have worked Western Australia plants. As well as the captions a short introduction is written for each of the 53 families represented.

Alex George's role was not solely that of editor - as indicated on the title page - as he also wrote a seven page introduction to the book. The

introduction is a summation of the major botanical regions in the state: Kimberley, North-West, Nullarbor, Transitional Zone and the South-West, the latter including brief accounts of the Kwongan, woodlands, mallee, granite outcrops, salt lakes, jarrah-marri forest and karri forest. An interesting aspect of the editing is the decision to spell out authors' surnames in full, e.g. the familiar 'R.Br.' is R. Brown, 'F.Muell.' is F. Mueller, 'Benth.' is Bentham, etc. I like it. I feel sure non-botanists often wonder what abbreviated names after a binomial are, at times not even being aware that they are, indeed, names of people!

Most Australian botanists know of Bruce Fuhrer's publications and he is rightly highly regarded as a botanical photographer. With him in WA I learnt a few useful tips. Having some idea as to how much time must have been spent taking the photographs and knowing of the quality of Bruce's other publications I must, regrettably, express some disappointment as to the quality of the printing in this work. I have seen some of the originals and a few photos have been previously published in *Wildflowers of the Stirling Range*. It is apparent to me that the sharpness and clarity of the originals has to some extent been lost - certainly more than should be. There is also an overall darkness to most of the photographs and some, I assume, must have been trimmed to fit the format of the book.

In regard to the text I have noticed a few inconsistencies in point size, e.g. pages 20, 36 & 101. I also feel that the running-heads are inappropriate. The name of the first taxon (usually a species but sometimes a family name) dealt with appears at the top of the left hand page, the name of the last species dealt with usually appears at the top of the right hand-page. I think that only family names should have been used, e.g. pp. 110-141 would all have 'Myrtaceae' as the running-head.

Despite these criticisms, looked at in isolation, the work is still most attractive and potential purchasers should not be put off by my comments. I have absolutely no doubt that this book will sell. There is no getting away from the fact that it is a well-priced and very useful introduction to the plant diversity of southern WA. I have no hesitation in recommending it and in extending my congratulations to Margaret, Bruce and Alex.

Philip Short
DNA, 5 Dec. 1996

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

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

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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.

$30; 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.

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

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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 an "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 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 if less than one page.

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

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