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Report from CHAH

This is the first of an irregular series of updates from the Chair of the Council of Heads of Australian Herbaria (CHAH). CHAH is the peak body in Australia for managers of Australian herbaria and their associated research programs.

CHAH comprises representatives from each State and Territory (being the head of the major herbarium in that constituency), as well as delegates representing the National Collection of Fungi and the Australian university herbaria. There are also a number of observers invited to attend the annual meeting, including representatives of New Zealand National Herbarium Network, Papua New Guinea National Herbarium (LAE), Council of Heads of Australian Fauna Collections (CHAFC), Council of Australian Museum Directors (CAMD), Australian Biological Resources Study (ABRS), and Council of Heads of Australian Botanic Gardens (CHABG)

As readers are aware, the combined collections of the Australian herbaria currently total over six million preserved plant specimens, and they are cared for and studied by more than a hundred scientists and technical officers. You can find out more about CHAH at www.chah.gov.au.

Responding to issues

CHAH has a key role in responding to issue papers and government decisions that may have an impact on herbaria in Australia. In recent months we have sent letters the Minister for Environment and Heritage in response to the cuts to ABRS, and to the Australian Research Council in response to the Linkage Piority Centres of Excellence Discussion Paper.

In the letter to Minister Kemp, we pointed out that the $500,000 cut to the ABRS 2002/03 budget will result in a dramatically reduced publication output and a massive 17% cut to the grants program - the latter resulting in a greatly reduced research capacity in Australia and a loss of critical training opportunities for young scientists. Even before this cut, there was a woeful under spending on ABRS[1].

In the letter to Bill Sawyer (Executive Director, Biological Sciences and Biotechnology, ARC), we argued for the inclusion of systematics as a key area of study under the Genome/Phenome Research priority area.

Responses are currently in preparation to the following reports:

- *Developing National Research Priorities: an Issues Paper* (www.dest.gov.au/priorities),
- *Queensland Biodiscovery Policy Discussion Paper* (www.iie.qld.gov.au/research/biodiscovery.html) and
- *Higher Education at the Crossroads: a Review of Australian Higher Education* (www.dest.gov.au/crossroads).

Review of the ABLO

On behalf of CHAH, Jim Ross from the Royal Botanic Gardens Melbourne prepared a review of the position of Australian Botanical Liaison Officer (ABLO). With the cuts to the ABRS budget, this position is under increasing pressure to be justified against other funding priorities in the Participatory Program.

From the review: "Despite strong competition for the ABLO appointment previously, in recent years there has been a paucity of applicants for the position of ABLO. Often there has been only one applicant and sometimes none in which case the deadline for applications has been extended and potential applicants have been sought out and encouraged to apply. CHAH member institutions are finding it increasingly difficult to supplement the ABRS grant to meet the officer's expenses in London, and to justify the loss of a staff member from their organisation for a full year (although there is a research component in common, there are inevitably institutional duties and priorities that must by carried out by other staff). The difficulty of attracting applicants, coupled with the increased cost of maintaining the ABLO

[1] The commissioned study (*Evaluation of the Australian Biological Resources Study and the Biodiversity Program in Environment Australia*) in 1998 called for at least $3 million to be provided annually for the ABRS Participatory Grant Program, and $3 million to the editorial and IT components of ABRS's operations. A total of $6 million per year was seen as an absolute basic requirement for ABRS to meet its objectives. The total budget for ABRS in 2002/03 is now $3 million — half the baseline funding recommended in 1998. This level is also well below that agreed to with the previous Minister Senator Hill. Representatives of the systematics community of Australia met with him in 1998 and received from him a commitment to restore ABRS's budget to at least $3.7 million for the coming four years. This commitment was never met in full, and this latest cut takes the ABRS budget to its lowest level since 1991/92.

position, and the decline in the number of enquiries serviced, have necessitated a review of whether the need for the position in its current form still exists, to explore and assess what other options exist, and to make recommendations for the future management of the position."

Ten options were identified, but the key recommendation was to retain the position of ABLO in its present form for as long as is practicable.

Resources of Australian Herbaria

The 'Resources of Australian Herbaria' document is now available online. You can find it at: www.chah.gov.au/chah/resources. Thanks to Judy West's team at the Centre for Plant Biodiversity Research (especially Murray Fagg and Kirsten Cowley) for the conversion from paper to electronic. Over the next month or so it will be updated (all herbaria have been asked to forward corrections to Kirsten Cowley by 16 August).

Australia's Virtual Herbarium

A proposed launch of the Australia's Virtual Herbarium (AVH)site in May was delayed due to the unavailability of the Minister for Environment and Heritage. Meanwhile, the site continues to be improved, making it more attractive and easier to use.

A Memorandum of Understanding (MoU) between the herbaria involved in the AVH, and ABRS (*The AVH MoU*), has been signed and a copy sent to all signatories; it covers mostly data exchange and collaboration. A further MoU between the herbaria, Director of National Parks and Australia's Virtual Herbarium Trust (*The AVH Trust MoU*), covering financial and reporting arrangements, requires only one more signatory.

The 'AVH Trust' now has tax exemption (the Trust Deed has been registered in the ACT as part of that process). Fund raising for the remaining $2 million has now begun in earnest, with $500,000 already pledged. The AVH Trust (Ian Blackburne, Margaret Ross, Allan Holmes, Peter Cochrane) and the AVH Liaison Advisory Committee (Peter Cochrane, Allan Holmes, Tim Entwisle) met most recently at the Royal Botanic Gardens Melbourne on 26 April.

Databasing and verification has commenced in all AVH herbaria, and Barry Conn at the Royal Botanic Gardens Sydney is creating an internet site to monitor AVH progress (contact barry.conn@rbgsyd.nsw.gov.au for URL).

Towards a Consensus Census

An important component of the AVH will be a Consensus Census (CC) for the country. Greg Whitbread from the Centre for Plant Biodiversity Research is currently comparing all the State and Territory censuses to identify areas of conflict (how big is the problem?). A process for developing the CC has been proposed:

1. *Circulate draft Principles to CHAH members for feedback and eventual acceptance (in consultation with their staff)*
2. *Organise a workshop, or workshops, to resolve alternative taxonomies in 'high-profile' groups (e.g. eucalypts, Casuarinaceae, Orchidaceae). The workshop(s) should include leading specialists as well as 'neutral systematists' (without specialist interest in the group) from around the country.*
3. *The list of other taxa not treated consistently in all State/Territory censuses (from the comparison table being created by Greg) to be circulated to relevant specialists for their preferred solution. The results to then be considered by CHAH (for feedback from them as representatives of their herbarium). Where a clear resolution is not possible, the taxa should be referred to a workshop (these could be organised on a case-by-case basis or, preferably, to deal with a number of taxa at the one time).*

I would welcome feedback on the following draft 'Principles':

1. *All taxa should be monophyletic based on current reliable evidence*
   That is, we should not knowingly create or accept paraphyletic taxa unless as an interim step while we gather and assess more knowledge for a 'radical' change, or where there is a high probability of further change in the short-term (e.g. 10 years).
2. *Minimise taxonomic change (across Australia as a primary focus)*
   While this unfairly discriminates against groups poorly or incompletely studied, it is a pragmatic and reasonable objective given the arbitrariness of taxon rank and size. An argument could be put that if this was done in 1753, or 1810 in Australia, or even in 1900, we would not have a taxonomic system anything like as explanatory or accurate as the one we now have. However accepting stability as much as possible consistent with Principle One, should result in more gain than loss overall.
3. *Change is more acceptable in groups that are not 'charismatic', not economically important, or do not have a substantial stakeholder base*
   Not scientifically defensible, but again pragmatic.

4. *The 'preferred name' should be as scientifically defensible as possible, but its acceptance does not imply that it is necessarily the 'best name' on scientific and/or social grounds.*
   Decisions will have to be made where the verdict is not accepted by some specialists or practitioners. It has to be explicit that acceptance does not imply that there is only one correct solution, or indeed one solution.

Tim Entwisle
Chair, CHAH

ASBS Inc. Business

Council meeting

A meeting of ASBS Council was held at the Australian National Herbarium on Thursday June 13th and Friday morning June 14th. Only Andrew Rozefelds was unable to attend from the Council. Public Officer, Annette Wilson, was a non-voting participant.

Proposed changes to Rules by Bill and Robyn Barker, Barry Conn and Bob Makinson, discussed at the last AGM and in subsequent *Newsletter* issues, were communicated to the Secretary well in advance of the required time. Council discussed the changes and is near to completing explanatory documentation for forwarding to members in time for the September 24th Annual General Meeting in Adelaide.

Other matters considered included progress with the Mabberley lecture tour, an ASBS brochure directed at attracting new members, ABRS budget cuts, finances and membership fees, correspondence, future conferences.

The September Annual General Meeting

Council is holding the next Annual General Meeting in Adelaide in conjunction with the Australian Institution of Biology national meeting. The AIB devotes part of its annual meeting to projecting biological science to secondary schools. Their theme for the main scientific conference is *Evolution of the Australian biota*. Refer to the announcement later in this issue for more information. A registration form is contained in the brochure inserted in this issue of the *Newsletter*.

Editorial

Bringing systematics issues to the membership

A welcome innovation to this issue of the *Newsletter* is Tim Entwisle's report of current issues being addressed by CHAH. Many of us working in our herbaria have been informed only irregularly of the burning issues addressed by this committee of key managers. Despite major systematics icons such as the *Australian Plant Name Index* and *Flora of Australia*, having arisen from the united labours of herbarium heads and their allies, CHAH has a low profile amongst systematists. This may have been addressed more recently through CHAH's consistent strong support and sponsorship for the *Australia's Virtual Herbarium*, which has the potential to give basic systematics a continued presence in the mind of a wide audience.

For its part, the *Newsletter* has struggled over the years to provide a conduit for information on the mainstream of matters systematic. And we think that the inclusion of a continuing series of informative CHAH reports could just achieve this.

Would that these reports then generate the occasional debate! Healthy discussion is important for a healthy progressive science, but this has tended to be infrequent in our *Newsletter*. With a few notable exceptions, Australia's systematic botanists have tended to be an inhibited bunch when it comes to embarking on mainstream debate within the *Newsletter* and other fora. It's probably what makes herbaria such pleasant places to visit for the travelling systematist!

Yet we know that plant systematists don't agree on everything. Tim has raised some vital questions relating to a consensus Australian plant census, a new initiative embraced and promoted by CHAH, which is vital to the accessibility and consistency of our electronic data and information and impinges on the activities of all practicing systematists. How about responding to him direct or through these pages!

Another critical issue being addressed by CHAH (see p. 4) is the call for submissions to the National Research Priorities review. While the consultative process is closed for the moment, submissions against a forthcoming framework are due by 9th August 2002. You can help by making a submission or encouraging users of systematic research to write expressing its importance.

Issues

Establishing new national research priorities

The Minister for Education, Science and Training, Dr Brendan Nelson, and the Minister for Science, Mr Peter McGauran, announced on 2 May 2002 the Government's intention to set national research priorities for government-funded research programmes.

Priority setting will assist and guide research funding decisions across a range of government-funded research programmes to achieve the best possible outcomes for Australia and Australians. The process of setting national research priorities also provides a significant opportunity for dialogue between the Government and the community on Australia's research strengths, opportunities and needs.

The setting of national research priorities will be an on-going process that will build on, not replace, existing priority setting mechanisms that occur within research bodies and funding agencies.

Consultation process and submissions

A Consultative Panel, chaired by the Chief Scientist Dr Robin Batterham, conducted consultative meetings between 4 June and 28 June 2002, to seek input on:

- the proposed framework, as described in the issues paper, *Developing National Research Priorities*; and
- nominations for national research priorities.

Consultations were held in Adelaide, Perth, Kalgoorlie, Sydney, Albury/Wodonga, Canberra, Brisbane, Hobart, Melbourne, Darwin, Armidale and Townsville, although notification of the earlier meetings was not received by ASBS until after the event.

Interested parties were invited to make written submissions on the issues canvassed in the issues paper.

The further sequence of events is as follows:

Early July 2002 – Consultative panel to report to Government

The consultative panel will report to Government in regard to the framework for setting national research priorities.

Late July 2002 – Release of final framework

The final framework for setting national research priorities to be released for public information. Individuals and organisations will be given the opportunity to make further submissions concerning their nomination of national research priorities, in light of the framework being finalised.

August 2002 – Written submissions close on August 9

Written submissions on nominations for priorities will close on August 9, 2002, at which time an Advisory Committee will be formed to assess nominated priorities and make recommendations to Government.

September 2002 – Advisory Committee reports to Government

The Advisory Committee will submit a short-list of national research priorities to the Government. October 2002 – Government to announce national research priorities

Anyone can make a submission. Let's make sure that systematics appears in the list of national research priorities produced in October.

For further information see the official web-site www.dest.gov.au/priorities/default.htm

Eichler Research Fund Report

Recipients are required to present a report on their work to the Newsletter.

An investigation of *Rhododendron lochiae* F. Muell. its taxonomy, distribution and genetic variance

Mary Gandini
School of Tropical Botany, Cairns Campus, Townsville University

The Eichler Fund Award provided financial assistance for this investigation. The money was used to purchase chemicals for molecular analysis and for field trip expenses. It allowed me to extend the study to investigate many more mountains than previously proposed.

Rhododenron lochiae grows in disjunct populations of the high mountains in the Wet Tropics World Heritage Area of North Eastern Queensland. These mountain sites are boulder fields and pose problems of accessibility exacerbated by frequent wet and cloudy weather. Craven and Withers (1996) separated *R. lochiae* into two species on morphological differences correlated with geographic position. Thus populations on mountains to the north of Cairns were named *R. lochiae* and populations to the south were named *R. notiale*.

The morphology was reassessed and cladistic analysis of the results produced two monophyletic clades that were in accordance with the delimitation of Craven and Withers (1996). The sample was of limited size and may not have included all the diversity existing within the species.

Since *R. lochiae* was not recorded from many other high mountains in the Wet Tropics, a survey of the mountains was conducted. Although similar conditions and taxa associated with *R. lochiae* were found on other mountains, the species was not found.

Molecular variation was investigated using RAPDs. Cladistic analysis of RAPD data did not concur with the morphological results. The southern populations formed a well supported clade within the northern populations. The Mt Finnigan population was basal to all other populations. Analysis of molecular variance showed that there was significant variation between the northern and southern populations and greater variance between Mt Finnigan and all other groups. However, the greatest variance was between all the populations when they were treated individually. The concept of two species was not supported by this preliminary investigation, but more work is required for a definitive answer. And a good pair of legs!!

Reference

Craven, L. A. and Withers, R. M. (1996). A second species of *Rhododendron* (Ericaceae) from Australia. *Edin. J. Bot.*, **53,** 27-37.

Mary has completed her studies in Rhododendron *for the moment and is presently seeking a new systematics project – preferably one closer to ground level since she is somewhat tired of scaling mountains minus a helicopter.*

Addendum to report on the preliminary molecular analysis of Australian Rhamnaceae

Jürgen Kellermann
School of Botany, The University of Melbourne, Vic. 3010

Specific epithets were omitted for four instances in the figure published in this report in the last *Austral.Syst.Bot.Nsltr 110*, p. 3. These are (from top to bottom in the figure):

- *Ceanothus pinetorum*
- *Siegfriedia darwinioides*
- *Cryptandra amara*
- *Cryptandra mutila*

Article

The identity of "*Solanum adenophorum*" in New South Wales and Victoria

Solanum adenophorum was described by F. Mueller in 1859, from a specimen he collected during the latter stages of the Gregory Expedition, near the present town of Dingo. I have closely examined specimens of *Solanum adenophorum* F.Muell. from Queensland (including the type), for my proposed review of prickly Queensland solanums. It is one of only a handful of prickly species that lacks stellate hairs, and is therefore a highly distinctive taxon.

The reported occurrence of *S. adenophorum* in New South Wales (Symon 1981; Conn 1992), about 1000 km from the nearest Queensland occurrence and in a different climatic zone, had always seemed strange to me. My examination of specimen loans from N.S.W. and Victoria (where it is known from one area (Jeanes 1999)), confirmed that this taxon was indeed quite different to *S. adenophorum sens. str.*, with the southern taxon having less deeply lobed leaves, abundant stellate hairs on the leaves, glabrous ovary and style, abundant stipitate glands on the branchlets and a purple corolla. There is no doubt however, that *S. adenophorum* and *S. eremophilum* are related, as they share the herbaceous perennial habit, the lobed leaves, presence of simple hairs, prickly calyx and fruits green at maturity.

As the "southern adenophorum" did not match any named Victorian or New South Wales species, I at first took it to be an undescribed species. However, I recently received on loan, the type of *Solanum eremophilum* F.Muell., a species discovered by Mueller in the Flinders Ranges in 1851 and then "lost" for many years until rediscovered by D.E. Symon in 1976 (Symon 1977).

Although the type is a rather poor specimen not very well pressed, there are enough visible characteristics to say with some confidence that the "southern adenophorum" is referable to *S. eremophilum.*

The suggestion that *S. eremophilum* is a hybrid between *S. petrophilum* and *S. esuriale* (Symon 1977) seems very unlikely; many of the characteristics cited as evidence for a hybrid status (vigorous reproduction from rootstock, poor fruiting, broad-stellate corolla, prickles and lobed leaves similar to one of the 'parents') could apply equally well to a large number of *Solanum* species.

References

Conn, B.J. (1992). Solanaceae. in *Flora of New South Wales*, Volume 3 (ed. G.J. Harden). New South Wales University Press: Sydney.

Jeanes, J.A. (1999). Solanaceae. in *Flora of Victoria*, Volume 4 (eds N.G. Walsh & T.J. Entwisle). Inkata Press: Melbourne.

Symon, D.E. (1977). The rediscovery of *Solanum eremophilum* F.Muell. *South Aust. Naturalist* 51: 50-51.

Symon, D.E. (1981). A revision of the genus *Solanum* in Australia. *Journal of the Adelaide Botanic Gardens* 4: 1-367.

Tony Bean
Queensland Herbarium

News

The official opening of the Northern Territory Herbarium

The official opening of the renovated Northern Territory Herbarium took place on Wednesday 29th May.

At about 10.00 a.m. the Minister, Kon Vatskalis, arrived. He duly issued forth a few words – as did several others – and cut the ribbon, a nice red one, and staff and about 50 invited guests then ate an assortment of sandwiches and other goodies.

Then the guests went home or back to work. During the morning and early afternoon staff escorted three groups of primary school children around the herbarium. Among other things the kids sampled bush tucker and looked at an array of drift seeds and fruit collected from Mindil Beach.

As you may have gathered the day of the official opening was also an open day for the public. Disappointingly, invitees and kids aside, we had fewer than ten other people visit us. But, we did get a good deal of print and media coverage – the printed reports were even reasonably accurate – and everyone was generally pleased with the days proceedings.

Back in February I was asked to write a speech for the official opening of the Northern Territory Herbarium on Wednesday 29th May.

However, the Minister, although acknowledging that someone had put a lot of work into writing his speech, didn't have time to read it. It is included here, slightly abridged.

Philip Short
Northern Territory Herbarium

The speech that wasn't made

The recording and dissemination of knowledge and ideas concerned with plant classification, structure and identification is generally regarded as starting with the writings of the Greek scholar Theophrastos in the 3rd century BC. He recorded information on about 500 different kinds of plants and even some of the names he used, such as *Asparagus*, are still used by modern botanists. In the first century AD a Roman, generally known as Pliny the Elder, wrote a *magnum opus* on Natural History, a work in which he recorded a great deal of information on the medicinal use of plants and plants in agriculture. In the same century a man of Greek ancestry but a physician in the Roman Army, Pedanios Dioscorides, compiled *Materia Medica*. As a practising physician Dioscorides had first-hand knowledge of plants and his book contained information on about 600 plants that were believed to be useful in the treatment of diseases. The plant names were given in Greek and in some versions also in other languages such as Latin, Hebrew and Turkish. Incidentally, Dioscorides's name is remembered in the name *Dioscorea*, the genus containing the edible yams that are traditionally a staple form of carbohydrate for some Aboriginal people in the Top End.

Two things will be evident from what has just been said, one, that naming of the plants was not standardised and two, that plants were of interest because of healing properties. This is not the time to give a more detailed history lesson but it is appropriate to note a couple more facts.

Firstly, that a scientific, standardised naming system was eventually introduced to aid in communication. The system, the binomial system where plant names are in Latin, was introduced by the Swedish botanist Carl Linnaeus. It dates from 1753 and is still in use today.

Secondly, to use herbs to treat disease one has to be able to identify the plants to be used. Illustrations are handy for this but for a teacher it is obviously desirable to have the real thing available, and this is why herbaria, collections of dried plants that are kept as a botanical record, were developed. The practice of making herbaria commenced during the sixteenth century when an Italian physician and botanist, Luca Ghini, taught botany in Bologna and Pisa.

Today there are more than 2,600 public herbaria distributed in 147 countries. Together they hold an estimated 273 million specimens. Those specimens are not just of medicinal plants but of all the described species of plants, over 200,000 of them. As such, herbaria and their associated taxonomists play a pivotal role in the documentation of biodiversity and the Northern Territory Herbarium is no exception.

The herbarium holds approximately 200,000 databased specimens to call upon for information on plant distribution and staff are regularly involved with biological survey work, collecting and sorting of new specimens, classifying and describing new species and writing floras and other guides to the plants of the Northern Territory. Staff also provide a plant identification and information service for the public, environmental consultants and other government departments. Thus the herbarium is a small but most important part of Parks and Wildlife and the

Greg Leach and Kon Vatskalis at the Herbarium opening.
Ph. Andrea Hope, Northern Territory Herbarium

Front counter area of new Herbarium.
Ph. Andrea Hope, Northern Territory Herbarium

larger Department of Infrastructure, Planning and Environment.

The first plants collected in Australia and subsequently given scientific names are thought to have been collected from south-west Western Australia by a member of the Vlaming voyage in 1697. More than a hundred years were to pass before plants in the Northern Territory were gathered for scientific description and formal naming. This time it was the British, in fact a Scotsman by the name of Robert Brown. Brown was naturalist on *H.M.S. Investigator*, captained by Matthew Flinders, when it left Spithead for Australia in July 1801. He didn't return to England until 1805 and in that time collected prodigiously around the country. He was one of the great botanists of his time and a census of Northern Territory plants shows that it was Brown who named no fewer than 360 of the native plant species found in the Territory. This year, indeed this December, is the 200th anniversary of when the *Investigator* entered the waters off the Northern Territory coast. Nearly three months were spent in our waters and places visited include the Sir Edward Pellew Group, Groote Eylandt, Caledon Bay, Melville Bay, English Company Islands and Arnhem Bay.

In the annals of Australian botanical history the voyage of the *Investigator* and the achievements of Robert Brown were extremely important.

The Herbarium of the Northern Territory does not hold Brown's plant collections – the principal set is in the Natural History Museum, London.

The earliest herbarium in Darwin was almost certainly formed by German-born Maurice Holtze, who was government gardener at the Palmerston Botanic Gardens, now the George Brown Darwin Botanic Gardens, from 1878 to 1891. It and several other herbaria were started in the Top End but only this herbarium in Palmerston now exists. Specimens from a herbarium established in the Botanic Gardens in about 1936 were apparently thrown away by military personnel during their occupation of the Gardens during World War II.

The precursor to this herbarium was established in Alice Springs in 1954 and was under the control of the Commonwealth Government. Since then various administrative changes have meant that the bulk of the Northern Territory plant specimens were consolidated here in Palmerston, coming to this building from both Berrimah and Alice Springs in 1988.

This is the same building that the herbarium was housed in in 1988 but it was recognised very early on that it was not a purpose-built herbarium and that conditions for housing the plant specimens were not ideal. They were at first generally adequate. However, with time, insect and humidity control, lack of room for expansion, and barely adequate fire protection were factors that had to be addressed.

These factors have been addressed. We now stand in a building that has been literally gutted and reconstructed to provide a high level of protection, indeed a level of protection meeting international standards, for the Territory's collection of plants. It has also been planned to provide, I think successfully, a good, practical environment in which staff can comfortably carry out their work.

I formally declare the Northern Territory herbarium open and invite you to look at the displays and partake in the refreshments.

Philip Short and Drew Hope looking at daisy 'seeds'.
Ph. Andrea Hope, Northern Territory Herbarium

South Australian Government Handbooks Committee winds up

With the demise of the Government Printer several years ago, the *Flora and Fauna of South Australia Handbooks Committee* lost its reliable and economical source of publication of many scientific handbooks over a period of 80 years.

Plant taxonomic works relating to South Australia included the four editions by J.M. Black and Jessop & Toelken of the *Flora of South Australia,* Hansjoerg Eichler's *Supplement* to the *Flora*, Cleland's *Mushrooms and Toadstools*, Catcheside's *Mosses*, Filson & Rogers's *Lichens*, Whibley's *Acacias*, followed by the Whibley & Symon second edition, Bates & Weber's *Orchids,* and Bryan Womersley's early volumes of *The Marine Benthic Flora of Southern Australia*. Amongst the many other publications are Wood and then Specht's *Vegetation of South Australia*, and many anthropological, geological and zoological works.

This large output reflected a successful venture unparalleled in Australian government publishing, at least in the 20th Century. Historical detail and a complete list of publications are recorded by Zeidler (2002).

Copyright of botanical publications has been handed on to the Board of the Botanic Gardens of Adelaide & State Herbarium.

Reference

Zeidler W. (2002) The Flora and Fauna Handbooks Committee. 10 March 1921 – 30th October 2001. *Records S.Austral.Mus.* 35: 91-95.

Bill and Robyn Barker

Miscellanea

A dryland botanist meets the rainforest

A number of David Symon's letters written while on field trips were reproduced in issue 105 of the Newsletter. Here is another, with his thoughts on Papua New Guinea, seen for the first time.

Written to Mrs M.A.Clark in London from Lae, Papua New Guinea on 6th June 1977.

Dear Mary

Does Covent Garden exist? Are there muffins still for tea? It seems somewhat unlikely from this steaming view point.

I am still staggered by the luxuriance, greenness, fecundity, both vegetable and human, of the landscape. No wonder liannes develop in the tropics, life must be one unending struggle to get to the light by climbing up, by shooting through, by expanding leaf surfaces, by resting upon, by parasitising some host who got there a little earlier. The trees drip with epiphytes. Hoyas (yes, dozens) entangle tree tops, Terminalias drop their leaves and revegetate in about a week – they daren't stop I should guess, or someone else would shoot up their momentarily bare branches.

From the flattest of lands – the tropical mountains – very steep – so steep that land slips are very common – some on huge scale – are wreathed in clouds, swirling out of valley heads, or below you like a valley full of milk – bringing warm, sweat-dripping rain. The disturbed roadside verges covered by rampant climbers & tall grasses almost defy penetration. I quail at the sight of leaves bigger than the press, of the succulence & mould to follow, of the sheer inadequacy of coping with climbers whose bases you can't follow, of lianne trunks whose tops are out of range (& sight).

The roads are often spectacular, hair pin bends so sharp that they build out a little apron on which to do a loop to enable you to turn. National drivers so bad that I have closed my eyes when the car goes into reverse instead of forward with almost no space. Of drivers who free wheel down mountain roads riding on the brakes – who tackle steep slopes in top [gear], in high ratio, until both the car and I are shuddering.

The social contrasts in time & space are no less demanding. Aircraft mechanics within miles or minutes of ill clad occupants of bamboo houses on stilts, smoked at night (? to control mosquitoes), labouring by day on steep slopes in paradisical gardens of mixed vegetables and fruits, burgeoning rampant sweet potatoes, pawpaws naturalised and for the picking, bananas swathed in wrappings of leaves to keep off flying

foxes; women a very poor second – burdened by the huge loads of vegetables carried in string bags 'billums" mostly supported by a woven band over the forehead and hanging on their backs – plus children carried ditto or on their shoulders, stooped forward and scarcely able to raise their heads. Mostly very friendly, lots of "hello" and "good days" – still some "good day Master" to which I must develop some response, but at the moment I cringe so that the reply chokes up.

Huge dredges rusting and stranded in the valley bottom like vast dinosaurs – or should it be tryannosaurs who have gulped the landscape and left in their wake great faecal mounds only slowly recovering.

Submontane mossy forests wreathed in shapes, silent, watching, up to one's knees in litter, decayed logs, lost in direction, a leaf drops, a bird shape disappears. I panic for the light, for company, for the car, for reassurance and from the margin timidly venture in again. No wonder the Nationals attack them with fire, again and again until an open grassland emerges and the sky and light and people can be seen. It is difficult to remain objective. Who is to deny the animism, the mythologies generated by the implacable, unanswering, but living forest. Enclose yourself in a bamboo coccoon, light a glowing hearth, bring your family close to you and hope that morning will come. Enclose yourself in a wire stockade, keep reassuring dogs to ward off the wandering spirits, turn up the tape recorder, upend the bottle, and hope that morning will come. And hope too that it will come to a coca-cola culture of plastic, of pop and western music, of battered cars, of hi-fi (or at least high volume) of bare feet and tattooed faces.

Best wishes
David

Electronic access to old periodicals through JSTOR

Some of you may be in the fortunate position of being able to access JSTOR through your institutional libraries. Journals available in the Botany/Ecology section include:

Title	Vols	Years
American Journal of Botany	1-83	1914-96
American Naturalist	1-152	1867-1998
Annals Missouri Bot.Gardens	1-83	1914-96
Botanical Gazette	2-152	1876-1991
Brittonia	1-48	1931-96
New Phytologist	1-140	1902-98
Paleobiology	1-23	1975-97

JSTOR was established as an independent non-for-profit organization in the United States in August 1995. It began as an effort to ease the increasing space problems faced by libraries seeking to provide adequate stack space for the long runs of back files of scholarly journals. The basic idea was to convert the back issues of paper journals into electronic formats that would allow savings in space (and in capital costs associated with that space) while simultaneously improving access to the journal content. It was also hoped that the project might offer a solution to preservation problems associated with storing paper volumes.

A searchable text file is linked to the page images of the entire published record of a journal. Authorized users are able to view and print articles from a PC or networked location. Issues of journals are never "out".

Web: – www.jstor.org/about/background.html

A new family basal in the flowering plants

Well-preserved Cretaceous fossils found recently in rocks in China are the first representatives of a new group of Angiosperms known as *Archaefructacea*. Researchers recognise two species, *Archaefructus sinensis* and *Archaefructus lianogensis*. The plants are thought to have been aquatic because of the nature of the leaves. Flowers lack petals and sepals but do have anthers and carpels.

Claims are that these plants represent an evolutionary dead end, since they apparently have no descendants. In other words, they are a sister group to all living angiosperms.

References

Ge Sun, D.L. Dilcher, Shaoling Zheng, Zhekun Zhou, 1998. In search of the first flower: a Jurassic angiosperm, *Archaefructus*, from northeast China. *Science* 282:1692-1695

Ge Sun, Qiang Ji, David L. Dilcher, Shaolin Zheng, Kevin C. Nixon, and Xinfu Wang (2002). Archaefructaceae, a New Basal Angiosperm Family. *Science* 296: 899-904.

Web: – www.nature.com/nsu/020429/020429-15.html; www.nationalgeographic.com/news/2002/05/0503_020503_flowerfossil.html (pictures of flower).

NY vascular plant types on-line

The New York Botanical Garden has now completed the imaging of the vascular plant type specimen collection (except for those specimens on loan). All images (approximately 85,000) are currently available through the searchable vascular plant type catalogue (see www.nybg.org/bsci/hcol/vasc/).

The NYBG Type Specimen Imaging project now turns its focus to the non-vascular plant collections, including bryophytes, fungi, lichens and algae. The number of type specimens in these groups is estimated at approximately 35,000. Cataloguing and imaging of these specimens will take 3-5 years to complete.

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Source: TAXACOM mailing list

Final report from Convention on Biological Diversity

The final report from the recent Convention on Biological Diversity Meeting (CBD) is now available for downloading.

This huge document provides the international policy framework, and guidance to international funding agencies, in many areas of interest to our community, including:

- Decision VI/5 – Agricultural biological diversity – page 77 (note the broad definition including ecosystem services)
- Decision VI/8 – Global Taxonomy Initiative – page 113
- Decision VI/9 – Global Strategy for Plant Conservation – page 142 (see also VI/29 paragraph 30)
- Decision VI/23 – Alien invasive species – page 240
- Decision VI/24 – Access and benefit sharing related to genetic resources – page 252

As a participant in the meeting, I was especially pleased to see the tremendous support that the Global Taxonomy Initiative and Global Strategy for Plant Conservation received from the member governments. The need for taxonomy, systematics, and biodiversity information has been recognized at the highest levels of international policy, and now we need to find ways to fund and implement the CBD decisions and programmes of work. In practice, the parts of the document cited above can be used in grant proposals as linkages between international policy and specific proposed research and collections activities.

Web: www.biodiv.org (download document UNEP/CBD/COP/6/20 – Decisions of the Parties to the Convention on Biological Diversity at its Sixth Meeting, The Hague, April 2002.)

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Molecular work increases the value of herbarium specimens

On occasions the cost of maintaining herbarium collections is called into question by administrators and managers.

There has been recent work which rather elegantly portray their value to society and these are surely not the only ones. However none of these examples are Australian and so it would be good if we could cite the use of Australian herbarium collections for similar purposes. Perhaps CHAH might like to consider keeping such a list on their web site!

Case 1: *Phragmites australis*

The change in the genetic structure of populations of *Phragmites australis* across America was established by sampling pre 1910 herbarium specimens and comparing these with present day populations. In this particular study it was revealed that the 11 native genotypes, previously widespread across North America, have largely been replaced on the eastern coast by a single, more aggressive, European genotype. Accompanying this recognition of native and non-native populations of *Phragmites australis*

has been the finding of morphological characters which may be useful to distinguish the populations.

Saltonstall, K. 2002. Cryptic invasion by a non-native genotype of *Phragmites australis* into North America. *Proceedings of the National Academy of Sciences, USA.* 99(4): 2445-2449.

Web: – www.invasiveplants.net ; www.ou.edu/cas/botany-micro/ben/ben284.html

Case 2: Establishing which strain of *Phytophthora infestans* caused the Irish potato famine

Ristaino, Groves & Parra of North Carolina State University have extracted DNA of *Phytophthora infestans* (potato blight) from Kew and USDA herbarium specimens of *Solanum tuberosum.* The oldest specimens from which a positive result was obtained were 1845, one of these being a Lindley collection.

The DNA isolated from the *Phytophthora* still present on the leaves was not the same as the DNA from the strain previously thought to have caused the Irish potato famine and work is proceeding to try and discover just which strain was responsible for causing the famine. Potato is a major staple food and potato blight is still a very big problem and so an understanding of the invasive capabilities of the different strains is still relevant.

Ristaino, J. B. 1998. The importance of archival and herbarium materials in understanding the role of oospores in late blight epidemics of the past. *Phytopathology* 88:1120-1130.

Ristaino, J. B., Groves, C. T. & Parra, G. R.PCR amplification of the Irish potato famine pathogen from historic specimens. *Nature*, 411, 695 - 697, (2001).

Web: – www.globaltechnoscan.com/6march-12march/potato_famine.html; www.nature.com/nature/journal/v411/n6838/extref/411695aa.doc

Case 3: Evolutionary change in the rust, *Puccinia grindeliae*

Evidence of evolutionary change in the rust, *Puccinia grindeliae*, populations in New Mexico and Arizona, has also been shown by a study of herbarium specimens.

The researchers studied the occurrence of *P. grindeliae* in the southwestern U.S. from 1891 using herbarium specimens to track the rust. The oldest collection with rust was from 1906. Some of the collection sites were relocated from annotations on the herbarium sheets and fresh collections of the rust were made for comparative analysis.

Liddell *et al.* 1995. Correlation of Climatic Factors and Occurrence of *P. grindeliae* on Herbarium Specimens of *Gutierrezia* spp. collected in southwestern states since 1891. *NM Ag. Exp. Stat. Bulletin* 773

Web: – www.fgsc.net/fgn43/liddell.html

Case 4: Red Mulberry, a rare Canadian plant

Red Mulberry (*Morus rubra* L.) is native to Canada, but has become increasingly rare since it hybridises with the introduced white mulberry (*Morus alba* L.). The species and hybrids cannot be distinguished morphologically and so work by the Canadian Forest Service aims to establish a DNA fingerprint for the Red Mulberry, so that this rare species can be identified and protected. The fingerprint is to be established from herbarium specimens collected before the introduction of the white mulberry in the mid-19th century.

Web: – www.nrcan.gc.ca/cfs/proj/sci-tech/biotechnology/dnatec_e.html

Robyn Barker

Obituaries

Alexander Clifford Beauglehole OAM
26 August 1920 – 19 January 2002

It is with great regret that I inform members of the Society of the passing of a great naturalist - Alexander Clifford Beauglehole. There would not be too many botanists who have not come across the famous ACB specimens (in all numbering at least 90,000 plant collections!). Apart from plants, Beauglehole collected widely in many other groups including insects, birds and fossils, and his collections are lodged in most major Australian and many overseas institutions. As a testimony to the high regard of his work and collections, as many as 16 taxa of plants, lichens, bees and wasps have been named for him.

It is not the intent of this note to go into detail on Beauglehole's life and achievements as excellent articles by Margaret Corrick and Jim Ross, who both have had a long association with Cliff, cover this in detail (see below).

A large part of his correspondence is to come to MEL and includes water colours of orchids by Floss Mellblom, letters from W.H. Nicholls and J. Willis and much more.

Cliff Beauglehole in the 1950s.
Ph. L.G. Chandler (from Corrick 2002, with permission).

References

Corrick, M. (2002). Alexander Clifford Beauglehole 26 August 1920 – 19 January 2002. *Victorian Naturalist* **119**, 81-82.

Ross, J. (2002, in press). Alexander Clifford Beauglehole OAM (26 August 1920 – 19 January 2002). *Muelleria* **16**.

Marco Duretto
National Herbarium of Victoria

Stephen Jay Gould

The death of this renowned evolutionist is noted with regret. An obituary is found on the web.

Web: -- www.news.harvard.edu/gazette/2002/05.16/99-gould.html

ABRS Report

ABRS undergoing another restructure

The Federal Budget for 2002/2003 has required many government departments to reduce expenditure, including Environment Australia. As a consequence the ABRS budget has been reduced by $500,000 to approximately $3,000,000 per annum. The Minister for Environment and Heritage, the Hon Dr David Kemp, has recently approved $1,500,000 of ABRS Participatory Program grant projects for 2002/2003, and letters are being sent to both successful and unsuccessful applicants in late June.

The budget cut has required ABRS to reduce staff numbers, and we are currently undergoing a restructure to deal with a loss of positions, while at the same time trying to prepare ourselves better for increased web delivery of data. Dr Keith Houston and Dr Graham Ross, both long-standing ABRS staff members, have decided to retire, and I would like to take this opportunity to acknowledge their huge contribution to ABRS

over the years. We will never be able to replace that level of expertise, and ABRS will be poorer without their talent in the team.

The exact new formulation of ABRS is still in the process of development, and will be announced in due course. In the meantime please bear with us as we do our best to continue to serve the taxonomic community while reinventing ourselves to meet new demands.

Ian Cresswell
Director, ABRS

New publications

Catalogue of Publications

ABRS has now produced a catalogue of all of its publications, with details of price and where to obtain them. This is included as a centrefold in our newsletter *Biologue*, and a copy should be inserted in this issue of the *Newsletter*. If you lose your copy, or need more, please ask. The intention is to update the catalogue at least annually (and probably 6-monthly). To be sure to get your copy please register on the ABRS Directory (www.environment.gov.au/abrs/ABRS-Directory.html), and *Biologue* with be mailed to you automatically. If you need more copies contact us.

A number of the publications in the Catalogue are included below. Those that are not are dealt with in more detail.

Flora of Australia vol. 43 Poaceae 1 Introduction and Atlas

To be published June/July 2002

Recent volumes of the *Flora of Australia* containing accounts of major families and genera (e.g. Ferns and Gymnosperms, Proteaceae, *Acacia*) have included reviews of research on a range of biological topics, to provide supporting background and additional reading to the more focussed taxonomic content. These reviews have been enthusiastically received by users of the *Flora*, and we intend to continue this practice. In this context, after 10 years of research we are pleased to be able to announce that publication of the volumes dealing with Australia's third largest family (and arguably the most important economically), Poaceae, has begun, and will be progressively completed over the next few years. At this stage we expect it to appear in 4 volumes, but this may be adjusted as editing proceeds. The first volume, however, follows our new tradition of providing a comprehensive background for the family.

We are checking proofs as I write this, and the book should be on sale by the time the *Newsletter* appears. Volume 43 contains authoritative essays on phylogeny, classification, anatomy, physiology, ecology, palaeobotany and biogeography of Australian grasses. In addition there is a detailed introduction to the structure and terminology of grasses, which will be invaluable to all those who have (like me) tended to avoid these complex beasties in the past, and have difficulty in remembering the differences between paleas and lemmas, and sorting out their ligules from their lodicles

The book also contains dichotomous keys to the tribes and genera of Australian grasses, and over 1400 distribution maps, one for each of the species and infraspecific taxa currently recognised for Australia. It will thus form a useful checklist and atlas of Australian taxa in the interim (until the descriptive volumes appear), as well as a source of background information and further reading.

Flora of Australia Volume 43 has the now-familiar format, 428 pages, 55 colour plates, and a number of line and half tone illustrations. It can be ordered from CSIRO Publishing, (www.publish.csiro.au). The hardcover volume sells for $100, softcover for $85.

AusGrass. An interactive encyclopaedia of Australian grasses

To appear June/July 2002.

Concurrently with *Flora of Australia vol. 43* we will be publishing the next CD in our ABRS Identification Series, a LucId key to the species of Australian grasses. This has been compiled by Bryan Simon and Donovan Sharp of the Queensland Herbarium, in a collaborative venture with ABRS.

The general structure and operation of the key will be familiar to anyone who has used our previous keys to the *Families of Flowering Plants*, *Mites* or *WATTLE*, or to similar products such as *Euclid* produced by others. One minor innovation this time is the inclusion on the CD of a new edition of Bryan Simon's dichotomous key to Australian grass species, for those who wish to embrace new taxonomic tools but mourn the passing of (and still need access to) older, familiar ones.

The CD will be released in June/July 2002, marketed by CSIRO Publishing, in conjunction with *Flora* vol. 43. Price $110, but it will be available in a package with *Flora* vol. 43 for $180 the pair.

The Families of Flowering Plants of Australia. An interactive identification guide, Revised Edition.
Published mid-February 2002.

The first ABRS interactive CD key, the *Families of Australian Flowering Plants*, broke new ground, and proved very popular, selling out in under 2 years. In the meantime the technology had moved on, and now we have a new, revised edition of this introduction to the flowering plants of Australia. The relatively few gremlins in the initial key have been attended to, and new fact sheets developed in html. A major new addition is a chapter written by Kevin Thiele which provides a brilliant introduction to the structure of flowers, fruits, inflorescences and other parts of flowering plants. Beginners and those with limited knowledge of botany should find this feature alone worth the price of the CD.

The CD and 16 page manual is available from CSIRO Publishing for $69.95.

Coming soon

Verticordia. Turner of Hearts, by Elizabeth George, to be jointly published by University of Western Australia Press and ABRS, was delayed in press, but should now appear in June/July 2002. It will be distributed by UWA Press ($94.95).

Flora of the South West. Bunbury-Augusta-Denmark by Judy Wheeler, Neville Marchant & Margaret Lewington, to be jointly published for the Western Herbarium by ABRS and University of Western Australia Press, also suffered a delay in print, and will now be available in May/June 2002. The 2-volume set will be distributed by UWA Press ($165).

Key to the Genera of Australian Mosses by W.R.Buck, D.H.Vitt & W.M.Malcolm, Flora of Australia Supplementary Series No. 14.
Paperback, no. of pages: about 120.

This is the first illustrated identification guide to the 291 genera of mosses known from Australia and its external Territories. Primary diagnostic characters are supplemented with 50-80-word descriptions. Substratum preferences are indicated, and the current diversity and broad-scale distribution within Australia and its Territories are outlined. A selected bibliography of checklists, monographs and other publications of particular relevance to Australia is included. The key is illustrated with about 200 colour photographs.

It is to appear May 2002, and can be obtained from ABRS (Publications). Price to be announced (enquiries to patrick.mccarthy@ea.gov.au).

Tasmanian Lichens: Identification, Distribution and Conservation Status. Vol. 1 Parmeliaceae by G.Kantvilas, S.J.Jarman & J.A.Elix, Flora of Australia Supplementary Series No. 15
No. of pages: about 250.

A detailed taxonomic and ecological account of the dominant family in the Tasmanian lichen flora (more than 140 species), with special emphasis on forest-indicator value and conservation status and requirements. Includes a key to species, most of which are illustrated.

It is to appear July 2002, and can be obtained from ABRS (Publications). Price to be announced (enquiries to patrick.mccarthy@ea.gov.au).

The Mosses of Norfolk Island by H. Streimann, Flora of Australia Supplementary Series No. 16
Paperback, no. of pages about 200.

An identification guide to the 69 species of mosses known from Norfolk Island. It includes an introduction to the island and its moss flora, detailed and synoptic descriptions of each species, information on ecology and distribution, and specimen citations. Most species are illustrated with line-drawings and or/colour photos.

Due July/August 2002, and can be obtained from ABRS (Publications). Price to be announced (enquiries to patrick.mccarthy@ea.gov.au).

Species Plantarum Part 6 Juncaceae 1: Rostkovia to Luzula coordinated by J. Kirschner.

Work is well advanced on the first of a 3-part account of Juncaceae of the world. This will be the first major family to be covered in *Species Plantarum* and is notable for two other reasons as well: it is a marvelous example of the kind of cooperative international research and information delivery system that *Species Plantarum* was set up to achieve. Under the auspices of a grant from the Czech Academy of Sciences Dr Jan Kirschner brought together a consortium of most of the major experts in the family to write a collaborative account. Secondly, the Flora-writing project involved major research efforts into several sections of the family, so the outcome is a revisionary work as well as a uniform global account of an ubiquitous family.

Part 1 covers all genera except *Juncus* and will run to nearly 300 pages. Parts 2 and 3 will follow

in a month or two and deal with *Juncus* in volumes of 300 pages and about 200 pages each.

Nature's Investigator award

The immense amount of work put into polishing this very important book by botanists around the country is being deservedly recognised. At the *Robert Brown 200* conference in Sydney David Mabberley presented to Hilary Vallance (widow of the senior author, Tom Vallance), one of the John Thackray medals awarded to the authors by the international *Society for the History of Natural History*. The other two authors received their medals in the UK a couple of weeks earlier.

Environment Australia is co-sponsor of the re-enactment voyage of the *Windeward Bound*, and *Nature's Investigator* is being promoted as part of that voyage.

Tony Orchard
Deputy Director, ABRS

ABLO Report

I have received quite a few reminders recently that I have only three months to go, but I prefer to think: 'wow, still another three months!'. The impact of this trip on my wife and me has been quite startling, a combination of the organising needed to get here, and the sudden and rapid change to our lifestyles. Pat and I are indebted to Neville Marchant for his expert guidance and advice, during the overlap we achieved in late February, and also to Bob Chinnock and Rod Seppelt for much useful information while we were planning our travel arrangements. With this assistance, we felt quite at home in London and in our flat within a very short time, and, with the help of staff at Kew and the Natural History Museum, I have settled into the routines of ABLO life with a minimum of fuss.

Constant change is a feature of U.K. gardens as well as the weather, and adjusting to this does take some time. This year's early spring weather, including 20 rain-free and sometimes very warm days in March, produced even more amazing variation than usual in the gardens of S.E. England. Although the weather has slightly deteriorated in the past month, it didn't affect the Chelsea Flower Show, for which we were fortunate to receive some complimentary tickets.

Speaking of changes, Kew Herbarium has now implemented the new structure mentioned by both Rod and Neville in previous reports, developing a number of geographically oriented teams to replace many of the systematic teams. The transfer of Reserve collections and some specialist collections from Kew to the Millenium Seed Bank, Wakehurst Place, is proceeding smoothly, with some 60,000 sheets transferred to date. Eventually, these will return, hopefully to a new building. The Science Review recommendations, published recently, were favourable to Kew, and the World Heritage nomination of Kew Gardens is also proceeding apace.

I have attended a number of seminars at Kew and the Natural History Museum; among the most notable were the Darwin's Birthday Party series at the NHM, which this year consisted of two lectures with the theme 'Evolution and Ecology of Global Climate Change: Past, Present and Future', presented by Brian Huntley (Univ. Durham) and Camille Parmesan (Univ. Texas, Austin). I have also attended some of the staff/student/visitor seminars in Botany (and one in Entomology) at the NHM, and an impromptu talk at Kew by H.Walter Lack, Vienna, on the 'Relationship between Sir Joseph Banks, Francis Bauer, and the Kew Crisis of 1839-1840'. I will be presenting a talk on fern conservation, with emphasis on Queensland's wet tropics, at the NHM next month.

The recent 'William Thomas Stearn: An Appreciation' evening, held at the Jodrell Lecture Theatre at Kew Gardens is also worthy of mention. Even for those few present, including myself, who had not met him, the anecdotes related and admiration expressed were noteworthy. We were much amused by the remark, attributed to Prof. Tomlinson, that his habit of annotating library books with their dates of publication was characterised as 'leaving no tome unstearned'. As a long-time user and admirer of William's *Botanical Latin*, I felt privileged to have made a personal connection, however tenuous, with the person behind the name.

Question: what is 3 metres tall, attracts flies and people in almost equal proportions, and can cause web-page 'hits' to rise to half-a-million an hour? Answer: the Titan Arum (*Amorphophallus titanum*). Kew's first bloom for some years boosted the attendance at the Gardens dramatically on 1st May, and was responsible for the staggering increase in web page 'hits'. Now a second inflorescence is developing quickly, and should open on or just before the Jubilee weekend (1-4th June). Kew horticulturists seem to have

solved the puzzle of coaxing the 70kg bulbs into flower, and I suspect these blooms will become a regular feature at the Gardens.

There have been some retirements from Kew, notably Diane Bridson and Margaret Stones. Margaret returned to Australia at the beginning of May to settle in Melbourne, where she first trained as an artist. Diane's retirement comes after 39 years at Kew, much of it focussed on the Rubiaceae. Both were farewelled at well-attended functions held at Kew Herbarium.

My personal research projects have been proceeding smoothly, although I suspect that there will not be enough time to do all I had hoped. I have been locating and photographing Australian fern types at Kew and the NHM, examining their holdings of *Adiantum* from the Malesian area, and also working with Kew staff to extract the digital version of *Index Filicum* from its old Unix home, with a view to reformatting it for insertion into the more modern Index Kewensis/IPNI database. Since there are c. 45,000 lines of text in *Index Filicum*, up to and including Supplement 5, and inevitably some formatting errors crept into the original data entry, the task may take a little longer than first anticipated.

ABLO enquiries have been running at about the same level as in the past couple of years (4–5 per week), and while the majority have been requests to find and photograph type specimens, there have been some interesting local enquiries, including for example identification of a eucalypt cultivated on the Continent (I used Euclid for this) and questions about ferns from the BBC. Catherine Wardrop, formerly botanical artist at NSW and recently arrived in London, has commenced some contract work for Kew, and Amanda Spooner, Perth Herbarium, visited this week.

I will be visiting Paris Herbarium for a few days between the 25th June and 5th July, and the NHN in Leiden from 12th to 18th July. By the time you read this, I should have circulated the details to Australian and New Zealand Herbaria.

Peter Bostock,
Kew

Peter's term is for 6 months. Roberta Cowan is the next Australian Botanical Liaison Officer.

Book reviews

Seeds of New Zealand: gymnosperms and dicotyledons

C.J. Webb & M.J.A. Simpson

Seeds of New Zealand, gymnosperms and dicotyledons. C.J. Webb & M.J.A. Simpson 428 pp., 166 composite plates (Manuka Press: Christchurch).
Overseas price US$90.00, including postage, by credit card (Visa/Mastercard) or bank draft.
Order via Manaaki Whenua Press, PO Box 40, Lincoln 8152, Canterbury, NEW ZEALAND or by email to mwpress@LandcareResearch.co.nz or by secure website www.mwpress.co.nz *or by phone +64 3 325 6700, fax +64 3 325 2127*
More information on the book is on the website

Most botanists have had the need for, contemplated and normally given up in despair on the identification of seeds, because descriptions are either not available or at best scattered throughout the literature. This atlas provides more than 1750 illustrations – partly macrophotographic, partly by scanning electron microscope (SEM) – of disseminules, not necessarily seeds, of 1058 New Zealand species together with keys to genera, species and infraspecific taxa. The families, genera and species are alphabetically arranged and the photographs are interspersed with relevant text, which includes brief descriptions of all the taxa as well as frequent references to or notes on findings, taxonomic treatments and a rough distribution of the species. It is accompanied by an illustrated glossary, a colour chart, extensive references and a list of voucher specimens.

The scope of the work becomes evident when one realises that the description of each species was set out to be based "on at least 10 seeds from each of 10 collections of mature fruiting material covering the distribution of the species within NZ." Although largely based on herbarium specimens, additional material was collected and a large number of helpers who have contributed is acknowledged.

For most species several disseminules are illustrated to provide a range of variation, but the detailed sculpturing of the surface as seen under higher magnification of the SEM is also portrayed where relevant. Although such detail

might not be generally accessible it often helps in interpreting features seen at 30–40 times magnification under the normal stereomicroscope. Shading and colour variations are at times illustrated in colour especially in, for instance, *Carmichaelia* (Fabaceae). In *Coprosma* (Rubiaceae) where the pyrenes show little variation in shape and surface sculpturing, tables 4 & 5 would assist identification with comparative diagramatic scales of the length and width of typical and known extreme ranges. Also very useful are diagrams of taxa of *Myosotis* (Boraginaceae), some of them with sections of seeds to explain more complex three dimensional shapes (plates 46, 47). Some of these variations have not yet been taxonomically evaluated. These examples are only a few samples of the range of approach to providing assistance with identifications in the most practical way.

The last example demonstrates well the difficulties in describing three dimensional structures, but it remains surprising to find in a definitive treatment like this that the authors chose to use two dimensional terminology (e.g. ovate, not ovoid).

The illustrations are generally of a high standard except in the Apiaceae where the photographs show problems with the depth of focus. Although this is a known difficulty with macrophotography, it is only found in this early family as if later pictures were taken with different equipment.

This admirable reference book with illustrations and descriptions of the disseminules of practically all New Zealand species is a unique achievement, especially as seeds are usually incompletely described in floras. The strong accent on visual impact orientated towards identification will make this work and its companion volume on monocotyledons, which is still to come, indispensable tools in the identification of fruits or parts thereof whether ingested by animals or found in archaeological or historical excavations.

Although the main part of the books is occupied with the morphology and identification, the introduction deals briefly (but with many references) with the biology and the importance of seeds for the survival and distribution of plants. An incredible amount of work invested has made a dream come true for New Zealand botanists.

Hellmut Toelken
State Herbarium of South Australia

Malesian Seed Plants. Vol. 3, Portraits of non-tree families.

M. M. J van Balgooy

Malesian Seed Plants. Vol. 3, Portraits of non-tree families.. 2001. Nationaal Herbarium Nederland, Leiden. b &w illns, 260 pp. ISBN 90-71236-50-1. EUR 45.00.

This third and final volume of the series treats what might have more elegantly been called the herbs, shrubs and climbers, except that lesser-sized trees are included here rather than in Vol. 2 (van Balgooy 1998).

We remember that Vol. 1 (van Balgooy 1997) examines and lists the distribution of the taxonomic characters themselves, in particular the 105 "spot characters" that the author has found, in half a lifetime's working over Malesian collections, to best lead to family or generic names for members of this mighty flora of (perhaps many more than) 25 000 species of seed-plant.

Two lists in Vol. 3 are supplementary. The first is of additional taxa to which one or more of the 105 spot-characters apply. The second is of eight extra spot-characters, including, interestingly, "leaf margin dentate/serrate" — we temperates perhaps do not realize that in the tropics entire-margined leaves are much more frequently met with. "Ripe fruit white" is also another relatively rare character state, being listed for only 25 genera.

In his introduction van Balgooy notes that Vol. 3 took much longer to write than Vol. 2 (tree-families) did, simply for reasons of personal familiarity. We can be glad that no funding-agency overseer with time on his hands was able to interfere with this "disinterested service to Malesian botany" as Pieter Baas says in his warm preface. And anyway, who could do a more efficient job? In fact, the book's introduction laments the recent passing of Malaysian botanist K. M. Kochummen, who also had the same naming-ability, and van Balgooy goes on to say that pooling their experience might have been valuable since the two of them often seemed to use different characters to arrive at the same answer. As quoted by Davis & Heywood (1963: 269): "it doesn't matter how you get the answer, as long as it's right".

What is certain though is that people capable of pre-identification work — not just sharp-eyed and having an excellent memory but also with a

comprehensive knowledge of plant morphology — are at least as rare today as they have ever have been. Circumstances must be favourable too. I think it was the neurologist and writer Oliver Sacks who, when describing his training at a large and busy hospital, said that he gained a great and lasting benefit there in having to deal with a torrent of psychiatric ills of a diversity not to be dreamt of (hopefully) in a lifetime in academia. Max van Balgooy, brought up in Java and educated at Leiden, has had such an advantage.

The introduction reemphasizes that the three volumes are intended mainly for herbarium use (despite their being of a compactness ideal for the field). Collectors' notes are needed though for some spot-characters — for colour and odour, obviously, and also for the nature of any exudate. I had suggested (Gardner 1998) that the second and third volumes would make the first redundant to some degree but it is pointed out that several spot-characters of Vol. 1 are not mentioned in 2 & 3, and conversely.

Among the 105 spot-characters those yielded by the vegetative parts are twice as numerous as those from inflorescence, flower and fruit. This is as it should be for hard-pressed herbarium workers, even though a careful floral dissection can usually lead one to the correct family (cf. Geesink et al. 1981). But the right handful of uncommon vegetative features considered together will eliminate all but a very few possibilities for an unknown, and then knowledge of distribution, or a check in the herbarium, will often bring a successful conclusion. If I had to choose a subset of the spot-characters I might choose first the nature of the indument (this could well be analyzed further than in Vol. 1: what about the presence of uncinate hairs, for example?). I would also focus on the nature of the stipule if that was present, and thirdly, on leaf arrangement and features of the petiole and blade (glands, domatia, pustules, unusual kinds of venation, marginal projections). Nothing much unusual in this, and no doubt it would leave the AK family-undetermined boxes almost as full as ever, e.g. with Asteraceae.

This third volume has entries for 124 non-tree families (Poaceae is not here but in Vol. 2, because of the bamboos). The very brief family descriptions are divided between features always occurring and features usually occurring. Also listed are striking features, possession of any of the 105 spot-characters, how to tell the family from others most likely to be confused with it, notes on distribution, economic or ecological importance, and useful references. For 86 families there are *Flora Malesiana* (FM) accounts; for the remainder one would generally first refer to Backer and Backhuisen van den Brink (1963-1968). The illustrations are mostly from FM — a nice touch is the inclusion of a graceful *Ruthiella* (Campanulaceae) by FM's former principal artist Ruth van Crevel.

Because each family sometimes gets more than one illustration these and the text are not always arranged together, and I wonder whether some rationalization, e.g. by regularly giving the larger families 3 pages of illustration, might not have been a slight improvement. The text seems almost misprint-free, but "*Rhipogonum*". Some suggested additions etc. are as follows.

Agavaceae: Here the stamens are said to be free but at least in *Cordyline* they are adnate, being inserted at the top of the perianth tube. The distinction between *Cordyline* and *Dracaena* has been vexing; the former has leaf nerves that spread out at quite a wide angle from the midrib, while in the latter they more nearly parallel the midrib. Also, *Cordyline* has many ovules in each locule but *Dracaena* only one.

Alseuosmiaceae: The discrete but invariable emblem of this Australasian family (New Guinea, Australia, New Caledonia, New Zealand) is the presence of red-coloured hairs in the leaf axils (cf. some *Scaevola* spp., but hairs pale). The leaf arrangement, alternate in large part, but periodically pseudowhorled, is also characteristic and makes possible a confusion with Pittosporaceae.

Begoniaceae: Reference has been omitted to the work of Smith et al. (1986), with keys to all the species and photographs of typical specimens.

Musaceae: George Argent checked the account of this family but modestly omitted to cite his exemplary field and herbarium study of the bananas of New Guinea (Argent 1976).

Orchidaceae: The relatively ample account here was contributed by. André Schuiteman. The list of "striking features" has too many generic choices to be of great practical value, but the notes under Distribution are nice thumbnail sketches of 37 common orchid genera. The list of references might well have included the admittedly not fault-free work of O'Byrne (1994).

Ranunculaceae: This is the subject of the latest Pflanzenreich volume (Hiepko 1995).

Zingiberaceae: The large genus *Riedelia* (c. 50 spp., mainly New Guinea), should have been mentioned; it is unusual in often being epiphytic,

and in lacking bracteoles. And at least one of its species has a "striking feature" mentioned only for the West Malesian genus *Plagiostachys*, that is, the inflorescence breaks through the leaf sheaths part way down the stem. For a generic key to the gingers see Burtt & Smith (1972).

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Rhys Gardner
Auckland Museum

Marking the Robert Brown bicentenary

We are still hoping to have reports on the Victorian and Tasmanian celebrations. These are important to record for posterity.

Botanical embarassment?

> "Palms here were of three different sorts. The first…; the third which as well as the second was found only in the Northern parts was low, seldom 10 feet in hight [sic], with small pennated leaves resembling those of some kind of fern; cabbage it had none but generally bore a plentiful Crop of nutts about the size of a large chestnut and rounder. By the hulls of these which we found plentifully near the Indian fires we were assurd that these people eat them, and some of our gentlemen tried to do the same, but were deterrd from a second experiment by a hearty fit of vomiting and purging which was the consequence of the first. The hogs however who were still shorter of provision than we were eat them heartily and we concluded their constitutions stronger than ours, till after about a week they were all taken extreemly ill of indigestions; two died and the rest were savd with great difficulty."
>
> *The Endeavour Journal of Joseph Banks 1768-1771* (Beaglehole 1963, vol. 2: 115)

The reference is to *Cycas media* R.Br., encountered at Cooktown by Joseph Banks on Cook's expedition. It was later collected and named by Robert Brown from specimens collected from Calder Island, off Mackay. There was apparently no attempt to eat it, presumably in the light of what Banks had written earlier. Brown merely noted in his diary that this was his first sight of *Cycas circinalis*, although Flinders had seen it earlier at Keppel Bay. Peter Good made no mention of it in his diary.

Brown had already experienced poisoning from the ingestion of partly cooked *Macrozamia* nuts at Lucky Bay in Western Australia. Brown recorded this in his diary (10th Jan 1802; Vallance et al. 2001) and also made reference here to Captain Cook's "account of the deleterious effects of these nuts".

Why, then when they encountered what they thought to be *Cycas circinalis* again, at Bountiful Island in the Gulf of Carpentaria on 4th December 1802 (actually *Cycas angulata* R.Br.), did Brown, Bauer and Good eat the fruit? Good found the fruit to be "both pleasant to the taste and sight". However, on going on board Good records that he and Bauer were taken with a "violent reaching" which continued most of the night. He also recorded that it had an "unpleasant effect with Mr Brown". Curiously Brown makes no mention of it in his diary. One wonders why!

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Robyn Barker

Further events in Western Australia

Western Australian celebrations of the bicentenary of the Flinders's 1801-1803 voyage to New Holland began on 7 December 2001 at Flinders Bay, Augusta, near Cape Leeuwin, with a day of events to commemorate the first sighting of New Holland from the *Investigator* on that date in 1801. Organised by the Augusta Tourist Bureau, it included a series of short speeches on the people and results of the expedition and a presentation by a group from the Augusta Primary School.

This was followed by the *Investigator 200* symposium, already reported on in *Newsletter* 109 (pp. 27-29). Two further events commemorating the bicentenary were mentioned in the last *Newsletter* (110: p. 21): an exhibition *From Flinders to Florabase* of botanical publication held at the Alexander Library, and further celebrations at Esperance in January of the anniversary of the *Investigator's* visit to Lucky Bay.

The Esperance meeting was organised by the Esperance Wildflower Society. On 12 January three speakers from the Albany meeting gave presentations to a capacity house (100 plus) at the Esperance Civic Centre. They were David Mabberley, David Moore and Mark Webb. The next day the scene moved to Lucky Bay itself and nearby Thistle Cove. Many came by car and coach, and some 40 sailed in a charter boat to experience entering the Bay from the sea. Here the commemoration included installing four fine oval bronze plaques by Esperance sculptor Chris Siemer. These feature *Banksia speciosa* (collected by Brown and Bauer), HMS *Investigator*, a memorial to John Thistle, and one inscribed 'Lucky Bay 10–14 January 1802 The natural historians Ferdinand Bauer, Robert Brown, Peter Good and William Westall made botanical observations at points near here'. The last of these was sponsored by the Esperance Wildflower Society. This Society also published a book for the occasion: *Wildflowers of Cape Le Grand National Park: A Tribute to the Natural Historians with Flinders at Lucky Bay in 1802* (Esperance Wildflower Society Inc., 2002).

Alex George

Beyond Robert Brown
a one day conference for postgraduates in systematics & ecology

7 May 2002, National Herbarium of NSW, Royal Botanic Gardens, Sydney

The *Beyond Robert Brown* symposium was the first ASBS symposium to be totally organised by post-graduate students. The Plant Sciences Branch of the Royal Botanic Gardens, Sydney were co-sponsors.

The following thirteen students presented talks at the symposium:

- Jo-Hanna Adam (Charles Sturt Univ.) *Willow fertility and distribution on the Campbells River Catchment*
- Esti Ariyanti (Univ. Sydney) *Systematic studies of* Procris *(Urticaceae)*
- Yvonne Davila (Univ. Sydney) *Ecology and evolutionary implications of variation in pollinator assemblages on* Trachymene incisa *subsp.* incisa *(Apiaceae)*
- Robert Gibson (Univ. New England) *Drosera peltata* complex (Droseraceae)
- James Indsto (Univ. Wollongong) *Batesian mimicry in* Diuris *(Orchidaceae): Is it the norm?*
- Peter Jobson (Univ. Technology Sydney) *Progress on the revision of* Dillwynia *(Fabaceae) and kissing cousins in the Sydney basin*
- Aniuska Kazandjian (James Cook Univ.) *Systematics of the* Indigofera pratensis *complex (Fabaceae): morphology and molecular approaches*
- Juergen Kellermann (Univ. Melbourne) *The Australian Rhamnaceae since Robert Brown*
- Jo Ling (Univ. Western Sydney) *Biological assessment of wetlands: Testing techniques – Preliminary results*
- Paul Rymer (Univ. Wollongong) *The mating system of* Persoonias *(Proteaceae): a comparison of common and rare species.*
- Niko Streiber (Univ. Sydney) *Systematics of the Chloantheae (Lamiaceae)*
- Jennifer Tonks (Univ. NSW) *The invasive potential of the Chinese tallow tree (Triadica sebifera) in Australia*
- Nick Yee (Univ. Melbourne) *Systematics of the Sporochnales (Phaeophyta)*

The standard of the presentations (limited to 15 minutes) was excellent and the range of topics

offered ensured that the Symposium was both enjoyable and informative.

The Plant Sciences Branch awarded two prizes for the best presentation. These were awarded to Yvonne Davila and Paul Rymer (chocolates!).

I wish to thank all presenters, with particular thanks to the organisers: Kiomars Ghamhar, Juli Hadiah, Peter Jobson, Paul Rymer and Niko Streiber. Given the relatively short notice, representation from nine universities on the east coast was impressive. This was an extremely well run symposium and will hopefully be the first of many. Well done!

Barry Conn

Robert Brown 200
Royal Botanic Gardens, Sydney, 8 – 10 May 2002

Reproduced here is the first part of the Closing Remarks from the Robert Brown 200 *conference. It is a 'quick and dirty' summary of the first day (transcribed here pretty much as it was delivered), and all facts, figures and interpretations are from my notes and memory - do not quote or use without sourcing directly from the resulting publications!. Although the first day was devoted to systematics, and therefore of most relevance to ASBS, much of the conference would have been of interest to members. The full program is attached, and the proceedings will be published in forthcoming issues of* Telopea *and* Cunninghamia..

Tim Entwisle

Brown's lasting influence on botanical systematics

Learning is about forming your own views and perceptions from what you hear (or read), so there really can be no one summary of a conference. I certainly can't tell you what you got out of this conference. Nevertheless, I'll provide a synthesis of what I heard in the hope that it rekindles some of the fascinating information and ideas we've shared. In introducing Frank Howarth, Director and Chief Executive of the Royal Botanic Gardens and Domain Trust, to open the conference, I stressed that we were here to consider and analyse Brown's *legacy*, not the man. We've done that admirably.

David Mabberley, in his introduction, suggested we use progress since Brown as a benchmark for how we are doing. That is, is our science healthy? He listed the tens of families we weren't covering, but I think you'll agree we managed to get a good cross section of both Brown's interests and the Australian vascular flora.

Scoring system

I was going to set up a scoring system from 0 to 10. Did Brown pass or fail in each group (i.e. are his taxa 50% correct)? But of course this trivialises history (and Brown), and it is not the point. It is his science – the observations, the concepts and the documentation of his ideas – that matter. The 'R.Br' tag at the end of a name is a nice reminder of what he did, but not the critical part. This point came through in all talks. It's the foundation he laid for those that followed that matters - not the number of sp. novs. Those names that lasted can be considered the icing on the cake.

Legacy

We heard a lot about what Brown discovered and passed on to others, through publication or personal communication. For example:

- Discovery of many new characters. Someone has to do it of course, but for science, the sooner the better.
- His innovation in the use of microscopy was a key feature of many talks. Being able to look down one of his microscopes, in Australia for the first time in 200 years (kindly brought out by Dr David Cutler of the Linnean Society of London), brought home the strength of Browns interpretative and critical skills.
- Looking for affinities and groupings - perhaps even the start of homology as a concept. He looked for patterns and tried to understand the development of various plant organs. Examples included: floral parts as modified leaves (Crisp); vascular system in flower heads of Asteraceae (Bayer); column structure in orchids (Chase); grass characters such as embryo and spikelet structure (the spikelet as an inflorescence!), and lodicules of perianth origin - that help explain and define the grasses (Clark); a sense of the C4 and C3 divide in grasses with his cool and warm habitat groupings (Clark); and the minute detail of embryos and anthers in Restionaceae

and Juncaceae to make sense of these complex groups (Briggs).
- Field recognition skills (critical for his way of working; Mabberley)
- An agglomerative method (Weston)
- Lasting generic concepts. Why? Because he was first, because he was good at all of the above and maybe because he used multiple characters (more chance of getting it right and catching at least some synapomorphies; Weston).
- Even when he didn't publish himself (and undoubtedly his inability to complete projects would make him a current science administrator's nightmare), he was a great source of information for others such as Humbold, de Candolle and Lyall (Kellerman, Mabberley).

New and lasting taxa

The icing on the cake, but what a thick layer!
- Lots of new taxa described: 2311 angiosperm taxa (Crisp), including e.g. 90 spp. of Asteraceae (Bayer), 40 genera of Apocynaceae (Endress), 36 species and 5 genera of Restionaceae (Briggs), 150 new species from the Arctic (Grant), and so on.
- His use of de Jussieu's network system of classification undoubtedly led to taxon circumscriptions different to our current ones based on branched phylogenetic trees. Yet many lasted, and his percentage of monophyletic taxa in the Proteaceae was only improved upon in 1975 (Weston). In fact, most of his higher taxa are still recognised - e.g. 84% of *Prodromus* genera (Crisp) - and he has better survival rate for taxa than most of his contemporaries (Crisp). Examples of his taxon longevity include: the number of tribes recognised by Brown and Cassini was about the same as we now recognise using molecular techiques, and most turned out to be monophyletic (Bayer); the subfamilial classification in Apocynaceae devised by Brown is still pretty much in use, and the genera are very similar (Endress); things have advanced in Gesneriaceae and Scrophulariaceae but we are far from resolution - Brown's ideas still have currency (Weber); recent work confirms the two major groups in Haemodoraceae and Brown correctly predicted the sister group (Hopper); most grass genera are still accepted and although his major grass group turns out to be paraphyletic his Panicaeae still holds almost true - his system lasted well into the 1900s (Clark); the definition of the family Rhamnaceae, revolutionary at the time and still accepted (Kellermann); the genera of Restionaceae which are all mostly supported by the latest molecular and anatomical data (Briggs); and three-quarters of his arctic taxa still standing (Grant).
- He got some of the big things right (e.g. ferns not monocots; Crisp) and others wrong (e.g. *Chara* included in the angiosperms; Crisp)

Theory

Brown didn't make a major contribution to the development of systematics theory. For example Hooker came along later, in Australia and the Arctic, to add the biogeography theory (Crisp, Grant). But…
- Brown was using the natural system for the first time in the UK (but still referring to Linnean systems in his specimen annotations from Australia; Hopper).
- He was a user and tester of new theory.
- He put system above practicality - the natural system used in the *Prodromus* was not great for a Flora. But he was looking at longer and broader benefits, and perhaps not just the one user (Chase pointed out that we need to look at multiple users and not just, e.g., the herbarium botanist).

Molecular systematics

Many of the results presented at the conference were based on our recent mapping of plant genomes. Molecular systematics is:
- Obviously an important component of today's systematics.
- As revolutionary now as Brown's use of the microscope (Hopper): our detailed studies of the genome are comparable to his studies of organs and their development.

Recent discoveries

Along the way we heard of many advances and discoveries in the last few years. A couple that linger in my mind from the day:
- *Pterostylis* no longer in the Diurideae, and the carve up of *Orchis* which interestingly matched differences already known by orchid growers in the UK (Chase).
- Ancestral taxa for many groups were discussed. A point was often made that 'basal' groups don't define the ancestoral taxon but rather we need to look at the shared characters across a number of groups (i.e. the pleisiomorphic characters; Chase, Clark)
- In grasses and orchids, we learnt that vegetative characters are becoming important for tracking high level affinities (even though flowers are still appropriate for discrimination of species and lower level affinities; Chase, Clark)

Tim Entwisle

Other

A few comments along the way:

- He liked it complicated (Endress): ie. he took on the hard groups
- Was he a closet cladist? (Weston): a reference to him looking for something like homology, and examining development and organology. It was pointed out that he didn't polarise characters, but in the absence of evolutionary theory, why should he have - unless he was a closet pattern cladist.
- We saw the 'mother of all grasses' described by Lynn Clark.

Conclusions

- Systematic botany in Australia is healthy
- Robert Brown built us a solid scientific foundation, and as a bonus got it right a lot. As Lynn Clark put it, he does well by the standards of his own time *and* ours! And a piece of context: we heard of ships similar to those on which Brown travelled getting stuck in Arctic ice for a year or so, and the 'cheerfulness' of the crew watching spring flowers break through the snow (Grant).
- There is a lot still to do! And as the final discussion revealed, as well as doing good science, we need to communicate our results and our rationale for doing systematics to the wider community. Just a few reasons why botanical systematics has lasted …
    - systematics has a major role in setting conservation priorities
    - good systems give us greater predictive value
    - a 'natural system' should meet the needs of the greatest number of users
    - and, very importantly, systematics leads to a better understanding and appreciation of the 'natural legacy' around us – the plants and their habitats.

Program summary

Wednesday 8th May: Brown's lasting influence on botanical systematics

Introduction: Brown and now – David Mabberley
Classification of the flowering plants: Brown and now – Mike Crisp
Composites: Brown and now – Randall Bayer
Apocynaceae: Brown and now – Mary Endress
Proteaceae: Brown and now – Peter Weston
Posters and demonstration of Brown's microscope
Gesneriads and Scrophulariaceae: Brown and now – Anton Weber (presented by Tim Entwisle)
Robert Brown's Haemodoraceae (Commelinales) then and now, including an annotated checklist, new and reinstated taxa and new combinations – Steve Hopper
Orchid classification: from Robert Brown to DNA sequences – Mark Chase
Grasses: Brown and now – Lynn Clark
The Arctic flora: Brown and now – Jason Grant

Conference dinner at Botanic Gardens Restaurant, with presentation of the Thackray Medal* of the Society for the History of Natural History and an after-dinner speech by Dr David Cutler, Linnean Society, London

Thursday 9th May: Field trip

In the footsteps of Brown – Field trip to the Grose and Hawkesbury Rivers, led by Doug Benson, Jocelyn Howell and Peter Jensen
'Robert Brown, Flinders' Naturalist' – a public lecture by David Mabberley, sponsored by the Friends of the Gardens

Friday 10th May: Native vegetation: looking to the future

Introduction: Brown in New South Wales – David Mabberley
Western Sydney woodland ecology, then and now – Doug Benson and Jocelyn Howell
Robert Brown and the naturalised flora of Australia – Richard H. Groves
Conserving remnant vegetation in NSW – Bert Jenkins
Restoring Sydney's urban bushland – Peter Jensen
Wetland ecology: past, present and the future of aquatic plants and wetlands in the landscape – Margaret Brock
Posters and demonstration of Brown's microscope
Understanding Sydney's phoenix flora: effects of bushfires – David Keith
Rare plant species – Conservation opportunities and challenges – Paul Adam
From 'Age of Discovery' rationalism to the modern conservation ethos – Bob Makinson
Propagation for conservation – Cathy Offord
Closing remarks – Tim Entwisle
'Ferdinand Bauer, the Leonardo of Natural History' – a free public lecture by David Mabberley, sponsored by the Embassy of the Republic of Austria

Coming meetings

Flinders celebrations: it's Queensland's turn

Celebration of the bicentenary of the Flinders expedition moves on to Queensland from July. ASBS will join with the Royal Geographic Society of Queensland, the Queensland Herbarium, the Gladstone Regional Art Gallery Museum, the Austrian Government, James Cook University and Queensland Parks and Wildlife Service to host a series of lectures by David Mabberley on Robert Brown and Ferdinand Bauer. The lectures begin in Brisbane and Gladstone in early August then move to Townsville, Cairns and Weipa in October/November. This follows a highly successful series of lectures by David sponsored by ASBS and co-hosted with various agencies in the southern states. In addition to the ASBS lectures a wide range of other events are planned for Queensland.

Calendar of events

Brisbane

13 July - 30 August – *Flinders exhibition* - Qld Herbarium. Ph 3896 9326.

Brisbane Botanic Gardens at Mt Coot-tha will host free walks discovering some of the plants collected, described and illustrated by Brown and Bauer. Ph 3403 2535 for details of dates and bookings

18 July – Public Lecture: *Flinders the Hydrographer by Rod Ridley*, Royal Historical Society of Queensland. Ph 3221 4198

5 August – Lecture: *Ferdinand Bauer: Art and Science United* by David Mabberley. Brisbane Botanic Gardens Auditorium, Mt Coot-tha. 9.30am

Public Lecture: *Flinders' Naturalist: Robert Brown in Australia and After* by David Mabberley. Queensland Museum Auditorium. 7.30pm.

5 - 30 August – *Flinders Bicentenary Schools Program*

One-day workshops for high school art students exploring the work of Brown and Bauer at the Brisbane Botanic Gardens and Queensland Herbarium. Ph 3403 2535 for details including costs and bookings.

6 August – Public Lecture: *Ferdinand Bauer: Unsurpassed Illustrator of Natural History* by David Mabberley. Ithaca RSL Hall, Rosalie. 8.00pm.

Gladstone

2 August - 29 Sep – State Library of New South Wales main exhibition *Matthew Flinders: The Ultimate Voyage* at Regional Art Gallery and Museum Gladstone. Ph 4970 1242.

2 August – Public Lecture: *Ferdinand Bauer: Unsurpassed Illustrator of Natural History* by David Mabberley.

3 August – *Flinders Festival*; Port Curtis Sailing Club Regatta.

Gladstone Botanic Gardens display (To be confirmed). Ph 4970 1242.

4 August – Public Lecture: *Flinders' Naturalist: Robert Brown in Australia and After* by David Mabberley

Thirsty Sound

5 - 6 September – Commemorative service *In Flinders Footsteps* and walk to top of Pier Head. Ph 4937 3129.

7 September – Commemorative service on mainland and bus trip from Rockhampton and Yeppoon. Ph 4937 3129.

Bundaberg

11 Sep - 13 Oct – State Library of New South Wales travelling exhibition *Matthew Flinders: The Ultimate Voyage* at Bundaberg Arts Centre. Ph 4152 3700

Percy Isles

26 - 30 Sep – Re-enactment in Percy Isles by local sailing and fishing fraternity.

Ipswich

9 October – A feature garden with the five *Flindersia* species endemic to Ipswich planted as a partnership initiative with industry, community and Ipswich City Council at Flinders Plum Picnic Area.

Townsville

30 July - 3 September – State Library of New South Wales travelling exhibition *Matthew Flinders: The Ultimate Voyage*, Museum of Tropical Queensland. Ph 4726 0600.

24 October – Public Lecture: *On Brown and Bauer* by David Mabberley. (Time and venue to be confirmed)

Cairns

25 October – Public Lecture: *On Brown and Bauer* by David Mabberley. James Cook University. (Date and time to be confirmed)

Weipa

21 Oct - 15 Nov – State Library of New South Wales travelling exhibition Matthew Flinders: *The Ultimate Voyage* at the Hibberd Library, plus associated student activities. Ph 4069 9849.

29 Oct - 8 Nov – Royal Geographical Society of Queensland Gulf scientific expedition to the Pennefather River. Ph 3252 3856.

2 November – Public Lecture: *On Brown and Bauer* by David Mabberley. Venue to be announced.

Sweers Island

14 - 24 Nov – Royal Geographical Society of Queensland Gulf scientific expedition to the Wellesley Islands. Ph 3252 3856.

Karumba

24 Nov - 19 Dec – State Library of New South Wales travelling exhibition *Matthew Flinders: The Ultimate Voyage* at the Karumba State School.

Student workshop (To be confirmed).

Bowen

16 Mar - 6 Apr 2003 – State Library of New South Wales travelling exhibition *Matthew Flinders: The Ultimate Voyage* at the Bowen Shire Council Library. Ph 4786 1866

John Clarkson
Mareeba

Plant Systematics in Australia
a conference celebrating the150th anniversary of the National Herbarium of Victoria

29th September – 3rd October 2003

Preliminary announcement

This conference celebrates the sesquicentenary of the National Herbarium of Victoria and systematic botany in Australia. It is jointly sponsored by the Australian Systematic Botany Society and Australasian Mycological Society. It will also host the 7th Bryological Workshop and Orchid Conservation Forum II.

The conference will be held at The University of Melbourne on 29 September – 3 October 2003.

The conference will include:

- Sessions on Myrtaceae, Russulales, Orchid conservation, Bryology, etc.
- Australia's Virtual Herbarium workshop/forum: uses and progress (HISCOM)
- the Australian Systematic Botany Society AGM
- the Australasian Mycological Society AGM

Associated events of the conference will include:

- Orchid Conservation Forum II (25-27 Sept. 2003). Details from: Rob.Cross@rbg.vic.gov.au
- the 7th Bryological Workshop (4-7 Oct. 2003). Details from: Pina.Milne@rbg.vic.gov.au
- Book launch of *Novelty to Rarity - a History of the National Herbarium of Victoria* written by H. Cohn
- Botanical Art exhibition highlighting the State Botanical Collection of the National Herbarium of Victoria.
- Bryophyte Illustration Exhibition

Brochures and other notices will be circulated shortly. For further information please contact a member of the organizing committee:

Marco Duretto (Chair)
(Marco.Duretto@rbg.vic.gov.au)
Helen Cohn (Helen.Cohn@rbg.vic.gov.au)
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(Andrew.Drinnan@botany.unimelb.edu.au)
Teresa Lebel (Teresa.Lebel@rbg.vic.gov.au)
Pina Milne (Pina.Milne@rbg.vic.gov.au)
Jim Ross (Jim.Ross@rbg.vic.gov.au)

Fifth Australian Network for Plant Conservation national conference: preliminary announcement

The Fifth Australian Network for Plant Conservation national conference will be held in gorgeous Geelong, Victoria, from Tuesday 25th February to Saturday 1st March 2003. The theme of the conference, *The Road to Recovery*, will highlight the progress of plant conservation measures in the past decade with formal presentations, fieldtrips and conservation techniques workshops. Further information will be available in September and December issues of *Danthonia* and on the ANPC website (www.anbg.gov.au/anpc) at a later date. For specific queries prior to circulation of the registration brochure, contact Jeanette.Mill@ea.gov.au.

Liz James
Royal Botanic Gardens, Melbourne

Evolution of the Australian Biota the Australian Institute of Biology conference in Adelaide 23 – 25 September 2002

Venue for ASBS Annual General Meeting 24th September

The Australian Institute of Biology will be holding its annual symposium at the University of Adelaide on September 23-25 2002. The theme of the conference will be:

Evolution in the Australian Biota -
- Morphological evidence (including palaeontology)
- Molecular evidence
- Adaptation to the Australian environment

It is expected that registration will be approximately $100, with a substantial discount for students and retired members. Daily registrations will also be available at a reduced price. It is our intention to hold at least one half day session directed towards senior secondary school students and teachers, and we encourage feedback from members on the form this should take.

If you would like to register your interest in attending, please fill out the form inserted in this *Newsletter* issue. A second and final circular, including a registration form, will appear in early July. For people living outside Adelaide, we can organise accommodation according to your requirements.

For further information contact me:

Professor Bob Hill
Dept of Environmental Biology
University of Adelaide SA 5005
Ph (08) 83554583 or 0409 286 970
Email: bob.hill@adelaide.edu.au

ASBS Members please note that the Society's Annual General Meeting will be held following the end of proceedings (c. 5:30 pm), on Tuesday 24th September.

Funding sources

Visiting Research Fellowship of up to 3 months' tenure at Royal Botanic Gardens Sydney

The Royal Botanic Gardens Sydney (Australia) invites applications for this Research Fellowship for the financial year 2003/2004. Funds of up to $Aus15,000 are available to cover one return economy airfare, accommodation and living expenses for a period of up to 3 months. The Fellowship must be taken up and completed between 1 July 2003 and 30 June 2004.

The Fellowship is available for a research project contributing to any of the research programs at the Royal Botanic Gardens. These include: plant systematics, ecology, pathology and horticulture. Details of current projects can be found at www.rbgsyd.nsw.gov.au/html/Science.html or in the Annual Report at the Plant Sciences Branch (downloadable from same URL).

The work must involve collaboration with a staff member of the Royal Botanic Gardens.

Applicants should send a proposed research program, curriculum vitae and the names of three referees to Dr Tim Entwisle, Royal Botanic Gardens, Mrs Macquaries Road, Sydney NSW 2000 by 27 September 2002. Applications will be assessed on the merit of the proposal and the demonstrated achievements of the applicant.

Fur further information and application form see www.rbgsyd.nsw.gov.au/html/SCIENCE/Fellowships.html

Contact: Tim Entwisle
fax: +61 2 9251 4403;
e-mail: tim.entwisle@rbgsyd.nsw.gov.au .

Hansjörg Eichler Research Fund awards for 2002

Applications close on 31st August. Forms are available on the ASBS website.

New books

Cycads of the World (2nd edition)

D.L. Jones

This new edition covers all living species of cycads throughout the world. It also features 16 fine old colour engravings previously hidden away in antique volumes.

It describes over 110 new species and subspecies, in addition to those featured in his first edition. Maps have been redrawn, species names have been updated and new information has been added to the descriptions.

The recommended retail price is A$99.95, but the publisher New Holland has extended an advertised 10% discount offer to *ASBS Newsletter* readers for a further month, until 31st July 2002. Include $5.00 postage to NSW, Vic. & Qld, and $7.50 to all other states. On bulk orders of 3 or more copies, it will give a 15% discount, with no freight charge. Payment methods are by post with cheque attached or by credit card (Visa /Mastercard /Bankcard only).

To place an order contact New Holland marked for attention of Sandra Massey by:
fax 02 9453 3077
email: sandra@new holland.com.au.

Everlasting Daisies of Australia

Australian Daisy Study Group

Our latest book *Everlasting Daisies of Australia* is now available, either from us or good bookshops. The book aims to encourage the appreciation of these Australian daisies and to develop techniques for germinating, growing and using them.

It is the result of five years of work by the Australian Daisy Study Group and covers all of the species in twelve genera of everlasting daisies, many of which have not previously been described in readily accessible publications. The Australian Daisy Study Group have published several other books on Australian daisies.

Price A$49.95 plus A$10 postage within Australia, ISBN 0958743967, published in 2002 by R.G. and F.J. Richardson and C.H. Jerram & Associates, colour, soft cover, section sewn, 196 pages. For more information visit our website www.weedinfo.com.au.

R.G. and F.J. Richardson
PO Box 42
Meredith, Victoria, 3333

Ian Clunies Ross Memorial Foundation

ASBS is a member of this foundation.

Clunies Ross National Science & Technology Award

The Ian Clunies Ross Memorial Foundation is pleased to announce that the Clunies Ross National Science & Technology Award 2003 is now open for nominations.

Since 1991 these Awards have honoured sixty-seven people from every state and territory for their successful application of science and technology for the economic, social or environmental benefit of Australia.

Please note that nominations close on Friday 26 July 2002.

Award recipients will be announced and presented with a silver medal at a formal ceremony and dinner to be held March 2003 in Melbourne.

Nomination forms are available from the Ian Clunies Ross Memorial Foundation:

Tel: (03) 9854 6266
Fax: (03) 9853 5267
Email: info@cluniesross.org.au
web site: www.cluniesross.org.au

Federation of Australian Scientific & Technological Societies (FASTS)

I had mixed feelings about the Federal Budget as it was announced by Treasurer Costello last week. Our media release on the Budget was headed: "Science and the Budget: relief."

We were disappointed that Australia's national investment will continue to languish below OECD levels, but relieved that the funding provisions announced in last year's "Backing Australia's Ability" statement (BAA) are coming through on time.

The overall BAA package is worth just under $3 billion over 5 years, and the instalment due for 2002-02 is $403 million. That will be delivered as promised.

So why the disappointment?

The BAA funding is nowhere near enough to get Australia up to average OECD investment in this area. Australia is well behind the countries with which we normally like to compare ourselves, the Japans, USA, the advanced economies of Asia and Europe.

Their investment in science and research is well ahead of Australia's and climbing steadily; Australia was catching up quickly until 1996, but has fallen markedly away since then.

The sector estimated it would take an increased national investment of $13 billion over a five-year period to bring Australia's spending on R&D into line with that of other OECD nations. This figure first appeared in a talk by Gavin Brown, then President of the Group of Eight, and the graph illustrating his point is on the Go8 website (www.Go8.edu.au/media/image2001.04.11c.htm)

It has never been challenged.

2001 looked as though it was going to be a good year for Science. In response to the Chief Scientist's report "*A Chance to Change*" and the outcomes of the Innovations Summit, the Government in January released its *Backing Australia's Ability* initiative with a $2.9 billion increase.

This was warmly welcomed by the scientific community, *as a promising first step*. As the year progressed and the election loomed, the hoped-for bidding war between the Coalition and the Opposition to demonstrate which was providing the greater stimulus for science and innovation was pushed to one side by more prosaic matters.

Research released by a Swiss institute on international competitiveness revealed that Australia lies in the bottom half of 49 advanced countries in terms of public and private sector investment in R&D and in the willingness of Australia's young to contemplate a career in science.

There were reports from the UK and Canada of significant increases in government spending on science; and our Asian competitors emerged from the bleakness of the Asian meltdown to put forward initiatives to encourage significant R&D efforts to locate in their respective countries.

But within Australia the news was bleak. A round of company takeovers during 2001 meant that Australian scientific R&D was being exiled to Head Offices in Pretoria, London and France. Those seeking venture capital found the climate chilly, with investors burnt by the tech-wreck and institutions keen to ally themselves with the continuing property boom rather than investing in new technology.

In light of these factors, it is FASTS' view that Australia would be better served in 2002 by a greater investment in science and the jobs of the future, than in building up the $2 billion Budget surplus the Treasurer projected for 2002-03 in his Budget speech.

There ARE occasions when one borrows to make a wise investment and this is one of them. Not many of us, for instance, pay cash for a house. The same applies for Government. A judicious investment in science, research and education would pay off handsomely in the long term.

Any shortcomings in our investment in these areas will be visited on the next generation of Australians. They will suffer declining job opportunities, a poorer environment, and the cultural impoverishment that comes from a reduced emphasis in education.

Australia needs enough trained scientists and mathematicians to support an innovation-led economy. This has to be coupled with a general population able to appreciate science and to debate the ways science should be harnessed to the community's benefit.

FASTS is concerned about the status of Australia's scientists and the rewards that they attract. An economy based on innovation will only happen if the best and brightest are attracted to science and see their role as scientists as making a major contribution to national development.

FASTS sees much merit in the *Science Meets Parliament* initiative which is now in its fourth year of operation, and we are planning to expand the activity this year to include a Canberra dinner with industry participants to round out the event. This event has prompted a greater awareness of Parliamentarians in the value of investing in science and research. The dates have been set - November 12-13.

Despite the arguments in favour of a literate community confident in handling science and technology, the Budget was generally silent in the area of education. This can partly - but only partly - be explained by processes the Ministers for Education and Science, Brendan Nelson and Peter McGauran have in place. They have shown a refreshing willingness to look at all aspects of science and education, and are looking at research priorities and reviewing (again!) the university sector.

Action is in the pipeline, and the sector would have good reason to be disappointed if these matters were not addressed in the next Budget.

FASTS has recommended that Australia should develop a ten-year plan to improve the national education system. We need to take the broadest look at this position, as science, research and innovation are inextricably locked together with the education system at school, university and TAFE.

This includes taking a fresh look at funding for the arts, social sciences and humanities. While FASTS speaks for scientists and technologists, we are sympathetic to our colleagues in these disciplines. It is in these areas where the funding has lagging even further behind, with only limited access to the new monies from the BAA statement.

There is a whole raft of social issues surrounding the application of science and technology, and a functioning society requires a balance between the sciences and the arts.

Without a long-term broad-scale strategy to redress education and research issues, Australia will it harder and harder to retain its home-grown talent and attract world class researchers from overseas. A new study by Professor Graeme Hugo of the University of Adelaide shows that half the Australians working overseas had no intention of returning.

They prefer the better employment opportunities, professional development and higher pay on offer overseas. Australia has to get serious about its science, research and education systems, and to look beyond the normal politician's time horizon of ten years.

Professor Chris Fell
President
FASTS

ASBS Publications

History of Systematic Botany in Australia
Edited by P.S. Short. A4, case bound, 326pp. ASBS, 1990. $10; plus $10 p. & p.

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

Systematic Status of Large Flowering Plant Genera
ASBS Newsletter Number 53, edited by Helen Hewson. 1987. $5 + $1.10 postage.

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

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.

Send orders and remittances (payable to "ASBS Inc.") to:
Katy Mallett
ASBS Sales
ABRS
GPO Box 787
Canberra, ACT 2601, Australia

Evolution of the Flora and Fauna of Arid Australia
Edited by W.R. Barker & P.J.M. Greenslade. ASBS & 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.

Special arrangement. To obtain this discounted price, post a photocopy of this page with remittance to:
Peacock Publications, 38 Sydenham Road, Norwood, SA 5069, Australia.

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From outside Australia: add the country code 61 and omit the leading zero of the area code

AD
tel: (08) 8222 9307
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These listings are published in each issue. Please inform us of any changes

Australian Systematic Botany Society Newsletter 111 (June 2002)

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 ASBS *annual membership subscription* is $40(Aust.); full-time students $20. Please make cheques out to *Australian Systematic Botany Society Inc.*, and remit to the Treasurer. All changes of address should be sent directly to the Treasurer as well.

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 Editors at the address given below. They should *preferably* be submitted as: (1) an MS-DOS file in the form of a text file (*.txt* extension), (2) an MS-Word 97 or earlier version *.doc* file, (3) a Rich-text-format or *.rtf* file. Send on an MS-DOS disk or as an email message or attachment. *Non-preferred* media such as handwritten or typescripts by letter or fax are acceptable, but may cause delay in publication in view of the extra work-load involved. Contact the Editors on *images*; their inclusion may depend on space being available.

The *deadline* for contributions is the last day of February, May, August and November. All items incorporated in the Newsletter will be duly acknowledged. Any unsigned articles are attributable to the Editors.

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

Advertising

Advertising space is available for products or services of interest to ASBS members. Current rate is $100 per full page, $50 per half-page or less, with a 20% discount for second and subsequent entries of the same advertisement. Advertisements from ASBS members are usually exempt from fees. Contact the Newsletter Editors for further information.

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