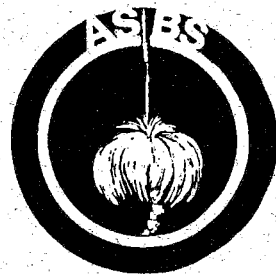


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PRESIDENT'S REPORT

Eichler Award

Six applications were received for the 1998 Hansjörg Eichler Research Awards, and the successful applicant(s) will be announced at the Annual General Meeting in Sydney. A reminder that application forms and information about the yearly awards can be found on our ever improving website (<http://155.187.10.12/asbs/asbs.html>).

We are closer to tax deductibility and John Clarkson is ironing out the final wrinkles as I type. Hopefully an announcement about this can also be made at the AGM. Please remember the Hansjörg Eichler Research Fund if you wish to donate money to the society and, in particular, want to help our newer plant systematists to achieve their research goals.

ABRS

Senator Hill has again topped up the ABRs budget with an extra \$1.2 million (as he did last year), and the allocation for the grants program will be more than last year's \$1.2 million. It seems likely that the Advisory Committee will play a greater role in setting directions for ABRs and I look forward to working with the new Chair, Hugh Possingham. It is hard to measure the importance of letters and meetings with the Senator, but I think 'the three presidents' have contributed to the positive outcome. While this is good news but we still need to make this 'topping-up' amount part of the core budget, and lobby for a substantial increase in ABRs's total budget as recommended in the recent review (see my last report).

There is also still work to be done to make sure that all parts of systematics are funded. Somewhere between molecular systematics and Flora writing there is a big black hole that sucks in a large proportion of our ABRs and ARC applications. Of course we have to be creative and find ways of avoiding this black hole, but granting bodies must also collaborate to reduce the size of this hole: some high quality projects appear not to be funded because each granting body thinks the other should fund it.

National Priorities

With my impending move to the Royal Botanic Gardens Sydney, I have starting thinking more

about how we (in particular herbaria) can make best use of our limited systematics resources in Australia. By resources, I mean people. Should each herbarium have a full set of systematists, covering all plant-like organisms from fungi to phanerogams? Should herbaria duplicate (taxonomically) the universities: e.g. if there is a surplus of phycologists in town, does the State herbarium need one? Can State-funded-herbaria, universities and other research institutions collaborate to the extent that national priorities can be set?

Obviously few herbaria could hope to have anything like a full house of plant systematists, even if they wanted it. Perhaps the taxonomic coverage is not as important as making sure you have a full suite of skills (e.g. local flora, phylogeny and biogeography, molecular systematics, vegetation mapping, ecology/conservation etc.). I think the final question above is the most important in the short-term. One way of categorising the systematics research in State herbaria is to break it into two hunks, one orientated towards the State, the other towards national and international goals. Clearly these two groups overlap and feed into one another, but the latter hunk is the one which has been occupying my thoughts. It includes taxa that overlap State boundaries, national conservation listings, the origins and endemism of Australia's species, and so on. It seems ineffective and inefficient to set priorities in these areas on a State-to-State basis. Maybe it is the only way it can be done, but I like to think that groups like CHAH could work at ways of consolidating our national efforts.

One benefit would be to send clear signals to newly emerging systematists about what they could study. Some people have a passion about a particular group of organisms and they need to stick with it, others have a passion about systematics and the group is largely unimportant. For the latter we should be able to provide guidance that meets national priorities as well as points them in the right direction for funding and jobs.

It may be that a well argued set of national priorities will allow herbaria to better adapt to changing economic and social demands. As we all know, it is easier to explain to a State parliamentarian why we discover and document the State's flora than it is to explain why we study a

group of organisms that might have it greatest diversity in another part of Australia or even outside the country. Equally we all know why we study such groups. Some of these reasons will convince a parliamentarian and other won't. I think an agreed set of national priorities, including a demonstration of how information from one State benefits another, would be convincing. Or am I wrong?

IAPT

There is currently (mid-August) a debate raging over the nomination and election process for councillors and office bearers in the International Association

for Plant Taxonomy. Further information can be found elsewhere in this newsletter, and the TAXACOM listserver has carried some of the debate. I have responded constructively to both Vicki Funk and Werner Greuter on behalf of ASBS. In essence I have called for open elections and a transparent nomination process, allowing members to demonstrate through the election process what they want for the society. There has been a great deal of aggressiveness, ill-feeling and personal attack in this debate, to which I have not willingly contributed.

Tim Entwistle

ABRS REPORT

Staff

Tony Orchard has continued as Acting Director, Flora, and Helen Thompson has continued as Acting Executive Editor, Flora, for the last 3 months. An announcement of the (semi-) permanent appointment of a new Director is expected in early September.

What's new at ABRs

As part of a range of initiatives to improve communication between ABRs and its stakeholders, we have instituted a new section on our Website, called "What's New at ABRs". Access is via the ABRs homepage at www.anbg.gov.au/abrs. This new section is arranged by month, with brief notes on a range of matters: books that have gone to press, books that are published (with links to CSIRO Publishing for those who wish to order a copy), closing dates for applications, committee meetings, conferences organised by ABRs, or conferences at which ABRs staff will be in attendance, and visits by ABRs staff to areas outside of Canberra.

It is hoped that by giving notice of visits by ABRs staff to various venues, that those who wish to can take the opportunity to discuss projects, plans and other matters of mutual interest on a face-to-face basis. Similarly, it is hoped that by giving notice of committee meetings, and lists of committee members, that those who wish to have matters discussed at these meetings will lobby their local committee member.

In general, news items will stay on this new facility for about 3 months in arrears, but notices regarding future events may be posted 6 months or so in advance.

Publications

As described in the last newsletter, *Flora of Australia Volume 48, Ferns, Gymnosperms and Allied Groups* is expected to be in print in early to mid-September. It can be ordered from CSIRO Publishing, PO Box 1139, Collingwood Vic. 3066; email: sales@publish.csiro.au; fax: (03) 9662 7555. The price will be \$94.95 for the hard-cover version, and \$59.95 for the soft cover version.

Editing in progress

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

Flora of Australia Volume 17A, Proteaceae 2—Grevillea
Flora of Australia Volume 17B, Proteaceae 3—Hakea, Banksiae
Flora of Australia Volume 1, Introduction (2nd edn)
Flora of Australia Volume 39, Alismatales to Arales
Flora of Australia Volume 43, Poaceae 1
Flora of Australia Volume 44, Poaceae 2
Flora of Australia Volume 51, Mosses 1

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

Flora of Australia Volume 2, Magnoliales to Papaverales

Nature's Investigator: The Diary of Robert Brown in Australia 1801-1805

Flora of Australia Volumes 11A & 11B, Acacia 1 & 2.

Fungi of Australia Volume 2B, Catalogue and Bibliography of Australian Macrofungi 2

Committee meetings

The ABRS Advisory Committee met in Canberra on 26 and 27 August, to consider 1999 Participatory

Program Grant applications, and to discuss aspects of the implementation of the 1997/98 ABRS Review.

The ABRS Flora Editorial Committee meeting will be in Canberra on 13 and 14 October.

Tony Orchard

Acting Director, ABRS Flora Section

ABLO REPORT

Summary of ABLO activities August 1997 - August 1998

My term as ABLO has come to an end, and has been a useful and successful period overall. Alex Chapman has arrived from PERTH and settled in to take over, and will start from 2nd September (1st is a public holiday!). 270 enquiries on ABLO-related matters were answered, with an additional 26 eucalypt identification enquiries and 31 media queries, mostly on the Wollemi Pine. These would normally come to me at NSW and so should perhaps not be included in the ABLO statistics. During the year, I also managed to visit the herbaria at B, BM, E, CGE, G, L, LINN and P. In addition, I gave the following talks, seminars or lectures

- The Wollemi Pine, ABS, Montreal
- The Wollemi Pine, Rijksherbarium seminar, Leiden
- The Wollemi Pine, Staff seminar, Glasnevin
- The Wollemi Pine, Staff seminar, RBG KEW
- The Wollemi Pine, lecture, Friends of RBG KEW
- Morphological and molecular systematics of *Cycas*, Oxford
- Biogeography of *Cycas* in Asia, Kew

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

Jodrell Labs and Dennis Stevenson of New York Botanical Gardens. A paper describing a new Indonesian species of *Cycas* has been submitted to *Kew Bulletin*, and a taxonomic revision of the cycads of Thailand has been submitted and accepted for publication in *Brittonia*.

Visitors to Kew

Twenty-seven Australian visitors have called on the services of the ABLO at the herbarium. The range of taxonomic institutions represented includes AD, CANB, DNA, HO, MEL, NSW and UNE, with other visitors from ABRS, NSW Dept of Agriculture, ANU and Latrobe University. A seminar was arranged for Trevor Whiffen of Latrobe University on the new interactive rainforest key.

News from Kew

The most significant news from my term as ABLO has been the acquisition of a private office for the position of ABLO in the future. The building extensions have also vacated space in the old buildings, and the ABLO will from now on have a private office on the top floor of the original herbarium building. This will not be ready for occupation until September, and will be occupied by the next ABLO.

Building work continues, with extensions to wing D of the herbarium now complete. The new reception area is still under construction, and detailed refurbishment is still under way in several older parts of the herbarium complex.

My submission for an exemption from the ban on "foreign" computers on the Kew network has been accepted, and I now have a network connection for my laptop, and for future ABLO laptop computers.

Field trips and conferences

I joined Peter Boyce and Fiona Willis of Kew on a 2-week field trip to Vietnam, under sponsorship of the Hermon Slade Foundation. This trip was to consolidate corroborative projects on Vietnamese cycads with Vietnamese botanists, and to undertake some preliminary field work. A total of seven species of cycads were collected, including two new species and one species previously known only from the type collection.

I attended the *Flora Malesiana* Symposium in Kuala Lumpur in July, to present a paper on conservation and biogeography of the Malesian cycads at the invitation of the organisers. This also allowed discussions on further collaborative work in the region under the sponsorship of the Hermon Slade Foundation, and examination of recent collections of Malaysian cycads in the herbarium of the Forest Research Institute of Malaysia.

Ken Hill

SUBSCRIPTION TO CSIRO JOURNALS

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

Journal Title	Volume number	Concessional Price
Australian Journal of Agricultural Research	50 (8 issues)	\$180.00
Australian Journal of Botany	47 (6 issues)	\$120.00
Australian Journal of Chemistry	52 (12 issues)	\$200.00
Australian Journal of Physics	52 (6 issues)	\$150.00
Australian Journal of Plant Physiology	26 (8 issues)	\$140.00
Australian Journal of Soil Research	37 (6 issues)	\$120.00
Australian Journal of Zoology	47 (6 issues)	\$150.00
Australian Systematic Botany	12 (6 issues)	\$150.00
Invertebrate Taxonomy	13 (6 issues)	\$170.00
Marine & Freshwater Research	50 (8 issues)	\$120.00
Reproduction, Fertility & Development	11 (8 issues)	\$120.00
Wildlife Research	26 (6 issues)	\$120.00
Australian Journal of Experimental Agriculture	39 (8 issues)	\$120.00
Publication of the Astronomical Society of Australia	16 (3 issues)	\$120.00

New subscribers can ring the freecall number 1800 626420 (Customer Services Section of CSIRO Publishing).

Reviewers required

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

- *Flora Malesiana* Volume 13: Rafflesiaceae, Boraginaceae, Daphniphyllaceae, Illiciaceae, Schisandraceae, Loranthaceae, Viscaceae.
- *Blumea* Supplement 11: Taxonomy, Phylogeny, and Wood anatomy of *Alstonia* (Apocynaceae).

OBITUARY

Prof. Lindsay Dixon Pryor (1915-1998)

It is also with sadness that we have learned of the death of Lindsay Pryor (Born in Moonta, South Australia on 26 October 1915; died in Canberra, 17 August 1998.)

Lindsay was educated at the University of Adelaide and the Australian Forestry School in Canberra. In 1936 he was appointed an assistant forester in the ACT.

He was Superintendent, later Director, of Parks and Gardens for Canberra from 1944 to 1958. During this time he was also carrying out basic research in eucalypt hybridisation.

Lindsay supervised the early development of the Australian National Botanic Gardens from 1945 till 1958. He initiated plantings at the present site of the Gardens and its Annexe at Jervis Bay and an Alpine Annexe at Mt Gingera, which has since been abandoned. Lindsay Pryor's interest in Australian native plants provided a basis for the Gardens' current policy of focusing its collections on native plants and established the framework of the Gardens' living collections.

Lindsay Pryor was appointed Foundation Professor of Botany at the Australian National University in 1958. He retired in 1976.

He was a member of the first Advisory Committee for the Australian National Botanic Gardens in the 1980s, and officiated at the launch of the 'Friends of the ANBG' in 1990.

On 22 October 1995 the Friends paid special tribute to Lindsay and his contribution to the Gardens by unveiling a plaque in his honour beneath a tree of *Eucalyptus pryoriana*, just below the Rock Garden.

Lindsay Pryor will be remembered for the many facets of his professional work. He was a fine lecturer and many first year students in the Botany Department of the ANU will have been inspired by his introduction to plant science.

He was a notable *Eucalyptus* specialist and his early work on breeding systems set the standard for modern research in Australia's best known group of plants. This work reached its fulfilment in his much quoted, collaborative book with Lawrie Johnson, 'A Classification of the Eucalypts' published in 1971. Just about every subsequent paper on *Eucalyptus* cites this seminal work. Pryor followed in the great tradition of eucalypt specialists like Mueller, Maiden, Blakely and Johnson.

Murray Fagg & Ian Brooker

ARTICLES

Report on a Hansjörg Eichler Scientific Research Fund Award

Reassessment of *Baeckea* s.l. using molecular data

The *Baeckea* "complex" is taxonomically recalcitrant on several levels. In its early history there was considerable disagreement about generic concepts: during the mid 1800s some 20 genera had been proposed within *Baeckea* s.l. (Bean 1995), but Bentham (1866) recognised a single genus with six sections. At a higher level, tribe Baeckeeae, which also included *Astartea* DC., *Hypocalymma* Endl. and *Scholtzia* Schauer had been established by Schauer (1843), but this too was dropped to the sub-tribal level (Baeckeeinae) and placed within the tribe Leptospermeae by Bentham (1866). *Malleostemon* Green has subsequently been added to the complex (Green 1983). Briggs and Johnson (1979) recognised essentially this same group of genera as the *Baeckea* sub-alliance within the *Chamelaucium* alliance in their initial informal classification of Myrtaceae, but later they (Johnson and Briggs 1984) dropped the suballiance, raising questions about the monophyly of both the genus and the sub-alliance.

Since then, *Ochrosperma* Trudgen (Trudgen 1987) and *Stenostegia* Bean (Bean 1998) have been erected and some of the segregate genera submerged by Bentham (1866) have been re-established [viz. *Rinzia* Schauer (Trudgen 1986), *Triplarina* Raf. (Bean 1995), *Babingtonia* Lindl. (Bean 1997)], or their recognition promoted [*Euryomyrtus* Schauer (Trudgen unpublished)]. While Bean and Trudgen have made progress in resolving the generic status of parts of the complex, there remain many problems at this level. For instance, Trudgen (pers. comm.) has questioned the monophyly of *Astartea* and *Malleostemon*, and has mooted several new genera from elsewhere within the complex.

The suprageneric status of the group appears uncertain. Trudgen (1986, 1987) has used the concept of Baeckeeinae [essentially the "paraphyletic" *Baeckea* sub-alliance of Johnson and Briggs (1984)], noting that this "heterogeneous assemblage" can be divided into three affinity groups. Both he and Bean (pers. comm.) have suggested a group whose affinity may be revealed by the presence of a reniform seed. This includes *Rinzia*, *Ochrosperma*, *Hypocalymma*, *Triplarina*,

Euryomyrtus, *Balaustion*, some members of *Astartea* s.l. and certain other species of *Baeckea* s.l. (the last two possibly constituting further segregate genera).

The aim of my honours project is to use nucleotide sequence data from selected regions of the chloroplast genome to assist in the resolution of affinities at any of the levels described above. For this reason, the collection of fresh specimens was required, since extracting genomic material from herbarium specimens can be extremely difficult, depending on storage time and treatment prior to storage. The Hansjörg Eichler Award of \$500 enabled me to undertake a two week field trip to the southwest of Western Australia during October 1997 to obtain fresh specimens of a wide representation of the group. The grant substantially covered the absolutely cheapest return airfare on "the red-eye special" Sydney-Perth-Sydney, which also saved on accommodation.

Once in Perth, I was able to join Drs Elizabeth Brown and Peter Wilson from the Royal Botanic Gardens, Sydney, for part of their collecting trip to Western Australia (for the period 12th Oct. - 26th Oct.). In this time we travelled approximately 3000km in the southwest of the state, roughly bounded in the northeast by Coolgardie and in southeast by Cape Arid. Seventy-three (73) specimens representing all of the above mentioned genera [and also most of those mooted by Trudgen (pers. comm.)] were collected for later DNA extraction: a small amount of young leaves stored in zip-lock bags containing silica gel, plus a full voucher specimen for morphological study.

DNA has now been extracted from approximately thirty-three (33) of these specimens, with the aim of having at least two representatives from each of the proposed genera in each data set. Two regions within the chloroplast genome have been targeted for sequencing - the *atpB-rbcL* spacer and the *matK* gene. The spacer data set (approximately 1000 base pairs) is now 90% complete, but the *matK* gene (some 1500 base pairs) has presented some problems with

primer specificity and is still only about half completed.

Preliminary parsimony analyses on these partial data sets indicate that both regions have relatively low phylogenetic signal to noise ratios. Despite this, good resolution at the generic level should be obtained through the combination of the two datasets, as was found by O'Brien (1998) in a similar analysis of the *Leptospermum* sub-alliance. I also plan to use the molecular estimate of phylogeny to test a range of morphological characters that have been used to erect genera within the *Baeckea* group.

I wish to record my appreciation of the Hansjörg Eichler Scientific Research Fund Award from the Australian Systematic Botany Society. Without this assistance it would have been very difficult to obtain sufficient material for my project. I would also have been much the poorer for having missed both the experience of collecting in such a rich botanical region and the valuable field training I received from Elizabeth and Peter. I also want to record my thanks to Mr Tony Bean (BRI) and Mr Malcolm Trudgen (PERTH) for the assistance and advice they have so freely given, the Director and staff of PERTH for help with locality data, the Director of NSW for allowing me to hitch a ride with Peter and Elizabeth, and my supervisor, Chris Quinn, for covering my other expenses.

- Bean, A. R. 1995 Reinstatement and revision of *Triplarina* Raf. (Myrtaceae). *Austrobaileya* 4: 353-367.
- Bean, A. R. 1997 Reinstatement of the genus *Babingtonia* Lindl. (Myrtaceae, Leptospermoideae). *Austrobaileya* 4: 627-645.

- Bean, A. R. 1998 *Stenostegia congesta* (Myrtaceae), a new genus and species from the Victoria River, Northern Territory, Australia. *Muelleria* 11: 127-132.
- Bentham, G. 1866 *Baeckea*. In *Flora Australiensis* 3: 71-95.
- Briggs, B.G. and Johnson, L.A.S. 1979 Evolution in the Myrtaceae - evidence from inflorescence structure. *Proceedings of the Linnean Society of New South Wales* 102: 157-272.
- Green, J. W. 1983 *Malleostemon*, a new genus of Myrtaceae (subfamily Leptospermoideae, tribe Chamelaucieae) from south-western Australia. *Nuytsia* 4: 295-316.
- Johnson, L.A.S and Briggs B.G. 1984 Myrtales and Myrtaceae - A Phylogenetic Analysis. *Annals of the Missouri Botanical Garden* 71: 700-756.
- O'Brien, M. 1998 Systematics of the *Leptospermum* suballiance. Honours Thesis (University of New South Wales: Sydney).
- Schauer, J. C. 1843 Genera Myrtacearum Nova vel Denuo Recognita. *Linnea* 17: 235-244.
- Trudgen, M. E. 1986 Reinstatement and revision of *Rinzia* Schauer (Myrtaceae, Leptospermeae, Baeckeinae). *Nuytsia* 5: 415-439.
- Trudgen, M. 1987 *Ochrosperma*, a new genus of Myrtaceae (Leptospermeae, Baeckeinae) from New South Wales and Queensland. *Nuytsia* 6: 9-17.

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I.A.P.T.

The following letters and articles were submitted to me from various sources. I am not a member of IAPT nor do I subscribe to TAXACOM. I suspect I am not the only ASBS member in that position. After reading through this material I felt I had little choice but to put in everything I received. Given the passion in some of it, I would be unwise to try to edit any of it and leave me (and ASBS by inference) open to allegations of bias. Not all of the messages were dated, so I apologise if the order doesn't seem correct to all of you, I have reconstructed it as logically as I could.

Bob Hill

Dear Colleague:

The letter that follows is self-explanatory. Please read it and, if you agree that there is a serious problem in IAPT, do two things:

1. Send Vicki Funk a message saying that you are willing to have your name associated with our protest to Greuter.
2. Forward this message to other plant taxonomists who should see it.

If you are going to do anything, please do it *today*, because time is very short. If you already received a copy, I hope you will forgive the duplication.

Chris Anderson

Update 10 August 1998

URGENT REQUEST FOR YOUR SUPPORT

Dear Colleague:

You may have received a mailing a few weeks ago notifying you of an IAPT Alternative Website and asking for nominations for Officers and Council members for IAPT. The response to this request was gratifying and this letter is written to accomplish three things. First, to thank you for your input, second, to bring you up to date on what has transpired, and third, to make an URGENT REQUEST FOR YOUR SUPPORT.

I. The Nominations for IAPT Officers and Council.

One nomination was received for each of the Officer positions and it was felt that these individuals constituted a group that has the interest and the institutional support necessary to carry IAPT into the next century. Also, many nominations were received for the Council positions.

Several drafts of the proposed council nominations have been circulated, and you may have seen another longer version. Perhaps some explanation of how the list below came about is in order. There are only 10 positions on the Council and if many individuals are nominated, there is the possibility that it would split the vote. As it is there are 13 people and it was felt that the number could go no higher. Since nearly everyone nominated was experienced and willing to run for Council, the final list was a delicate balance between the country of residence of those nominated and their institution. It is regrettable that it was not possible to include everyone on the ballot. It seems likely that all nominated individuals will be asked to serve in some capacity at a future date. Your interest and support are appreciated. It is hoped that you will be able to vote for the nominees listed below.

Nominated for:	Name	Country of Residence
President	Sir Ghilleen Prance	(UK)
Vice-President	Teuvo Ahti	(Finland)
Secretary	Patricia Holmgren	(USA)
Treasurer	Marshall Crosby	(USA)
Admin. of Finances	Judy West	(Australia)
Council	Fred Barrie	(USA)
Council	Steve Blackmore	(UK)
Council	Herve Burdet	(Switzerland)
Council	Vincent Desmoulins	(Belgium)
Council	Enrique Forero	(Colombia)
Council	Peter Linder	(South Africa)
Council	David Mabberley	(Australia)
Council	Anthony Orchard	(Australia)
Council	Sebebe D.	(Ethiopia)
Council	Sy Sohmer	(USA)
Council	Peter Stevens	(USA)
Council	Tod Stuessy	(Austria)
Council	Warren L. Wagner	(USA)

II. The Ballot

The above list was submitted on the 29th of July (nomination of Treasurer was on the 31st). No

acknowledgment of the list was received from Berlin, but a few days later Dr. Patricia Holmgren received a phone call from the Secretary, Dr. Werner Greuter. He informed her that the Officers would not allow anyone to run against him for Secretary nor would they allow anyone else to be nominated for Treasurer other than his colleague Dr. B. Zimmer, the current Treasurer. As an historical point, while it is true that in the past candidates for the offices of the Secretary and Treasurer have often run unopposed, it is also true that there have been instances where more than one candidate was nominated (Dr. Greuter was an unsuccessful candidate for Secretary in 1975). Dr. Greuter then asked Dr. Holmgren to run for President instead, and suggested that he would put three people on the ballot for President (not including Prance). Dr. Holmgren has told us that she has no interest in running for President, and she has reconfirmed her willingness to be nominated for Secretary. Dr. Greuter also mentioned that he was trying to finalize the ballot form as soon as this week, which would apparently give us minimal time to convince him to accept the above nominations for Officer. It seems likely that, unless he changes his mind, the ballots will not include the names of Prance for President, Holmgren for Secretary, and Crosby for Treasurer. Further, it appears Dr. Greuter may try to nominate several people for the other Officers and Council positions, which may result in a divided vote and so reduce the chance of the individuals on the above list being elected.

III. URGENT REQUEST FOR YOUR SUPPORT

We believe that this reported refusal to nominate Prance, Holmgren, and Crosby is unfortunate and indicative of the fact that IAPT is operating with no accountability to the membership. It is this lack of due process and democracy that has so irritated many of the members of IAPT and has likely led to the decrease in membership. The website was established to increase membership participation in IAPT, and in the process it has exposed yet another instance of disregard for the wishes of the membership and the lack of any type of checks and balances in IAPT (e.g., no nominating committee for officers and council members). All of the power is in the hands of a few individuals. Indeed, Dr. Greuter alone holds nearly all positions of power (Secretary of IAPT, Chairman of the General Committee, Editor of the Association's journal *Taxon*, Editor of *Regnum Vegetabile*, Rapporteur General, Secretary of the Bureau of Nomenclature, member of the Nominating Committee which appoints all other committees and the Rapporteur General, and Chairman of the Editorial Committee

for the Code), and there is little recourse except revolt.

We Ask That You Do Several Things:

1. Send a message to V. Funk (contact information below) and ask that your name be listed on the website indicating your support for competition for all offices in the upcoming IAPT elections. Even better would be to write a short note to be posted on the website. You can also write or email Dr. Greuter directly (wg@zedat.fu-berlin.de). [Participation by non-IAPT members is welcome since these issues affect the whole of taxonomy]
2. Pass this letter along to everyone you think may be interested.
3. Make sure that your dues are paid for 1998 so that you can vote in this election.
4. Vote for the individuals listed above if they are on the ballot form. If their names are not on the ballot form you should request a new ballot.

We ignore this situation at our own peril. At stake is the future of IAPT and international cooperation on nomenclature issues. Time is very important because decisions on the content of the ballot form may very well be made in the next few days. Please take a few minutes to register your opinion on this most recent example of flagrant disregard for the wishes of the membership of IAPT.

Signed: R. Brummitt and V. Funk
C. Anderson, W. Anderson, L. Skog

email: funkv@nmnh.si.edu or
hollowell.tom@nmnh.si.edu
fax: 202-786-2563
address: Dept. of Botany MRC 166, Smithsonian
Inst., Washington D.C. 20560 USA
website: <http://mason.gmu.edu/~ckelloff/vfunk>

12 August 1998

Dear Dr Greuter,

On behalf of the Australian Systematic Botany Society (ASBS) I must register my strongest protest at the apparent lack of democracy in the International Association for Plant Taxonomy (IAPT). I am not a member of IAPT, but I speak on behalf of many Australian plant systematists who are members.

Whether member or not, I was shocked to learn of the lack of 'reasonable process' in the election of

office bearers. I frankly cannot believe that an association of such standing would not welcome open elections and the injection of new blood.

Surely the office bearers must represent the membership, and be open to criticism and change. The list of nominees submitted for council and other positions includes people of high standing and exceptional ability. To exclude them from the chance of holding office in IAPT is to reduce the association to a second-rate gathering of no importance.

I am not questioning the abilities of current council membership. My concerns are with allowing due democratic process and in electing the best council possible. It will be a loss for IAPT, for plant taxonomy and for plant taxonomists if the ballot excludes any of those nominated.

I support any action that will result in a democratically elected, and representative, council for IAPT.

Yours sincerely,

Tim Entwistle

President, Australian Systematic Botany Society

Dear Dr Entwistle,

Thank you for your message. I do appreciate your interest and concern in the affairs of IAPT. Obviously, IAPT would welcome to have you as its member! The is a form on the Web that can be printed out immediately: <http://www.bgbm.fu-berlin.de/iapt/association/joinform.htm>

Having now succeeded in getting hold of the text on which your reaction was based, I feel compelled to respond. Please bear with me if the reply is lengthy. When you have read it, I would value to have your considered opinion on a number of points.

The text of Anderson *et al.* is flawed and misleading to an incredible degree. It is in fact the most wicked case of spiteful mobbing with which I have ever been confronted. Some of those commenting to me have obviously taken its statements, which I consider libellous, at face value. I am particularly grateful to those who did not! Here are the main facts.

When the IAPT Officers held their annual meeting in mid-July, the date for submitting nominations (set too late due to an unfortunate oversight) had not yet expired. Since this was to be the last pre-electoral Officers' meeting, we then decided to act on the nominations received so far (which comprised a lengthy list submitted by Funk, plus others including our own) by drawing up a preliminary list, and to take subsequent nominations into account through consultation by mail. At that point there was no nomination yet of Prance, nor had Pat Holmgren been nominated for Secretary (nor had we any foreboding that either would be). In our preliminary list, Holmgren was one of three nominees who, subject to their agreement, were to run for President.

Naturally, when Holmgren's nomination for Secretary came in, I sought immediate contact with her to explain the situation. I informed her of her intended nomination for President. The statement that I (personally) offered to put her up for President is thus inaccurate, and the inference that this was done to lure her away from running for Secretary is base.

I also informed Holmgren that, for objective reasons (to be explained below), there had never in the long history of IAPT been more than one candidate for either Secretary or Treasurer (the contrary statement you have read is just plainly untrue); that the Officers had considered the option to do so in the future but had discarded it; and that the other Officers had considered my and Brigitte Zimmer's offer not to run again but look for other nominees instead, and had declined it.

For the case she would, after due consideration, prefer running for Secretary, I explained to Holmgren what was needed from her side. The Officers could not in earnest consider her offer without a proper institutional bid and commitment to host and provide adequate facilities for the IAPT Secretariat (or, in the somewhat outdated language of our Constitution, the International Bureau for Plant Taxonomy and Nomenclature). If such a bid was made and judged satisfactory, I expressed my intent to withdraw my own nomination in her favour. Please compare this with the statement by Anderson *et al.*, that "He [I] informed her [Holmgren] that the Officers would not allow anyone to run against him for Secretary ...", and judge on your own.

Finally, when asked by Holmgren how soon I needed her answer, I said that it would be convenient to have it within a fortnight, so as to keep things moving. The inference that I was setting deadlines to put her or anyone under time pressure

is unfounded, and my alleged mentioning that I was "trying to finalize the ballot form as soon as this week" [when the elections will take place next year] is ludicrous.

Now to democracy. Believe it or not, I am a firm adept of democracy as the best possible way (the least bad, if you prefer) to run human affairs. Democracy is the shared responsibility of many within a defined framework of rules. Democracy in my home country (Switzerland, by far the oldest extant example) follows different rules than it does in the States, or the U.K., or Germany, yet all qualify as democracies. Democracy in IAPT, naturally, follows IAPT rules not the U.S. constitution nor that of other, e.g. national, scientific associations. Can we agree so far?

IAPT was founded in 1950, and its constitution (modified only in minor details since) was worked out by its first, co-opted Managing Board, notably its initial officers who were a Swiss, a Dutch, an American, and a Belgian. That constitution places stress on stability and functionality - rightly so I believe. It minimises the risk of geographical unbalance and limits the possible impact of pressure groups. It places the responsibility of preparing candidates' lists for election upon the Executive Committee (Officers plus Past President) since they are best placed to present a balanced slate of competent persons. Members are asked to suggest (!) nominations. The Executive Committee, an elected body, thus has a clear statutory mandate.

Funk has been spearheading a (so far anonymous) group of IAPT members whose declared goal was to elicit suggested nominations for the next IAPT elections. Fine. But then this group went on to draw up a slate, even making its own selection among those nominated. "The number could go no higher"; "it was not possible to include everyone nominated". Sorry, but to me this is censorship by a self-appointed group usurping the role of the competent constitutional body. Is this what you would call democratic? Just think of what would happen, in your country, to a group crying for "revolt" outside the constitution.

Enough of this. I can inform you of the firm intent of the Officers to present a widely open slate from which to choose. Whether Pat Holmgren's name or mine will be on it for Secretary remains to be seen. This is one point on which I would like to have your considered opinion. Before, let me explain a few essentials on IAPT set-up and the duties of its Secretary.

Under the joint responsibility of the Executive Committee, the Secretary has the task of running the Secretariat (the "Bureau") and is thus charged with the editing of the Association's publications. It is therefore not only traditional but mandated by our constitution that the Secretary carries a heavy work load and the concomitant responsibility (call it influence if you wish). It is also imperative that he can avail himself (or herself) of a very solid institutional base. Without a firm commitment of the Secretary's home institution to support him (her) in these duties, the functioning of IAPT would be seriously impaired.

The IAPT has had two seats for its Secretariat so far: Utrecht (1950-1987) and since then Berlin. The host institutions have in either case been offering very satisfactory terms to IAPT: free office and storage space, equipment, supplies, functioning costs, and above all, substantial shares of time of its salaried staff. The main reason why the IAPT has been discreet about its finances in the past (no accounts published since 1959, which is indeed unusual and will change in the future) was the wish not to risk losing that support by making it public. I cannot tell for Utrecht and can only estimate for Berlin: the total input in cash and kind into IAPT, over the last ten years, has been more than one million dollars, which are the total assets of IAPT at the present date. This includes half of my own working time and two-thirds of Brigitte's, figures which are very much on the low side of reality.

What does this mean in practice? IAPT has from the onset had a policy of low membership fees, principally in order to be affordable for botanists from less privileged countries. Regular membership fees at present just about cover the printing and mailing cost for *Taxon*. The whole editing, down to the production of camera-ready copy, is done at the Secretariat at no cost for IAPT. Had IAPT to pay for this service, the cost of *Taxon* (and logically the membership fee) would at least double. IAPT might be reduced to a much smaller size by consequence, and become a largely North American and European association.

This background explains why, so far, the Secretary-to-be has always been selected on an institutional basis. It was a negotiated position, and will by necessity have to continue being so. The Secretary and Treasurer (or Secretary-Treasurer, if no suitable second person was available at the same institution) have always run unopposed, in full abidance to the Constitution. I will in many ways be relieved if New York comes up with an acceptable bid and I can thus step down (although deploring

the circumstances which may lead to such a change). I do not think that Berlin should in any event run against New York; competition between persons may be good sport, but between institutions it can be very negative.

I am at a loss to understand the aggressiveness and enmity that transpires from the Anderson *et al.* text and from a few of the consequent reactions. I would of course appreciate to know what, in your opinion, may be at their base. Can the mere fact that I hold a few positions be the answer? In actual facts, the positions mentioned are two: Secretary of IAPT and Rapporteur-general of botanical nomenclature, all the other functions being automatically linked with these two. Can it be that disagreement with me on nomenclatural issues is the cause? But then, certainly, I am entitled to hold my opinions just as others are (except that I am bound by decisions taken by the Nomenclature Section, such as the charge for IAPT to set up and try out a system for registering new plant names).

In short, I would appreciate your advice. Please give it openly and, may I ask, in a friendly spirit.

Yours sincerely

Werner Greuter
Professor Werner Greuter
Botanischer Garten & Botanisches Museum Berlin-
Dahlem
D-14191 Berlin

Dear Werner,

I have read your reply carefully and I am not sure what to advise. Being unfamiliar with the society and its history it is hard to resolve where the truth lies. As with all disagreements I presume there is misunderstanding or fault on both sides.

Although I understand your reasons for the current process it does not sit comfortably with me. I am used to nominations coming from the membership and not selected by the council then their agreement sought. Certainly the council has a role in approaching potential candidates and encouraging them to nominate but it is important to keep the nomination process 'at arm's length'. As with most things in life, it is perceptions that are all important. It may be that your process works in effect the same as any other society but if it is perceived that due

democratic procedures are not adhered to then there must be changes in the way it is handled.

I am not familiar with the constitution of IAPT so I cannot comment on whether it is adhered to or not. I would be surprised if having one nomination for Secretary or Treasurer could be upheld if more than one person wanted to be nominated. It may be that there are good reasons to have only one nomination but if more than one person nominates they must be included in the ballot. If there are stipulations for institutional or financial backing these must be made clear before the nomination period and built into the constitution. I do appreciate your concerns about making financial matters public if you have concerns about the hidden support the society is getting, but I can't see how you can avoid that (and it sounds like you are changing this anyway).

The preparation of candidate's list by the Executive Committee does not sound appropriate or 'right'. Once again, I think the EC has a role in attracting and encouraging candidates but not vetting the nominations. My recommendation would have to be to seek nominations from the entire membership and not refuse anyone (it is for the membership to do this at the election). I agree that anyone culling the nominees before election (whether yourself or the Funk *et al.* group) is a bad thing. I really think you must let the full set of nominees stand and then lobby for the candidates you think will be best for each position.

I am sorry if the reaction of the systematics community has transformed into aggressiveness or enmity towards yourself. I do not support this sort of reaction. However if there is perception of wrong-doing or bias I think the society is obliged to respond positively and transparently. In effect you must be extra cautious and extra democratic. I cannot see any alternative to opening up all positions and then doing all your lobbying and reasoning before the ballot. If indeed the views of Funk *et al.* are widespread through the organisation it is as important to the executive as to the society that this becomes known through an open election.

I'm not sure that I have been any help. I do appreciate you replying to my email and I will certainly pass on any other constructive responses I get from members or colleagues. As I said in my first email, it is important for systematics and the society that this matter is resolved quickly and diplomatically.

Tim Entwistle

Dear friends and colleagues:

Bill Buck and I have drafted a short argument against registration of names (see below), one of the important issues to be decided next summer at the Congress in St. Louis. That statement will be posted on the Alternative IAPT website next week, and we hope to get it published in hard copy in the coming months. Because of the recent ferment among members of the IAPT, it seems desirable to bring this statement to the attention of plant taxonomists now, and to get it disseminated as widely as possible as soon as possible. Please take a few minutes to read it, and send it on to others who might be interested. If you have comments on this issue, please send them to Vicki Funk for posting on the Alternative IAPT website:

email: *funkv@nmnh.si.edu or

*hollowell.tom@nmnh.si.edu

fax: 202-786-2563

address: Dept. of Botany MRC 166, Smithsonian Inst., Washington D.C. 20560 USA

website: <http://mason.gmu.edu/~ckelloff/vfunk>

If you would like to send copies of your comments to me or Bill (bbuck@nybg.org), we would be interested in seeing them.

Bill Anderson

Registration of Names

William R. Anderson (University of Michigan Herbarium) and William R. Buck (New York Botanical Garden)

At the Fifteenth International Botanical Congress, those present and voting tentatively endorsed a requirement for the registration of new names of plants and fungi, beginning 1 January 2000, contingent on the approval of the Sixteenth International Botanical Congress in St. Louis in August 1999. Registration has already been added to the International Code of Botanical Nomenclature, as paragraphs 32.1, 32.2, and 45.2. Those paragraphs will have to be removed, of course, if the St. Louis Congress defeats registration.

As now envisaged, registration would be a mandatory part of valid publication. A name would not be validly published unless and until it were registered, and the date of publication would be the date of registration, not the date of effective publication, as is presently the case.

For most groups of plants and fungi, there is already an excellent system in place for recording and

reporting new names. It is decentralized (Kew, Harvard, Missouri, etc.) and voluntary, but it works remarkably well. Many authors who publish names in regional works that might be missed by the indexers send reprints to the appropriate centers, for the obvious reason that it is very much in an author's own interest for his or her new names to be recorded promptly so that they will come to the attention of others working on that group. So far as we know, the institutions that perform this service have not complained of the burden or asked for relief, nor has there been any clamor from botanists worldwide for a change in this well-tested mechanism. This raises two obvious questions: If we now have a system that works, why should we change it? And if we do change it, will the new system be better than the old, or will it bring unexpected disadvantages?

The problem with registration lies in the fact that it would be mandatory, and in the potential consequences of that fact. While registration has been presented and generally perceived as a neutral mechanism devised for purely innocent purposes, it is important for all taxonomists to understand what a significant, even radical, departure this would be from the Code of Nomenclature that has served us so well for so long. The present Code is a truly neutral set of rules. It states exactly what one must do to validly publish a new name, and if one meets all those requirements, then one's new name is validly published on the day of effective publication. Note that no one can or must approve or disapprove or otherwise intervene. It does not matter what may be the author's nationality, or bias, or peculiarity. If he or she abides by the Code, the name is published on that date, and there is nothing anyone can do about it. Compare that to what would be the situation under registration. It would no longer be sufficient to meet all the present requirements. It would not even be sufficient to submit one's new name for registration. Valid publication, and the date of publication, would now depend on the name's acceptance and approval by functionaries at registration centers, and ultimately at the IAPT Secretariat. If we permit registration to become mandatory, we will be creating the potential for abuse by bureaucrats and autocrats who will have the final say as to whether and when our names have been validly published.

Let us consider a hypothetical case. Suppose we should discover an old, neglected name in an unused genus for a species that has long been known by a later name in another genus. The Code now permits one to avoid taking up such an older name by proposing the older name for rejection or the later

name for conservation. Some taxonomists feel very strongly that one should pursue one of those possibilities, while others feel that the consequences of changing many names are not sufficiently serious to justify rejection or conservation. Under the present Code, we would have the right to take up the older name and publish the new combination in the correct genus. No one could prevent that, no matter how strongly they might disapprove. If registration were mandatory, it would be a simple matter to prevent "troublemakers" from doing something that met with the disapproval of the IAPT Secretariat; all that would be required would be to refuse to register the new name.

Is it excessive or irrational to fear that someone, now or in the future, might take unfair advantage of the opportunities that would be presented by mandatory registration? Consider that David Hawksworth has been proclaiming to all who would listen that priority is *passé* in plant nomenclature. Consider further that some years ago, when he was trying to persuade botanists to accept Names in Current Use, Werner Greuter decreed that he would no longer permit names like the one described above to be published in TAXON, and tried to get other editors to do the same. Consider, finally, that Greuter and Hawksworth currently have a stranglehold on the IAPT. Would those two ideologues abuse their power if we were foolish enough to give them a marvelous stick like mandatory registration with which to beat us? We think the answer to that is evident from the record of their actions, utterances, and publications over the last decade.

We hope that those who are unhappy about the present state of the IAPT will soon wrest control of our Association from a leadership intent on pursuing a personal agenda, and pass it to others who are more likely to be responsive to those they are supposed to serve. Does that mean we should then breathe a sigh of relief and go ahead with mandatory registration of names? We think not. The same potential for abuse will still be there, and sooner or later someone will be tempted to use registration as a way of preventing some publication of which he or she disapproves. We must continue to rely on the Code, and only the Code, as the final arbiter of valid publication. That way, anyone and everyone in the world can publish whatever new names for plants and fungi seem reasonable and appropriate to them, without fear of interference by autocratic nomenclaturists.

We already have a system of registration that is optional, voluntary, and benign, yet effective. That

system of data-gathering is quite separate from valid publication and its date, which depend only on the objective criteria now in the Code. It would be a great mistake to abandon a system that works so fairly and well and substitute one that gives even more power to the Secretariat of the IAPT. We urge all taxonomists to attend the nomenclature sessions in St. Louis and vote against registration of names.

William R. Anderson
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Fax: 734-647-5719

Dear colleagues:

Formal registration of plant names is a new concept which will be voted on at the Nomenclature Session of the next International Botanical Congress, St. Louis, 1999.

The following is a position paper on this concept and its mechanics. The views expressed here are supported by a significant portion of the botanical research staff at the Missouri Botanical Garden, whose names are listed at the end of the article. Please circulate this to your botanical colleagues, as we consider it to be a critical and fundamental change to the way in which botanical nomenclature operates.

Any comments about the concept or content of the paper should be directed to Nick Turland (nturland@lehmann.mobot.org) at the Missouri Botanical Garden.

This paper is also available over the Web at:
<http://www.mobot.org/MOBOT/research/register.html>

Registration of plant names: undesirable, unnecessary, and unworkable

Nick Turland & Gerrit Davidse, Missouri Botanical Garden, P.O. Box 299, St. Louis, Missouri 63166-0299, U.S.A.

No botanist can afford to ignore registration. It is a new concept in botanical nomenclature that would demand changes in our working methods. It aims to address perceived inadequacies in the current

nomenclatural indexing services (e.g., Index Kewensis) by requiring that all newly proposed names for plants and fungi, both fossil and non-fossil, be entered into a central database, otherwise they will not be validly published. The current International Code of Botanical Nomenclature (ICBN, Greuter & al., 1994) added registration as an additional requirement to the four existing ones for valid publication. However, this is only provisional: mandatory registration will take effect, on 1 January 2000, only if ratified by a vote at the Nomenclature Section of the XVI International Botanical Congress in St. Louis in July 1999.

Many botanists oppose registration, but so far their views have scarcely been voiced amid the steadily increasing publicity that registration has been given by its supervising body, i.e., the International Association for Plant Taxonomy (IAPT). Indeed, the impression given is that registration is a 'done deal' - that its ratification is inevitable - rather than being subject to a ballot at the Congress.

We in the Research Division of the Missouri Botanical Garden have carefully studied the arguments and mechanism for registration, as published and demonstrated to date (see Borgen & al., 1997; Greuter & Raab-Straube, 1998; and <http://www.bgbm.fu-berlin.de/iapt/registration/default.htm>). We are almost unanimous in opposing it for two fundamental reasons:

- The botanical community would for the first time depend on the authority of a single organization (the IAPT) for the valid publication of names, in contrast to the present practice of independent and unencumbered publication in a book or journal.
- We do not consider that registration would usefully and significantly add to the nomenclatural information already available; instead it would duplicate or replace effective systems.

In addition, we see serious problems in the mechanism for registration that seem not to have been addressed. We urge all IAPT members and institutes to study the information presented, and then weigh the pros and cons before voting on registration at the St. Louis Congress. Please use your vote!

An unwanted new concept

Registration brings an entirely new concept into the ICBN: dependence of valid publication on an organization and its bureaucratic system. This is a fundamental change from current practice, where valid publication simply depends on the interaction between an organ of publication and an author satisfying a well-defined series of requirements all within his or her control.

Why duplicate or replace effective systems?

Another stated benefit of registration is that data for newly proposed names from all groups of plants and fungi, including fossils, would be available in a central database. However, highly experienced operations (Index Kewensis, the Gray Card Index, Index Filicum, Index of Mosses, Index Hepaticarum, Index Nominum Algarum, Index of Fungi, and Fossilium Catalogus II. Plantae) already scan the literature thoroughly, and almost all names are traced and recorded. These indexes may be independent of each other, but the concept of focal points for data access, with reduced duplication of effort, is currently being addressed: Index Kewensis and the Gray Card Index, together with the Australian Plant Name Index, are to be brought together on the World Wide Web as the International Plant Names Index (see <http://pnp.huh.harvard.edu/>). Two further projects are also in place to provide pointers to various different online databases of plant and fungal groups, as well as organisms from other kingdoms: the Index To Organism Names: <http://www.york.biosis.org/triton/nameind.htm> and Species 2000: <http://www.atcc.org/sp2000/>. These indexing services have been operating and successfully securing funding for many years (over a century for Index Kewensis), proving that they can stand the test of time. Why mirror their work, or even replace them, with a scarcely proven system full of uncertainties?

It has been said that the current indexing services routinely miss names in obscure or 'clandestine' publications, thereby wasting the time of taxonomists who may inadvertently publish illegitimate homonyms. This might perhaps happen on rare occasions, but it is surely not a large or serious enough problem to require an entirely new system.

A clumsy remedy for a few troublesome bibliographic citations

An argument used in support of registration is that precise publication dates for names are not always clear, thereby causing problems in establishing

priority of synonyms. In fact, only a very small minority of names currently being published is ambiguous in this way, and the chances of not being able to decide between competing synonyms is remote. It seems extremely cumbersome to resolve this rarely encountered problem by subjecting all names to a wholly artificial dating system where the date of valid publication would not be apparent from the publication itself, but would be the date of receipt by the registration office or center, and would have to be ascertained from a database or list.

For names published in books and journal issues toward the end of a calendar year, the unavoidable delays in the registration system would often cause the date of valid publication (i.e., the registration date) to fall in the year following the actual date of publication. If the date of valid, not actual, publication were cited as part of a complete citation (name, author, publication), then useful data needed in locating the publication would be obscured.

A complex, bureaucratic, and fallible system

An author not publishing in a journal 'accredited' by the registration system would have to apply for a registration form, or download it from a World Wide Web site. There would then follow a bureaucratic process: the new name(s) would have to be entered on the form (in triplicate), which would then have to be sent together with two copies or reprints of the publication to the national registration office or relevant registration center. While filling in the form might not in itself be a complex task, obtaining it and mailing it with the publication(s) could well be logistically difficult and expensive for some botanists, particularly in certain developing countries with unreliable postal service and difficult access to the World Wide Web. Authors would also have to be fully aware of registration to be sure that their names became valid: not all institutes subscribe to Taxon or possess up-to-date versions of the ICBN (the Tokyo Code describes only the principle of registration; it does not give instructions).

If an author did publish in an accredited journal, the onus of submitting names for registration would then be transferred to the editor or publisher, who might not have the same motivation to ensure that new names become validated. What would happen if a journal did not fulfil the obligations of its accreditation? How would the IAPT be able to enforce the agreement signed by a journal's publisher?

Another weakness in the system is the reliance on effective communication between the national

registration offices and the registration centers. Material deposited at certain offices could remain there and not be transferred to the centers. How would an author know if his or her name(s) had reached the registration center without repeatedly checking the list of registered names (assuming he or she had access to that list). Authors are already dependent on editors and publishers for their names to become valid; the addition of another step to the process would increase the uncertainties and further reduce authors' control.

Registration promises that no newly proposed name would be missed in the huge amount of botanical literature. In fact, any name not received by the system would remain invalid and nomenclaturally non-existent. It seems likely, therefore, that many invalid names would result from authors' insufficient awareness of the registration system, or from names not reaching the registration centers through no fault of the authors. The botanical community would then have extra work in dealing with these names, identifying their status and submitting them for registration.

Inadequate access to registration data

The proposed system is overly dependent on computer technology. Not everyone has World Wide Web access; not everyone has a computer fitted with a CD-ROM drive (assuming that a cumulative lists of registered names were to appear on CD-ROM - it is stated that such lists would 'hopefully' be issued); not everyone has access to a computer! This situation will improve with time, no doubt, but not necessarily for everyone. The only concession to those without computer technology is the biannual publication of non-cumulative lists. After ten years' lists had built up, it would be necessary to scan up to 20 separate lists. This problem was inherent in the printed versions of *Index Kewensis*, published only every five years; during which time ten separate lists of registered names would accumulate.

As stated above, access to data would not be free of charge. Even World Wide Web access is costly to institutes, even if not always to individual botanists.

Who would pay?

One assumes that the IAPT and the registration centers can at present, and in perpetuity, secure funding for the central operation of the registration system. If they cannot show that funding is reasonably secure, then we clearly should not vote for validation of names to depend on a system that may well collapse. Moreover, if IAPT funds are to be used, the members ought to consider if it is an

appropriate use of their dues. There is also the question of who would pay for the staff time, equipment, consumables, and other running costs of the national registration offices. This is not mentioned in any of the publicity and progress reports. It is easy and inexpensive to agree in principle to act as such an office, but to do so in practice requires financial resources. So far, the botanical community has not been assured that these issues have been addressed.

Mandatory registration would be an expensive bureaucracy. All the information sent to and obtained from the registration centers would be at the expense of the authors, editors, and publishers, who would have to pay for reprints, journals, books, and postage. Botanists would then have to pay to obtain information, e.g., World Wide Web access fees, subscriptions to possible lists on CD-ROM. As we are all aware, alpha taxonomy is all too often a shoestring operation, especially for those in developing countries. The financial burden might be distributed widely and shallowly, but there is no promise of help for botanists working on very limited budgets. For some, financial considerations could mean delays in, or prevention of, having names registered, and hence a barrier to scientific communication. The existing systems (Index Kewensis, the Gray Cards, etc.) are already funded on a more or less voluntary basis, and are not a mandatory expense to the botanical community.

Another financial issue is ownership of the copious archives of published material sent to the registration offices and centers. Would they belong to the individual institutes, the IAPT, or the community at large? An enormous amount of information would accumulate at the institute where the IAPT Secretariat currently resides. What would happen when the Secretariat moves to a different institute, or would the archive prevent the Secretariat from moving?

Do we wish to grant undefined powers to the IAPT?

The system for registration is said to be decentralized because the authority to register names would be delegated to the national offices. However, the system as currently proposed is inherently centralized in being supervised by a single organization and built around one to three central clearing-houses for data. If we opt to depend on this bureaucracy, we must be certain that it will be funded in perpetuity, and can only hope that those persons currently promoting registration with

such fervor will be succeeded time after time by similarly motivated individuals.

Just how well-defined is the power that could be granted to the IAPT? Unless an internationally agreed mechanism for registration is explicitly defined in the ICBN, a green light for registration at the St. Louis Congress would effectively give the IAPT carte blanche to modify the system without going through the democratic process of submitting proposals to amend the ICBN. An idea of the way registration might evolve can be gained by consulting the Draft BioCode (1997), Art. 13 (Greuter & al., 1998; and <http://www.rom.on.ca/biodiversity/biocode/>), where registration would involve external review and approval of all requirements for valid publication (termed 'establishment'). The ICBN effectively operates as 'law' only because there currently exists a more or less international consensus, without which it has no authority. That authority cannot derive from one organization, based at one institute, imposing rules on the international botanical community. Such a centralized system could easily lead to alienation, a disintegration of consensus, and then the ICBN would lose its authority. This scenario actually occurred during the 1920s, when there were essentially two groups of botanists working under different rules.

Conclusion

Registration would provide the botanical community with a few services that are not already available: there would be a single list of all plant and fungal names; gone would be the occasional need for us to decide if a new name had been effectively published; there would no longer be rare occasions where we could not establish priority among synonyms published almost simultaneously but with unclear dates; and we would no longer have the slight risk, in naming a taxon, of overlooking a homonym already existing in an obscure or clandestine publication. Of course, none of this would apply to names published before 2000.

We must consider these potential benefits and then ask ourselves: are they really necessary, do they justify the cost and loss of independence, and would the system work anyway? In our view, the answer to these important questions is clearly no. We urge our colleagues to consider registration very seriously, and to make their opinions known at the Nomenclature Section of the XVI International Botanical Congress in St. Louis in 1999. Remember, to make your opinion count, you must be an enrolled member of the Nomenclature Section. If you are

based at an institute from which no delegate will be present, then your institute's vote(s) may be transferred to a specified vice-delegate. Registration, if ratified, will directly affect us all in the way we carry out our work. Please do not leave the decision to others: use your vote!

Staff at the Missouri Botanical Garden supporting this paper

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BOOK REVIEWS

Botany in the Backblocks, from 1939

Noel C.W. Beadle (ed. Gordon J. White)

Department of Botany

University of New England

Armidale, N.S.W., 1965

Not exactly an autobiography, but more an account of travels during 1939-46 while gathering data which came together as "The Vegetation and Pastures of Western New South Wales" (1948). This is one of the most important ecology studies

ever made in Australia. I know, for I used it frequently while working in Central Australia after 1954. Noel's work at the University of Sydney and University of New England are but briefly and sketchily mentioned. There are many photos, black

and white at the time of the work, and some colour in later years, sometimes during student expeditions. There are 121 pages in about A4 size, and it is a Limited Edition with each copy numbered.

It is notable that Noel continued to interest his students in the dry country throughout his career. I even remember him in Alice Springs with students at the Arid Zone Conference in 1965 (not mentioned in his book!). I was of course a student at Sydney when Noel was Lecturer there.

The account is liberally sprinkled with places most people have never seen even on maps Lake Bancannia, Wanaaring, Louth, Paradise Creek, Yancannia Creek, Youldoo, Youtoo, Narran River, Garnpung, Panban, as well as perhaps well known Cobar, Condobolin, Wilcannia, Balranald, Hay, Hillston and Broken Hill. Interspersed frequently are historical notes about explorers and various properties, plus anecdotes of individuals. On page 40 I found Marjorie Shiels, nee Collins, whose signed copy of Noel's book (l.c.) I bought from a second-hand shop in 1961!

Stories of travels or poor dusty roads, and seeking directions at homesteads were familiar to me, as were tales of sand bogs, wet bogs, and the time taken to dig out of these. Noel had to buy a car to carry out his studies in the back-blocks of N.S.W and he used it as a home much of the time. He includes tales of food carried on bush trips, times in hotels and boarding houses and some "characters" met on the track, including a particular dog.

I admired Noel's conversion of familiar names to the latest nomenclature e.g. *Bassia/Sclerolaena*, *Kochia/Maireana*, but was glad to see familiar persistent names *Sacrostemma*, *Atriplex*, *Eragrostis*, *Swainsona*, and *Enchylaena*.

Overall, I enjoyed reading the unpretentious, warmly human aspects of a botanist in the outback and the dedication to a task which must have seemed most daunting in 1939, or perhaps even today.

George Chippendale
4 Raoul Place, Lyons, ACT 2606

NEWS FROM FASTS

FASTS circular for June

1. THE BERD HAS FLOWN

Australia has just recorded its first fall in business expenditure on R&D (BERD) since the Australian Bureau of Statistics began measuring R&D in the mid 1970s.

This is another gloomy sign for Australia's economic outlook, and a bad sign as we enter a millennium which is going to place an increasing emphasis on industries that are sophisticated, intelligent and sustainable.

It increases pressure on the Federal Government to bring forward reform of the tax system, to remove disincentives to business to invest in the industries of the future.

It is clear that industry in Australia does not have the confidence or conviction to invest in R&D under the present financial settings and economic climate.

The Asian currency meltdown is outside the Government's control, but we can do something about a tax system which seems almost perverse in

its inability to encourage innovation. Addressing the capital gains tax issue would be a start.

Industry will respond to the right settings. The CRC Program is a well-tuned government incentive. Its success is demonstrated by the fact that 147 groups have already indicated they will compete for the 30 places available in the next round of selections, with a closing date for applications of September 30.

A fall in BERD was widely predicted since the abolition of the 150 per cent tax deductibility for industrial R&D in the 1996 Budget, and its replacement by the START Scheme.

START is the latest in a long line of incentive schemes, and I hope it will take effect now that it is fully in place. START has been slow to bite so far, with \$50 million being returned to Government coffers because it was not taken up last financial year.

The decrease in BERD does need to be read with caution, because the fall in 1996-97 was exaggerated by an unusually high 1995-96 figure.

But the figures confirm an unacceptably low performance in the international arena. Last year Australia outranked only China, Italy, India, New Zealand and Spain in an comparison of BERD in 24 countries from the OECD and Asian-Pacific region.

2. PM'S SCIENCE, ENGINEERING AND INNOVATION COUNCIL

The newly expanded PMSEIC is one of the successes of this Government. As one participant said, it has moved beyond the "Little Golden Book of Science" for Ministers to a body where significant national issues are raised and acted upon.

The Committee structure recommended by John Stocker, the inclusion of more of the major players in the S&T world, and the personal commitment of the Prime Minister have all been important ingredients in this.

Some excellent papers were presented at the last meeting, notably by ARC Chair Vicki Sara on the interactions between industry and universities; and Academy of Technological Sciences and Engineering President Tim Besley on the nexus between science and its applications.

I am chairing the first sub-committee established by PMSEIC, to investigate solutions to the salinity issue in Australia.

All PMSEIC papers are now available on the web at: <http://www.dist.gov.au/science/pmseic/pmseichtml>

3. GST TAX AND RESEARCH

I am in the final stages of preparing a letter to the Treasurer on the implications for scientific research of a GST tax. There are a number of questions to be answered before scientists and technologists can express any opinion on the GST.

These include:

1. Will a GST act as a disincentive for interaction between the university and business sectors, by being applied to consultancy agreements without any compensating advantages?
2. Will universities and other research agencies be exempt from GST as they are from sales tax? Will they be 'zero rated' in most areas, and what will any exceptions be?

FASTS is approaching this issue with some caution, despite assurances from our colleagues in New Zealand that the tax has been widely accepted in that country.

4. REVIEW OF AUSTRALIAN RESEARCH COUNCIL

I met with David Penington to discuss future directions for the ARC, as part of a review of its organisational structure initiated by the ARC.

A draft paper has been circulated. When this report is finalised in mid-July it will be incorporated in the Council's Strategic Plan and general comment will be invited.

5. NEW ISSUES FOR THE FASTS' BOARD

The Board has invited Marilyn Sleigh (Dean of Life Sciences UNSW) to address its next meeting on one of the "issues of the future".

Her talk will discuss how Australia might cater for new and developing disciplines and subject areas that perhaps are not well served by the traditional disciplines. One problem facing a new career scientist is that the most promising areas are multidisciplinary.

This discussion will be developed at Council in November, with the possibility of developing this discussion at a general forum early in 1999.

6. SCIENCE NOW!

Melbourne organisers of Science NOW! in Science Week report over 260 media "hits" to give good coverage of this new-look science forum.

The Fresh Scientists - those younger scientists who had presented stimulating papers at conferences - gained excellent coverage, and organisers are looking to boost this section in 1999.

I am one of the members of the Forum's board, along with the Presidents of the two science academies, the Science Communicators, the National Press Club and ANZAAS.

7. MEETING WITH DIST

Together with Joe Baker and Toss Gascoigne, I met with four officers from DIST led by Paul Wellings last month. The informal meeting raised matters of concern to both sides, and it was agreed to keep details confidential to enable frank discussion.

The meeting discussed venture capital and commercialisation, and may lead to a joint study on the impediments to commercialisation for working scientists. FASTS raised the issues of possible impacts of a GST on research organisations, and a funding mechanism for major national research facilities.

8. GRAHAM JOHNSTON AM

Congratulations to former FASTS' President Professor Graham Johnston, who was awarded an AM in the latest honours list for 'Service to bio organic chemistry and pharmacology, to scientific organisations and science policy development'.

Graham presented the first FASTS' policy document "A Science Policy for Australia in the 21st Century" to the Australian Government in June 1995, signalling FASTS taking a new proactive role in science policy development. He continues to run the FASTS' web site.

Other scientists to be honoured in the Queens' Birthday list included Professor Antony Burgess (AC) Ludwig Institute in Melbourne for scientific research and clinical medicine; Emeritus Professor Mollie Holman (AO) Monash University for scientific research related to autonomic nervous system function and control of smooth muscle, and to education; and Professor Lesley Parker (AM), Deputy Vice-Chancellor of Curtin University, for promoting gender development in mathematics and science education.

9. STATE S&T AGENCIES

FASTS is to one of the co-sponsors for the next meeting of the State and Territory agencies concerned with promoting S&T in their jurisdictions. The meeting will be hosted by the ACT Government, and DIST are the other co-sponsors.

I think that we can play a particularly useful role in working with State and Territory agencies, in contributing to their S&T plans and providing expertise where appropriate. Toss Gascoigne is joining a small organisational committee to establish the meeting.

10. DRAFT MARINE S&T POLICY

Minister John Moore recently launched a draft version of the Marine S&T Plan, for comment (preferably by July 15).

It is available from DIST (GPO Box 9289, ACT, 2601) or on the web:
www.dist.gov.au/science/marine/draft

Peter Cullen 10 July

GST and Scientific Research

The scientific community welcomes the Government's commitment to reviewing the tax system.

It seems that the way we treat capital gains is a positive disincentive to high technology start up firms growing in Australia. The fact that one such company, Memtech, was recently sold to American interests make it clear that we do not have a level playing field, and that the Government's present capital gains taxes are an impediment to growing such firms in Australia.

The Federation of Australian Scientific & Technological Societies is of the view that a high technology, knowledge based society is the only attractive future for Australia. We seek policy settings that will help bring it about rather than provide barriers.

We are concerned about the recent sharp drop in Business Expenditure in R&D, the first such drop since the ABS commenced collecting the statistics in the mid seventies. It seems clear that industry in Australia does not have the confidence or conviction to invest in R&D under the present financial settings and economic climate.

The removal of tax incentives seems to have reduced "research" in the finance sector more than in industry R&D. We are concerned however about the slow start to the START scheme which was supposed to provide more targeted industry support to R&D and was underspent by \$50 million last year.

The science and technology community does not oppose a GST in principle, but it does have concerns about how such a tax might be developed and what impact it might have on universities, CSIRO and other research organisations.

At present these organisations are largely exempt from sales tax. If a broadly based GST was introduced they might be taxed not only on their scientific equipment and supplies, but on any services they purchase.

This could introduce a serious impost on research. Industry investment is already catastrophically low in R&D investment, and a GST tax impost hardly seems a sensible way to improve the situation. If a GST increases the cost of doing research what does the Government intend to do to prevent a further

decline in Business investment in R&D in science and technology?

The GST is likely to have major impacts on universities if the New Zealand experience is anything to go by. Students paying transport and accommodation costs for excursions and field work find they have a GST imposed, books and scientific serials are taxed, departments that buy in services (the current outsourcing fashion) find they are taxed on the services.

The universities are also finding a major clerical load in being expected to keep track of the tax on myriads of small purchases and transactions? Will university operating grants be increased to pay for the tax and the administrative burden, or is this just another way that operating costs can be removed from the education process itself?

FASTS could not support any measures that increased costs to the university sector or other research groups by adding to their direct costs or administrative load. The universities have enough on their plate as it is. Education needs to be "zero rated" as at present, or compensatory funding needs to be provided as part of the University operating grants.

FASTS believes that research and development should be encouraged as an activity vital to Australia's future. There is a strong argument for scientific research activity (as well as the provision of educational services) to be zero rated in any GST. This is a simple and explicit means of encouraging R&D. We appreciate that many groups are seeking exemption from a GST, and the problems this gives to Government. If the tax is indeed to be broadly based, then other compensation mechanisms for research providers and those that commission the research should be developed.

We look forward to a better tax system that will encourage industry and research groups to create wealth, employment and solutions to our environmental problems.

Peter Cullen

Australian Science - Drifting or Sinking?

Australians have something of a love-hate relationship with science. We seek a strong economy with lots of fulfilling jobs, good health services and an attractive environment.

Australians see science as the way these goals can be reached. And yet science is in trouble. Students are finding it less attractive, career options seem more limited. Are we drifting or sinking? Marie Celeste or Titanic?

There is more support for the Marie Celeste analogy - sailing without leadership or direction to who-knows-where.

Australian Government sees competition as a panacea for many of our ills, and are busily privatising Government business enterprises, developing purchaser-provider models to improve competition and making a ruthless push for short-term economic efficiency.

Governments do not have sufficient funds to do all the things their citizens would like or need. No Government seems prepared to raise taxes to fund the widening call for Government support, and must make strategic choices as to their investment priorities.

Australia faces some stark choices in a competitive global environment. An Australian Business Foundation report "The High Road or the Low Road: Alternatives for Australia's Future" (Marceau, 1997) spells out our options.

Do we seek to compete as a low wage economy based on our resources? We can do this by reducing wages, living standards and environmental controls. We will continue with industries that are price takers in the global economy. This future will involve low paid jobs, many in the service industries, many part-time. This trend is already obvious in much of our recent job growth.

If we choose this road we will import our technologies when others are ready to sell or licence them to us. We will continue a heavy dependence on natural resources where we take the prices the world wants to give us rather than be able to demand a premium for smart products.

On the other hand we might choose to be part of the emerging "knowledge economy", with an emphasis on

the use of information as the basis for innovation, competitiveness and growth.

The low road seems favoured by our present mix of policies.

To take the high road would require a shift of resources into more knowledge-intensive industries, through better innovation programs and restoring our once excellent science base.

While Australian Government expenditure on R&D is already quite high in international terms, business expenditure lags seriously. Marceau argues that the cause is the mix of Australian industry.

If this is true then berating existing industry, developing innovation packages or bribing industry with generous tax concessions will not be effective.

If we are to encourage science-based companies whose services command a premium in world markets, then we need a financial and taxation environment which enables them to grow their businesses in Australia.

The departure of Memtec for the USA suggests the settings are not right, and the promised and long overdue reform of our taxation system needs to address issues such as capital gains tax in high risk areas.

Focussing investment (including tax breaks) into areas of high potential seems more sensible than spraying money across all areas, despite the wish of industry that they all share in the largesse. Their ongoing mantra is "Governments can't pick winners".

Our industry is not too good at picking winners either. Biotechnology, environmental industries, information technology and materials science all look promising areas for investment, and there are others.

We need a strong science base and smart programs to link industry with science. Government clawed back considerable funds from the university sector and also by winding down the tax incentive to industrial R&D, the latter on the grounds that it wanted to target investments more strategically.

We are still waiting. There were no new ideas in the last Budget to stimulate innovation and technology, although the Government's commitment to the CRC

scheme is welcome as a bridge between research and industry.

Our universities are undergoing tumultuous change, and science is bearing much of the brunt of the new imperatives. Expenditure per student at even our most prestigious universities is about 70 per cent of expenditure at comparable institutions overseas.

This sort of information does not support the Government's view that the university sector is inefficient and needs to be further squeezed.

But universities need to look at themselves as well. The oversupply of postgraduates may not be unconnected to a view common to academics that they have a right to postgraduate students.

Universities seem paralysed by the discipline structure and artificial divides between basic and applied sciences, even in the face of draconian pressure being applied by Governments.

Vice-Chancellors are encouraged to create new science departments, but let them try and close old ones and listen to the protests. Many of the disciplinary boundaries between basic and applied science are now quite blurred, and we must question their value.

If science is again to prosper, it will because of industry demand. Industry will strive to employ science graduates, exploit the findings of science, and work in collaboration with scientists to gain a competitive advantage.

Governments will only achieve their objectives for industry, environment and public health by working from a strong science base. They need to replace the present agency-based piecemeal approach to science with a "whole of government" approach which thinks of the big picture.

The Marceau Report suggests that Australia, almost alone amongst developed countries, is failing to shift resources into more knowledge-intensive industries. The responsibility lies with Government, for the investment and taxation settings they provide for industry.

Strategies the Report puts forward include sustained investment in education and research, and a well-defined innovation process. A number of our competitor countries have chosen these strategies.

I would suggest three tasks to our Government if it seriously want to pursue the brave new world of the knowledge economy:

- develop new innovation strategies to help start-up companies in broad areas of science, with complementary taxation measures to encourage investment in high risk investments.
- maintain university science by supporting infrastructure, science programs and basic research through the ARC and the NHMRC.
- ensure Government agencies develop coherent knowledge strategies so they use the best available science to deliver services in environment, health, primary industry, communications and other areas.

The choice remains before us. We could be crew members of Australia II rather than the Titanic or the Marie Celeste.

Peter Cullen

FASTS, THE ELECTION AND S&T POLICY

As the election draws closer, I do not think that anyone in the science and technology community can be satisfied with the performance of either the Government or the Opposition in science and technology. Neither major party has worked out how S&T can most effectively be harnessed to benefit Australians, and neither party has given emphasis to S&T in major policy statements.

While both major parties make the right noises (especially when they are in opposition), their performance in Government show that neither recognises the role of S&T as a driver of jobs, wealth, and solutions to environmental and social problems in Australia.

I am enclosing ten key questions framed by the Board. We will be putting these to politicians over the next few weeks, and I would urge you to pass them on to your members in the Australian Systematic Botany Society. They too can ask politicians how they intend to meet the pressing issues related to S&T. The impact is

across a wide range of Portfolios - not only Science and Technology.

The answers will help scientists and technologists determine the way they vote.

I also invite you as President of your Society to attend the all-day FASTS' Council meeting on Thursday November 19 in Canberra. The meeting includes a dinner that night, and more details will be sent to you soon.

The President-elect of FASTS will be chosen at that meeting, and I invite you to consider possible candidates for nomination. Ideally FASTS is seeking a respected scientist or technologist with the seniority and personality to be comfortable raising issues with Ministers.

This person needs to be able to attend frequent meetings in Canberra, including the Prime Minister's Science, Engineering and Innovation Council. Preferably it should be someone who has managed to stretch the average day to 30 hours!

Peter Cullen

THE TEN QUESTIONS

Q 1. Australia will suffer a serious shortage of qualified science and mathematics teachers in secondary schools and colleges by the year 2000.

How will you and your Party overcome this shortage?

Q 2. Bill Clinton, President of the world's most successful economy, said earlier this year: "We must seize this moment to strengthen our nation for the new century by expanding our commitment to discovery, increasing our support for science." Then he announced the largest funding increase in American history for science and medical research.

What policies have you and your Party to encourage Australian scientists to develop their best ideas, and what funding will you apply to enable them to do so?

Q 3. Australian science and technology supports industries in the bush such as wine, mining and agriculture. They build better communication and transport systems, and help protect our environment. CSIRO, the universities and other research institutions contribute to community life in rural areas.

How will you and your party support research and technology to strengthen Australian industries in the bush?

Q 4. When Australia looks to the next century, biotechnology and information technology are among the areas which offer huge potential growth and employment.

What vision do you and your Party have for Australia in the 21st century?

Q 5. The capacity of Australian universities to provide world-class education and research training is being threatened by:

- budget cuts to operating costs
- the decline of laboratory and library facilities
- outdated equipment
- increased teaching loads
- the failure of Government to meet properly negotiated salary increases

How do you and your Party plan to put our universities back on an internationally competitive footing?

Q 6. In 2004 Australian territory will more than double in size under the United Nations Law of the Sea. Twelve million square km of under-sea territory will be added to the nation's land area of nearly 8 million square km.

How will you and your Party ensure that Australia has the scientific and technological expertise to manage this potentially rich resource responsibly?

Q 7. The Australian Research Council funds a large part Australia's basic research. But the last Budget wrote in future cuts of \$33 million (7.5%) in 1999-2000 and a further \$28 million in 2000-2001. This will make it even harder for scientists to gain funding for their research.

Do you and your Party believe that funds for research should be increased? If so, how and when will you increase them?

Q 8. Job insecurity, lack of career paths and low salaries are driving good young scientists away from jobs in research. Australia is in danger of losing a generation of scientists and technologists.

How will you and your Party work with industry, providers of venture capital and research

organisations to encourage research and the commercialisation of research?

Q 9. This year, business expenditure on R&D dropped for the first time in 20 years. Australia's ranking is way behind comparable countries - 19th out of 24 OECD and Asian nations.

What will you and your Party do to encourage industry to invest in the new ideas and new technologies to generate wealth and jobs in Australia?

Q 10. The Boston Report said Commonwealth funding should increase by \$125 million per annum to restore university infrastructure to satisfactory levels, but many university laboratories no longer even meet basic health and safety requirements.

Do you and your Party support increased spending to restore the laboratories and libraries of our research organisations?

"GO ASK YOUR TEACHER"

Australia's peak council for scientists and technologists today (Saturday) urged parents of students at secondary schools and colleges to talk to teachers about the crisis in the supply of qualified science and mathematics teachers.

Ms Jan Thomas, Vice-president of the Federation of Australian Scientific and Technological Societies (FASTS), said that urgent Government action was needed.

"The Government should offer incentives to make teaching an more attractive career for science and mathematics graduates. HECS exemptions and scholarships will encourage good graduates into teaching, and current teachers helped to upgrade their qualifications," she said.

"This is an issue FASTS is adding to the election agenda."

She listed three major problems:

- an imminent shortage of qualified science and mathematics teachers in Australia
- low job satisfaction
- existing teachers lacking appropriate qualifications to teach science and mathematics

Ms Thomas said that teaching science and mathematics was not regarded as an attractive career option. The Preston Report (1997) showed many universities are having difficulty filling their quotas for students training to be science or mathematics teachers.

"The TIMSS Report (1997) showed that 52 per cent of Australian teachers in science and mathematics would prefer to change to another job. That's twice the rate of comparable countries in Europe, North America and Asia," she said.

"We'd suggest this is because too many teachers lack the right qualifications, and they don't feel comfortable with what they are being asked to do.

"Teachers should have at least two years of university study in science and mathematics to take classes at secondary schools and colleges," she said.

"These are specialist subjects and require specialist skills. Good teachers enthuse students, but we need more of them."

Ms Thomas was releasing the first in a series of questions FASTS will put to politicians of all parties in the election lead-up, for FASTS' President Professor Peter Cullen who is overseas:

She said that scientists and technologists wanted to cast their vote on the basis of being part of a smart Australia in the 21st century, and were seeking unambiguous answers to their questions.

Australia will suffer a serious shortage of qualified science and mathematics teachers in secondary schools and colleges by the year 2000.

How will you and your Party overcome this shortage?

Professor Cullen has written to the Minister for Education Dr David Kemp, to offer FASTS' help in reviewing the training of prospective teachers of science and mathematics.

CLINTON: "SEIZE THIS MOMENT"

Australia's science and technology could be left behind in the international race for solutions to medical and environmental problems and the creation of new industries, in the face of massive

new investment in S&T by competitors like Great Britain and the United States.

Professor Peter Cullen, President of the Federation of Australian Scientific and Technological Societies (FASTS), said the British government recently boosted scientific funding by more than 1 billion pounds (\$A2.8 billion).

And in the USA, President Clinton earlier this year announced he was "seizing the moment" by doubling American investment in medical health research over the next seven years.

"That is the key word - investment," Professor Cullen said. "America is putting this money into medical research because they know it will pay dividends, in terms of lower health care costs and improved quality of life."

He contrasted this with tiny increases in Commonwealth support for science and technology over the last three years - 0.8% in 1998-99, 0.4% in 1997-98, 2.7% in 1996-97 (but only if the reduction in the R&D tax concession to industry is excluded.)

He said he was sending a copy of President Clinton's speech to leading politicians.

Professor Cullen was returning from four weeks in Germany, England, Switzerland, Czechoslovakia and the Republic of Ireland, to release the second in a series of questions FASTS will put to politicians of all parties in the election lead-up:

Bill Clinton, President of the world's most successful economy, said earlier this year: "We must seize this moment to strengthen our nation for the new century by expanding our commitment to discovery, increasing our support for science." Then he announced the largest funding increase in American history for science and medical research.

What policies have you and your party to encourage Australian scientists to develop their best ideas, and what funding will you apply to enable them to do so?

Professor Cullen said that Australians could not stand back to watch other nations solve the problems of the world, and then expect to benefit from their solutions.

"Some of the benefits may trickle down eventually," he said. "But we need to be working and investing to keep abreast of the latest developments, to be part of finding the international solutions, and to benefit

from patents, intellectual property rights and owning new products."

"Australia does have success stories too. The Cooperative Research Centre Program which brings together industry, research groups and government in a partnership to innovation is much admired overseas," he said. "We need more innovative partnerships like that."

Professor Cullen called all political parties to say how they will support Australian S&T. He said State and Territory governments, particularly Victoria and Western Australia, had shown an increasing recognition that investment in S&T can pay big dividends.

SCIENCE IN THE BUSH

Science and technology can play an increasing role in reversing the drain of jobs and industries away from the bush, but only if research continues to win the support of Government.

Dr Joe Baker, Past-President of the Federation of Australian Scientific and Technological Societies (FASTS), said today (Tuesday) that S&T were the vital components in Australia's quest for sustainable industries in rural and regional Australia.

He released the second in a series of questions FASTS is putting to politicians of all parties, for FASTS' President Professor Peter Cullen who is overseas.

Australian science and technology supports industries in the bush such as wine, mining, aquaculture and agriculture. Research institutions contribute to community life in rural areas.

How will you and your party support research and technology to strengthen Australian industries in the bush?

Dr Baker said research organisations had mixed fortunes under recent Governments, with cutbacks and closures affecting rural and regional areas. Governments had tended to overlook the significant long-term returns that such investment offered.

"Australia's rural industries are worth about \$20 billion each year, and keep hundreds of rural communities afloat," he said. "But we need to keep

working to hold these valuable markets, and create new products for niche export markets."

He cited the booming wine industry, with export sales last year of \$900 million. Aquaculture has the potential to treble in value to \$1.5 billion in export and domestic sales. Native crops like acacia seeds are virtually untapped, and high-quality fruit exports can fill niche markets in Asia.

"These examples barely touch on the potential of Australian rural industries. Sustainable development is the key phrase - we have create new and better products, but in a way which preserves our unique environment."

In developing this question, FASTS is acutely aware that Australia was still coming to grips with the country's fragile soils and erratic climate, and needs to ensure that rural industries are sustainable over the long term.

"We have issues with salinity, with acid soils, with water use, with agricultural use of marginal lands, with pest control. Our irrigated crops worth \$8 billion per year are on the shortest time fuse. We have 20 to 30 years to solve its problems," he said.

He said Australia is building an enviable knowledge of managing landscapes, mining operations and farming systems, with all their economic and environmental implications.

"This is export-quality knowledge, and could be a big dollar earner for Australia," he said.

He is writing to the Minister for Industry, Science and Tourism, asking him to bring together all the cost-benefit analyses of research into rural industries in Australia. This would enable the most accurate assessment of how research had added value to these industries.

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A.S.B.S. PUBLICATIONS

History of Systematic Botany in Australia

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

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

Evolution of the Flora and Fauna of Arid Australia

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

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

Ecology of the Southern Conifers

Edited by Neal Enright and Robert Hill.

ASBS members: \$60 plus \$12 p&p non-members \$79.95.

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

Australian Systematic Botany Society Newsletter

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

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Please inform us of any changes or additions.

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

The Society

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

Membership

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

The Newsletter

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

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

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

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