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## ARTICLES

### William V. Fitzgerald — miscellaneous notes on his N.W. Australian collections, publications and manuscripts

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#### Introduction

I have briefly dealt with William Vincent Fitzgerald as part of a previous article in this newsletter (*Austral. Syst. Bot. Soc. Newsletter* 63: 4–8, June 1990). I noted, among other things, Fitzgerald's apparent "blacklisting" — at least in the eyes of Alfred Ewart — and also stated that "Fitzgerald's collections seem to be mainly in E, NSW and PERTH."

Since writing that article, I have been in contact with Kevin Kenneally (PERTH), who has accumulated considerable biographic data about Fitzgerald. Kevin now has copies of relevant letters that I have gathered, and he hopes to publish a biography of this most interesting botanist. Although keeping an eye out for pertinent biographic material, my main interests in Fitzgerald, with the exception of the "run-in" with Ewart and the botanical "blacklisting", are concerned with his publications and the locality of his type specimens. There are problems with Fitzgerald's publications with regards to the status of his names of N.W. Australian plants published in the *The Western Mail (Perth)* in 1906. Opinions also vary as to the authorship of some of Fitzgerald's names for N.W. Australian plants published in works by J. H. Maiden.

I outline some of these problems here, as they may make for interesting discussion (perhaps in the *Newsletter*?), and then turn to the subject of Fitzgerald's manuscripts and type specimens held at BM, the latter being an important repository of Fitzgerald's specimens, a fact I omitted to mention in my earlier article. I conclude with a brief mention of specimens at E.

#### Valid or invalid descriptions in the *Western Mail*?

I haven't seen the publication, but in June 1906 a number of Fitzgerald's names were pub-

lished in *The Western Mail (Perth)*. Some names lack, or are felt to lack, an adequate description, and are regarded as *nomen nuda*. Others have been deemed to be validly published. Thus, Gordon Guymer (*Aust. Syst. Bot.* 1: 199–323) cites *The Western Mail* as the place of valid publication of several species, including:-

*Sterculia viridiflora* Fitzg., *The Western Mail (Perth)* p. 7 & photo p. 27 (9 June 1906).

Original description reads: "greenish coloured flowers" (*Aust. Syst. Bot.* 1: 291).

*Sterculia viscidula* Fitzg., *The Western Mail (Perth)* p. 10 & photo p. 24 (2 June 1906). Original description reads: "blossoms are large, bell-shaped, of a scarlet colour in bunches on the old branches, and along with the fruit, more or less viscid without" (*Aust. Syst. Bot.* 1: 291).

In APNI (A.D. Chapman, *Australian Plant Name Index*, 1991) *The Western Mail* is not regarded as the valid place of publication for *S. viridifolia*; instead reference is given to the later publication in *J. Proc. Roy. Soc. West. Aust.*

Similar differences of opinion occur for names in *Eucalyptus*. No-one is likely to dispute the citation *Eucalyptus houseana* Fitzg. ex Maiden, *J. Proc. Roy. Soc. N.S.W.* 49: 318 (1916). When describing it, Maiden recorded:-

The name *Houseana* was used by Mr Fitzgerald in the "Western Mail," Perth, W.A. of 2nd June, 1906. No description of the plant was ever published. A small scale photograph was accompanied by the following words:- "*Eucalyptus Houseana*, W.V.F. after Dr F.M. House, is among the tallest of the tropical species, it occasionally reaching a height of 80 feet. This tree usually occurs on well-grassed plains between the Isdell and Charnley Rivers."

In contrast, *Eucalyptus mooreana* Fitzg. ex Maiden, *J. Proc. Roy. Soc. N.S.W.* 47: 221 (1914) is perhaps adequately described. Maiden noted:-

The name was used by Mr Fitzgerald in the "Western Mail," Perth, W.A., of 2nd June, 1906. No description of the plant was ever published. A small scale photograph was accompanied by the following words:- "*Eucalyptus Mooreana*, W.V.F. is a new species occurring on the summits of Mount Broome, Rason, Leake and Bold Bluff. It forms a small crooked tree, with usually mealy-white leaves and pale yellow flowers. It has been named out of compliment to the present Minister for Lands."

For this species I would be inclined to use the citation: *Eucalyptus mooreana* Fitzg., *The Western Mail (Perth)* 21(1066): 10 (2 June 1906) [n.v., extracted from APNI].

Although there are different interpretations as to the place of valid publication of these names, I am not aware that any of them matter, in as much no other names which could have priority exist. But these examples do highlight the difficulties that can be faced in deciding just what constitutes a valid description.

#### Authorship of Fitzgerald's names

Following his field work in N.W. Australia, Fitzgerald took pen to hand and compiled descriptions of a large number of species, but there was considerable delay in publication. Manuscripts were completed, at the very latest, in early 1912 (see below), but most of his species of N.W. plants were not described for another six years, attempts to publish in the *Journal of Botany* not leading to fruition. Without the efforts of J.H. Maiden it is possible that Fitzgerald's work may not have been published. In the major paper pertaining to Fitzgerald's N.W. Australian or Kimberley plants (*J. Proc. Roy. Soc. W.A.* 3: 102-224, 1918), containing an introduction by Maiden, the latter informs us:-

Mr Fitzgerald was attached to two expeditions, viz., that of C. Crossland in 1905, and one in the following year. A note on the botanical work will be found in my "Notes on *Acacia*, No. li., Tropical Western Australia," in *Proc. Roy. Soc. N.S.W.* li., 106, 1917. The few specimens collected by Dr House, collected on the F. S. Brockman expedition of 1901 are referred to, *op. cit.* p. 104, and are included by Mr Fitzgerald in the present paper.

From time to time I brought before the Royal Society of New South Wales (Vols xlvi., 221 (1913); xlix., 317, 318, (1915);

li., 445 (1917)) notes on or descriptions of *Eucalypts* collected by Mr Fitzgerald, embodying his notes or descriptions where available.

Concerning *Acacia*, the same remarks apply as regards tropical species, to my papers in *Proc. Roy. Soc. N.S.W.*, li., 71 (1917) and "The Flora of the Northern Territory" (Ewart and Davies), published by the Federal Government, 1917, Appendix iv., *Acacias*, p. 318. As regards Extra-tropical species, *Proc. Roy. Soc.*, N.S.W. li., 238 (1917).

On 11th April, 1916, I received from Mr Fitzgerald, the day after his departure on active service, his M.S. on Western Australian plants, together with some herbarium specimens. With the author away from Australia (he recently returned wounded), I acted in his interests as well as I could. Some few remaining *Eucalyptus* notes I will continue to publish in the Royal Society, New South Wales, series of papers, and others in my Critical Revision of the genus.

A Hydrocharidiaceae, which on receipt of the manuscripts I found Mr Fitzgerald had described (but not published) had been forwarded by me to Dr A. B. Rendle, F.R.S., of the British Museum, a specialist on this Family, as far back as July, 1915 [Maiden is referring here to *Maidenia* Fitzg. ex Rendle, *J. Bot.* 54: 316 (1916)].

No opportunity presented itself of dealing with Mr Fitzgerald's manuscripts in 1916. I divided them into three parts (a) The present portion, which deals with the tropical (chiefly Kimberley) plants. This is by far the most valuable: I have re-arranged it but have not otherwise interfered with it. (b) Some notes on other Western Australian plants; valuable but not so urgent. (c) Descriptions of Western Australian plants already published by Mr Fitzgerald. It was evidently the intention of Mr Fitzgerald to publish (a), (b), and (c) as a complete work, and this would have been very convenient. Of course no scientific journal would republish (c). It is regretted that the present paper was not published years ago, but financial difficulties apparently stood in the way.

During the last ten years I obtained a number of specimens of Mr Fitzgerald's collecting by purchase from a former business partner of his [presumably J. Staer]. A few others I had received at odd times from Dr

Stoward, Botanist and Plant Pathologist of the Western Australian Department of Agriculture. In April, 1917, I received from Dr Stoward specimens of 53 species now described in this paper. These are in the National Herbarium of Sydney, and the original set is with Dr Stoward at Perth. Many of the species will have to be re-collected before material is available for other herbaria.

Mr Fitzgerald's paper deals with one of the important *terrae incognitae* of Australia. This has been brought home to me frequently, as small collections from North-Western Australia are from time to time received. Accordingly, long before I became the trustee of Mr Fitzgerald's manuscripts, I had prepared a botanical bibliography of the region, which is attached to my *Acacia* paper (*Journ. Roy. Soc. N.S.W.*, li., 71 (1917), the chief value of the purely botanical portion of which is based on Mr Fitzgerald's material received from Dr Stoward. [pp. 102-103]

Prior to the above introduction, Maiden (*J. Proc. Roy. Soc. N.S.W.* 51: 71-124, 1917) referred to Fitzgerald's specimens when three species of *Acacia* discovered by Fitzgerald were described. He noted:-

Some of Mr Fitzgerald's specimens came into my care through purchase from a person [presumably J. Staer] into whose hands they had passed, and some of the Eucalypts have been described by me. Some of Mr Fitzgerald's *Acacias* from the herbarium of the W.A. Department of Agriculture (received by me from Dr F. Stoward) are published in the present paper. Mr Fitzgerald's manuscript quoted was sent by him to me on the eve of his departure on active service in April, 1916, although I did not read the greater part of it until December. I hope that the rest of the manuscript, at all events that which refers to new species, will soon be published. It would appear that some of the corresponding specimens have been very much dispersed, and no complete set of them exists; this is to be regretted as the collection is the most important tropical West Australian one ever made. [pp. 107-108]

With Maiden dealing with Fitzgerald's manuscripts in different papers, it is not surprising that there is discrepancy in the citation of the authorship of some names. For example, of the three species described in Maiden's paper of 1917, viz. *A. curvicarpa*, *A. kimberleyensis* and *A. pachyphloia*, each are considered in APNI to be jointly described

by both Fitzgerald and Maiden, e.g. *Acacia kimberleyensis* Fitzg. ex Maiden & Fitzg., *J. Proc. Roy. Soc. N.S.W.* 51: 112 (1917). In contrast, Green cites both *A. curvicarpa* and *A. kimberleyensis* as "Fitzg. in Maiden", and uses "Fitzg. ex Maiden" for *A. pachyphloia*.

I believe that the citation "Fitzg. in Maiden" is applicable to all three names, and that this will be adopted in the *Fl. Australia* (B. Maslin pers. comm. July 1992). Maiden clearly attributed all such names directly to Fitzgerald, e.g. "*A. Kimberleyensis* W.V.F. n. sp.", and it is clear from the text that Fitzgerald was responsible for the English description and some notes, including the citation of specimens, for each species. Admittedly, Maiden chose to add further notes for each species, and he states that he was also responsible for the Latin descriptions. However, with the date of publication being before 1935, Latin descriptions are not required, and, although he added additional observations, the descriptions supplied by Fitzgerald can stand on their own.

#### Fitzgerald's manuscripts at BM

During my tenure as ABLO, I checked at the Natural History Museum, London (BM) for any Fitzgerald manuscripts and letters. I found a single, catalogued envelope containing a letter dated 30 April 1912, and a manuscript entitled "Notes on the Flora of North-West Australia with descriptions of some new genera and species". Both the letter and manuscripts are held together by a piece of string looped through the top corner.

There are also two pages which seem to have come loose from the main part, and which contain notes on *Jacksonia velutina*, *Acacia neriifolia*, *Acacia conspersa*, *Salicornia tenuis*, and *Pimelea aeruginosa*. They would appear to be part of (or perhaps the entire thing) another manuscript entitled "References to several species of Australian plants", the title page of which was part of the main bundle. The major part of the bundle (which in its entirety consists of about 220 pages) contains the descriptions of taxa that were eventually, and mainly, published in *J. Proc. Roy. Soc. W.A.* 3: 102-224 (i.e. Fitzgerald 1918). A list of the ultimately published names, but excluding five unpublished manuscript names, is presented in Table 1.

The "N.W." manuscript itself is undated, but from the reference in the letter to "my paper on the flora of N.W. Australia" I think it safe to conclude that the manuscript must have been completed before 30 April 1912. The letter was addressed to James Britten, editor of the *Journal of Botany*, the

Table 1. Ultimately published binomials listed as "sp. nov." in Fitzgerald's manuscript at BM of his "N.W." flora.

# — Fitzgerald recorded on the manuscript that a type was sent to BM

\* — type located at BM by P.S. Short in May 1992

\*\* — specimen data on BM specimen is not in agreement with manuscript or publication but is clearly labelled by Fitzgerald as "sp. nov."

E — specimen located at E (originally part of J. Stær's herbarium)

<i>Abutilon andrewsianum</i> E	<i>Eucalyptus argillacea</i>	<i>Jacksonia aculeata</i> #	<i>Scirpus isdellensis</i> #
<i>Abutilon propinquum</i>	<i>Eucalyptus cliftoniana</i> #*	<i>J. petrophiloides</i> #	<i>Sida hackettiana</i>
<i>Acacia curvicarpa</i> #*	<i>E. confluens</i>	<i>Josephinia papillosa</i>	<i>Solanum dioicum</i> #*
<i>A. kimberleyensis</i> #	<i>E. houseana</i> #**	<i>Loranthus biangulatus</i> #	<i>Stemodia flaccida</i>
<i>A. pachyphloia</i>	<i>E. lirata</i>	<i>L. ferruginiflorus</i> #	<i>Sterculia decipiens</i>
<i>Atylosia lanceolata</i>	<i>E. mooreana</i> #*	<i>Mallotus derbyensis</i>	<i>Sterculia tuberculata</i> #*
<i>Blumea prostrata</i> E	<i>Euphorbia chrysochaeta</i>	<i>Marsdenia brockmania</i> #	<i>Sterculia viridiflora</i>
<i>B. pungens</i> E	<i>E. cinerea</i>	<i>Metaleuca argentea</i> #	<i>S. viscidula</i> #**
<i>Boronia pauciflora</i>	<i>E. comans</i>	<i>M. crosslandiana</i> #	<i>Styliidium clatonioides</i>
<i>Bridelia phyllanthoides</i>	<i>E. distans</i>	<i>M. loguei</i> #	<i>S. cordifolium</i> #*
<i>Brockmania membranacea</i> #*	<i>Fenzlia phebalioides</i>	<i>Mitrasacme hispida</i>	<i>S. irriguum</i>
<i>Buchanania oblongifolia</i> #**	<i>Fimbristylis arthrostylodes</i> #**	<i>M. lepidocalyx</i>	<i>S. rubriscapum</i> #**
<i>Caladenia tepperiana</i>	<i>F. oligocephala</i>	<i>Nesaea repens</i> #	<i>Tephrosia conspicua</i> #*
<i>Calogyne heppleana</i>	<i>F. pilifera</i>	<i>Olearia aspera</i> #	<i>T. stipuligera</i>
<i>Cassia cladophylla</i>	<i>Goodenia linifolia</i> #**	<i>Petalostigma humilis</i>	<i>Terminalia biangulata</i> #*
<i>Cassia neurophylla</i>	<i>G. propinqua</i>	<i>Phyllanthus polycladus</i>	<i>T. chlorocarpa</i> #*E
<i>Cassytha strigosa</i>	<i>Grevillea erythroclada</i> #	<i>Pityrodia obliqua</i> #	<i>T. hadleyana</i> #*E
<i>Crosslandia setifolia</i> #	<i>G. heteroneura</i>	<i>Psoralea cuneata</i> #*	<i>T. rogersii</i> #*E
<i>Crotalaria membranacea</i>	<i>G. miniata</i> #	<i>Psoralea virens</i>	<i>Tribulus affinis</i> #
<i>Cryptandra intratropica</i> #	<i>Haemodorum flaviflorum</i> #	<i>Pterocaulon globuliflorus</i>	<i>T. curvicarpa</i>
<i>Cycas furfuracea</i>	<i>H. longifolium</i> #	<i>Ptilotus johnstonianus</i>	<i>Triglochin pterocarpa</i>
<i>Dampiera conospermoides</i> #	<i>Hakea morrisoniana</i>	<i>P. longistachyus</i>	<i>Triumfetta reflexa</i>
<i>Diospyros nitens</i>	<i>Helicteres rhynchocarpa</i> #	<i>Scaevola decipiens</i>	<i>Utricularia charmleyensis</i> #
<i>Ehretia urceolata</i>	<i>Heliotropium flaviflorum</i> #	<i>S. scabrida</i> #*	
<i>Eriachne pauciflora</i>		<i>S. stenostachya</i> #**	

journal in which Fitzgerald was attempting to have his "N.W. plants" published. His letter reads in part-

I trust the time is not far distant when you will be able to find room for my paper on the flora of N.W. Australia. I presume it will be published in parts. Doubtless, some of my new species will be found in The Northern Territory. I am afraid examples from there may reach Professor Ewart of Melbourne through the new administrator, Professor Gilruth. The former has already shown no scruples in publishing without my knowledge, notes furnished by me to a well known collector [Max Koch]. The latter states Professor Ewart wrote requesting the loan of the notes & examples of the species to which they referred for comparative purposes. I sin-

cerely trust you will see your way clear to assist as requested in my letter.

Comparison of the "N.W." manuscript with Fitzgerald's publication in *J. Proc. Roy. Soc. W.A.* shows that this manuscript is not the same as that sent to Maiden. In the manuscript the descriptions are in Latin, and the general remarks are in English. In the published version the descriptions are in English, albeit the wording closely following the Latin descriptions.

I therefore assume that Maiden did not receive an exact copy of the manuscript now at BM. This is also in agreement with Maiden's statement (cited above) in reference to "the ... portion [of the manuscript] which deals with the tropical (chiefly Kimberley) plants". He clearly states that he "re-arranged it but have not otherwise interfered with it". That Maiden must have only received descrip-

tions written in English is supported in the case of the three species of *Acacia* dealt with in the BM "N.W." manuscript but published separately in a paper by Maiden (i.e. *Acacia curvicarpa*, *A. kimberleyensis*, and *A. pachyphloia* mentioned above). Here Maiden stated that he provided the Latin descriptions.

A copy of the BM manuscripts and accompanying letter (which I have paginated in the same order as found in the envelope) was kindly provided by the librarian at the Botany Library, and it will be deposited in the library at MEL. I have also made a further copy for deposition in PERTH.

### Fitzgerald's "N.W." type specimens at BM

It is clearly indicated on the "N.W. plant" manuscript against the respective species descriptions when Fitzgerald allocated a specimen for BM. This suggests that BM should house 49 such types. I didn't check for them all, but I did find 17 and made some notes concerning the specimen labels. All such specimens have printed labels with "Flora of Western Australia" on the top, and "Ex. Herb. W. V. Fitzg., F.S.Sc., Lond., F.R.H.S., Engl." The collection details are in Fitzgerald's hand, and they invariably, after the binomial, have "W.V.F., sp. nov.", or in the case of *Brockmania* "W.V.F. Gen. & sp. nov." For two of the acacias that I checked, i.e. *A. curvicarpa* and *A. kimberleyensis*, the type specimens with the aforementioned kind of label are also accompanied on the same sheet by duplicate specimens that have printed New South Wales Herbarium labels. They were presumably received at a different time, and I assume that they were sent to BM by Maiden.

Some of the BM specimens that currently reside in type folders and clearly relate to his "N.W." manuscript have no, or doubtful, type status. Although specimen data is usually in accord with the manuscript (but see *Buchanania oblongifolia*), there is sometimes no or dubious accord with the published work. I found this to be the case in the following examples:-

*Buchanania oblongifolia* — BM specimen: "Packhorse Range". Manuscript: "Mons Ranson; inter montes Precipice et Isdell Ranges, in flumina King et Ord; insula Sunday". Publication: "Mt. Rason, between Precipice and Isdell Ranges, Hann, Barnett, Isdell, King and Ord Rivers, Bell Creek, near Wyndham (W.V.F.)."

*Eucalyptus houseana* — BM specimen: Isdell River, June 1905. Manuscript: "Prope basem

'Artesian Range' — Juxta fluvium Isdell." Publication: Maiden cited Fitzgerald's note from *The Western Mail* (see above) and then cited "Isdell River near Mount Barnett Homestead, Kimberleys, North Western Australia. No. 1014, collected by W. V. Fitzgerald, May, 1905." Assuming that Maiden is credited with the first valid description, then the BM specimen, which differs in the date of collection, cannot be regarded as a syntype.

*Goodenia linifolia* — BM specimen: "Goody Goody" in April 1905. Manuscript: "Prope Derby et Inglis Gap (King Leopold Ranges)". Publication: "Near Derby; Inglis' Gap, King Leopold Ranges; Lennard, Isdell, Barnett Rivers (W.V.F.)."

*Scaevola stenostachya* — BM specimen: "Bell Creek W. Kimberley May 1905". Manuscript: "Juxta flumen Isdell inter Isdell Range et Grace's Knob." Publication: "Near Isdell River, between Isdell Range and Grace's Knob (W.V.F.)."

*Sterculia viscidula* — BM specimen: "near Mount Eliza". Manuscript: ("Prope fluminis Lennard, Hann, Calder, etc."). Publication: *The Western Mail* — "was discovered in rocky situations"; *J. Proc. Roy. Soc. W.A.* — "Near Trig Station, H. 72, Lennard River, and from thence east to the Hann River and north to Calder River (W.V.F.)". By accepting the *The Western Mail* publication as valid the BM specimen can clearly be regarded as a syntype, although Guymer chose to select a PERTH specimen as lectotype.

*Stylidium rubriscapum* — BM specimen: "Chamley River; W. Kimberley August 1905". Manuscript: "Prope flumen Calder et Messmate Creek, Packhorse Range". Publication: "Calder River; Messmate Creek in the Packhorse Range (W.V.F.)."

The fact that there are discrepancies between the specimen data and published data is consistent with the view that the "N.W." manuscript received by Maiden was not an identical copy of the BM manuscript. The occasional discrepancies noted between the herbarium specimen data and Fitzgerald's BM manuscript are not important, as when ascertaining what specimens should be regarded as syntype specimens we must be guided by the published account (but perhaps use manuscripts and letters to clarify problems with the published work).

It is clearly apparent that when searching for syntypes and when choosing lectotypes of Fitzgerald's names, particularly names of species gath-

## FLORA OF AUSTRALASIA.

Nat. Ord. Compositae  
*Blumea prostrata* W.V.F.  
 Collector W.V.F.  
 Locality Jadell River W.A.  
 Date June 1905  
 HERBARIUM OF J. STAER, F.L.S.

Figure 1. One of the labels from the Fitzgerald specimens at E

ered by him from the Kimberley region, the possibility of type specimens residing in BM cannot be overlooked.

#### Fitzgerald specimens in E

As noted by Hedge & Lamond (*Index of Collectors in the Edinburgh Herbarium*, 1970), some Fitzgerald specimens are housed in E. Some, if not all, were obtained as part of J. Staer's herbarium. According to a letter at MEL (S.G.M. Carr to J.H. Willis, 11 Nov. 1964), Staer obtained "a complete set of the new species W.V. Fitzgerald collected in the Kimberley".

I briefly visited E in May last year, but I did not look extensively for Fitzgerald collections, although I did note which collections I saw (Table 1). I also know that the "N.W." or Kimberley col-

lection is seemingly incomplete. Helen Aston has informed me that *Triglochin pierocarpa* is not represented in E, as could be expected from the above statement by Mrs Carr. Perhaps the latter's reference was meant to be to *Eucalyptus* collections, not the entire set of plants.

All of the Fitzgerald specimens that I examined at E were accompanied by a label with "Herbarium of J. Staer, F.L.S." printed at the base (Fig. 1), and the label information was in what I assume to be Staer's hand.

#### Reference

Fitzgerald, W. V. (1918). The botany of the Kimberleys, north-west Australia. *J. Proc. Roy. Soc. W.A.* 3: 102-224.

### Botanists at war

Keith Ingram  
 La Mancha, Mt Tomah  
 Near Bilpin. 2758.

#### Introduction

During World War II, the 1st Australian Commandant Roysl Engineers (New Guinea Forests) was formed after the Forestry Companies, sent to Scotland to mill timber for the British war effort, were recalled to Australia. In Scotland, it was purely a forestry affair; in New Guinea, botanists and wood technologists were needed to advise the lads in the platoons on the types of timber, etc. that

could be used to meet the army's needs. The Americans had a similar set-up, and I've learnt in recent years that the Japanese were similarly equipped.

Its Headquarters administrative and advisory body consisted of 24-30 personnel, with the peacetime Secretary of Forests, N.G., Major Jim McAdam, as commanding officer, and Major Fox, surveyor, as his second-in-command. Norman Hall, a forester, ex-New Zealander and South Australian, was adjutant. Lindsay Smith was recruited

from Queensland, and Knowles Mair and I were from New South Wales. Les Carron and Harry Luke were other forestry personnel, as were Frank Vickery and Bill Cox, who at certain times shared a hut with me.

As most of us are either dead, e.g. Lindsay, Harry and Jim McAdam, or over 80 (Normal Hall 86, Knowles 83, and I 80), it may be of interest to set down some of our recollections now.

### The War

Firstly, H.Q. was located in Lae, but the companies and platoons were subject to operational requirements — long periods of relative inactivity and short periods of panic! Lae, Wewak, and Jacquinot Bay were some that I recall. H.Q. kept in touch with them daily by means of radio.

To prepare the units for the totally changed conditions in New Guinea, a Forest Botany School was held during July 1944, at Yalu, between Lae and Nadzab. To this school, I think about equal numbers of American and Australian personnel were invited. Lecturers were C.T. White (Queensland Government Botanist), Lindsay Smith (I still have his prepared notes on terminology), and Dr W.W. Jacobs (Canberra School of Forestry). Dr H.E. Dadswell of Melbourne (Division of Forest Products) prepared the wood technology card-sorting keys, and we used these extensively; but I cannot recall his presence at the school.

Most of the work was done in the field, and there was considerable enthusiasm among the forestry personnel to fell any sapling or tree that "CT" wanted to illustrate his remarks — so much so, that Bill Cox felled a *Tabernaemontana* on top of him. When we dragged the sapling clear, a somewhat ruffled Eminent Botanist emerged unscathed, for the ground was soggy. Nevertheless, Bill was relieved to know that his Record of Service Book (A.A.B.83) showed "no examination" at the end of the course! Bill later became, I believe, a N.S.W. Magistrate. I wonder if he recalls the long hours spent each night grinding his axe's edge to perfection?

Later, H.Q. acquired an ex-Japanese bandsaw, and we spent many hours making small wood-block samples for distribution to company personnel, along with botanical vouchers and notes. This process enabled the field troops to determine, on the spot, timbers of value to the army, and relieved the burden on H.Q. staff, led by Lindsay. His intimate knowledge of the Queensland rainforest flora was of great benefit.

Knowles and Dr Consett Davis appeared from

time to time, but they seemed to have roving commissions, and in wartime one didn't ask too many questions. For instance, I was once given a lift by an officer in a jeep. I was embarrassed by his questioning, and promptly reported the incident to my then unit adjutant; swift enquiries revealed that he was a top peace-time official, subsequently Administrator — but I was covered! (It could have been a trap.)

Knowles brought us specimens from his tripping around the countryside, e.g. KarKar Island and Wewak (?) come to mind, and it was our job to dry them, determine them at least to generic level, and then file them in sets of ten for ultimate distribution to Lae (when instituted), Kew, Arnold Arboretum, Leiden, Sydney, Brisbane, Melbourne (?), etc., after the war.

As Major McAdam was a forestry officer, Lindsay and I incurred considerable displeasure if we were caught with orchids, grasses, vines, herbs, or shrubs in our possession; but a perusal of our NGF material (over 2,000 sheets) in the various herbaria worldwide, clearly indicate our catholic tastes.

Several native workers reported to us daily from ANGAU to carry out the drying processes — in special galvanised iron bins over open fires. When I once told them to feel free to "cure" their tobacco leaf in a similar fashion, to speed up the process instead of hanging it from the rafters, the results were catastrophic!

During mid-day mess these "boys" went down to the Butibum, which flowed by our camp, and lunched on water-cress, rainforest fruits, such as the Malay Apple and "lolly-stick" (young palm cones), or the ubiquitous sugar-cane. Some, however, contented themselves by chewing betelnut. They came from near and far:— some were coastal (Lae) boys, with spleens swollen from malaria; some were Sepik boys with great masses of teased-out peppercorn hair; some were pitch-black (e.g. Rupen from Buka); and the C.O.'s off-sider, Sirip, honey-coloured, lithe and supercilious, was from Manus. Sirip did not deign to talk to mortals below the rank of C.O. His favourite weapon, I believe, was a sliver of bamboo — very effective in despatching enemy sentries in tropical storms at midnight. The C.O. had the Military Cross and Sirip the Military Medal for their deeds earlier in the war. If I recollect correctly, Sirip bought a girl from the Highlands as wife despite her liberal coating of pig fat to ward off the cold. I used to wonder how his fastidious nose could tolerate the odour.

These boys appreciated mail day, when news-

papers arrived. Quartered, the sheets made admirable cigarette papers, and there was jostling outside my hut at distribution time. With matches (wax) stored in their peppercorn hair, *Sydney Morning Herald* cigarettes (9–12" long) parked behind their ears, dainty woven handbags (for holey "marks") attached to their upper arms by woven bracelets, and issue lap-laps, they were an exotic bunch. We communicated in pidgin, but I found it difficult to follow the old N.G. "hands" like Major McAdam and Frank Vickery. Some colourful examples of pidgin include:-

*Typewriter:* Machine i fightim along paper.

*Cross-cut saw:* Pushim i go, pullim i come.

*Woman's bra:* Fence bilong sou-sou bilong Mary

*Sick:* Im i bugga up.

*Dead:* Im i bugga up finis.

Occasionally, we had a rest day; and if a football could be found, we did the best we could. The C.O. ("Bull" to his troops) was a giant, and it took the combined efforts of both teams to bring him down in a tackle. He didn't seem to resent our methods, and no one worried about the ultimate result. Next door to our little unit was 1st Army, where the General was reputed to have a real bathtub (and electricity). Ours was a 44-gallon drum on a head-high stand, en plein air, and which released the water when you pulled a chain. The alternative was a long trek through irritating "pit-pit" (a species of *Saccharum*) to the Butibum.

Our regimental sergeant major, Bill Hart, decided that we needed to improve our amenities. Acquisition of the General's tub was considered, as he had pulled rank on us and taken some of our choicest red cedar, walnut, and rosewood planks (for panelling a mansion in Toorak was our firm belief); but a "recce" indicated the sheer impossibility of the task. So we settled for an electricity supply — the ukase went forth that all personnel reporting to 1st Army were to return with light bulbs, power-points, cable, you name it! The procedure was to stand stiffly to attention, as a good soldier should, when summoned to orderly rooms, with one's back against a door post, up which ran the desired cable, and then gently ease it out of position. As their generators rarely ran during daytime, our activities were not as hazardous as one may suppose. Only when the orderlies switched on the generators in the gathering gloom was the extent of our malfeasance evident. Within a short time, we had electrified our unit!

An ex-Japanese generator supplied the power, and it was the responsibility of the officer or non-commissioned officer on duty to start it up each night. Retribution struck me only — one twilight,

with all other personnel at the (spasmodic) open-air picture-show next door (take your own oil-drum and groundsheet), and in driving rain, I pulled the crank-handle. It came free from its socket, drove my spectacles into my cheek, and blood and water poured over my face. I still can't remember how I got to the Army General Hospital, but even now, 47 years later, I can still feel a bit of glass near my cheek-bone.

To digress further, the routine for the General's arrival at the entertainment was this:-

Orderly Officer (in a gathering gloom) calls:

"Stand fast!"

Loud shouts from relaxed troops:

"You old bastard! Get f\_\_\_\_d," etc.

Not a flicker from the General, but M.P.s dash hopelessly about trying to detect the offenders. General seats himself in deck chair.

Orderly Officer: "Stand easy."

Everyone sits; show begins. Same procedure every time. Everybody happy! Good old army!

To work on our collections, Lindsay had acquired a set of Bailey's *Queensland Flora*; and, photostating having just come into general use, Melbourne set us copies of German botanical papers. I can't recall any literature from Malaya; nor had the Australian administration of Papua N.G. (1919–1939) produced anything of note. (If it did, it wasn't available to us).

Lindsay chafed at the restraints placed on him. He (and I) made considerable collections around the Lae/Nadjab area, and I have a feeling he went up to Wau (at least, the C.O. did), and came back with some exciting conifer/oak material, but he envied Knowles' peregrinations. Dr Davis left to our safe-keeping an *Amorphophallus* flower in a kerosene-tin of formalin. Sadly, it was still there when I returned to the mainland, as he was killed in an aircraft accident the next day. (I still have a photograph of it).

An example of my activities was preparations for the Wewak operation. A native police sergeant was flown to us from Wewak, and he and I were instructed to go into the Lae coastal rainforest and construct a table, indicating such details of the forest flora as:- the scientific name of any adjudged to be of potential value to an occupying force; its local (Lae pidgin) name; its local (Wewak) name; its English common name; an assessment of its value for marine usage, buildings, etc. All this was collated and despatched to the planners at Army H.Q.

Another example of our activities was to find a satisfactory substitute for *Syncarpia glomulifera* for marine use. For example, soon after the capture of

Lae, the American forces built a pier for the use of Liberty ships, etc., when unloading stores and equipment. Within 3 months marine borers had caused it to collapse. Turpentine could not be brought from Australia, because of the shortage of shipping and enemy submarine activity, so we were given the task of finding a local replacement. Melbourne scoured their records of German research, and ultimately a solution was found in the Dipterocarpaceae.

These expeditions into the Lae hinterland, accompanied by a native axeman, could be interesting. Once, the sapling he felled contained green tree-ants — covered as I was in all parts by my uniform, I escaped relatively unbiten, but my off-sider was last seen, lap-lap and axe discarded, fleeing heedlessly through the jungle, salat (*Laportea*) or not. The C.O., being peace-time head of N.G. Forestry, conceived that he had a further duty: to protect the forests from despoilation by the Allied forces. I well remember his disquiet at reports that the Americans were exporting quantities of *Xanthostemon* back to the United States from Milne Bay.

Of course, besides senior officers, we were much plagued by other ranks scrounging bits of timber from us, on rest days, to make trays, jewel boxes, etc., especially if there was leave in the offing — red cedar (*Toona ciliata*), cedar mangrove (*Xylocarpus granatum*), Kwila (*Intsia bijuga*), N.G. rosewood (*Pterocarpus indicus*), and walnut (*Dracontomelum mangiferum*) were much sought after. Our general response, if the officer didn't have too many red tabs or pips was, courteously, to refer him to a log of *Xanthostemon* conveniently placed outside our orderly room! One determined padre ultimately secured a chip the size of a sao, and gained our intense admiration.

As I mentioned previously, the U.S. forces had their own forestry units (and tame botanists). Our second encounter with them was when our R.S.M. took a party of natives to a giant red cedar butt that, unfortunately for us, was rather too conveniently close to a U.S. mill. Three days it took us to dig it out, but the work was done handsomely, and the team retired, well content, to await transport. The foundations of the deep opened up (wet season — 24 hours; dry season — from 3 pm), and when the bedraggled Aussies returned there was nothing but a waterlogged hole. Sniffing politely around nearby camps, our lads, black vengeance at heart, found a pile of fragrant sawdust. Where? You guessed it; but they numbered 55,000 odd, so we swallowed our chagrin in the interests of Allied amity.

Educating our platoon/company personnel was always a pressing task. For instance, at a platoon sawmill, up the Busu, not far from us, the yard was full of "reject" logs. Reason? When sent to cut logs, the natives naturally cut the biggest trees:

- (a) to make happy "Massa Dewhai", and
- (b) the biggest, softest trees (erima, *Octomeles sumatrana*) made the best canoes!

Other trees were filled with calcium oxalate crystals and blunted the saws, so the troops refused to handle them.

During active service operations, forestry personnel landed with the other Engineers. When a bridgehead had been established, they laid aside their rifles and brens, set up the saws, and proceeded to turn out vital supplies of timber. Quite often, they struck trouble through shrapnel and bomb-splinters buried deeply in the tree-trunks, damaging their saws and causing casualties to personnel.

On one occasion we were on our way to a barge patrol along Huon Gulf. I became delirious with dengue fever, so the lads laid me on a fallen log in the swamp until they returned at dusk. I have no memory of that day, but I did not contract malaria during my service in N.G. — rumour had it that the intensity of the dengue fever killed the malaria germs. Skin diseases were our biggest problem — we were too small a unit to carry a doctor (only a Regimental Aid Post corporal), so we daubed our hides daily with acroflavine, gentian violet, iodine, mercurichrome, and calamine lotion, until we resembled Indian braves on the warpath.

My work, as I've indicated, was with Lindsay Smith. I hold him in the greatest respect as a botanist, with an intimate knowledge of tropical flora. His tragic death, at the early age of 52 (in 1970) was a great loss to Australian botany. His meticulous care, integrity, and scientific caution were in the best traditions of the profession, and had a great influence on me. As S.O. Everist wrote (*Contributions from the Queensland Herbarium No. 19, 1975*):

"Smith was a perfectionist. His reluctance to commit himself to print until every 't' was crossed and every 'i' dotted robbed Australian botany of many fine contributions."



## 1993 Student Botanical Internship programme — a report from CBG

Bob Makinson  
Australian National Botanic Gardens Herbarium

### Introduction

The Australian National Botanic Gardens Herbarium (CBG) has inaugurated a Student Botanical Internship Programme, the pilot version of which ran over January and February 1993.

The programme involved the placement, for two months of the university summer break, of students in botany and vegetation sciences who wished to gain substantial herbarium training and experience, as well as some field and laboratory training. Placements were for 4–5 days per week.

The programme was conceived in response to the perennial need for semi-skilled assistance in the current tight funding situation for herbaria, and as a deliberate contribution to skills training of young scientific workers approaching entry to a restricted job market.

Funding for paid short-term employment of assistants being unavailable, it became necessary to devise a scheme based on placement of students as volunteers, which provided them with adequate incentive and recompense through training, workplace experience, and skills unlikely to be learnt at university but of direct usefulness to them as new graduates in the job market, as well as being useful to their future employing institutions. Given the necessary staff time spent in training and supervision, it was also necessary to devise a programme that resulted in a significant net gain for CBG of work performed, backlogs eliminated; and so on; an energy-neutral exercise was not an adequate outcome for the institution.

### The programme

Planning commenced in September 1992, including liaison with relevant academics at the Australian National University (ANU) and the University of Canberra (UC), to ascertain their attitudes and the content of those courses that were seen as likely to provide candidates for the programme. The main target group was seen as students at the end of second-year studies in appropriate disciplines, i.e. far enough into their degree to be serious about their future in botany/

ecology, but not yet tied up with the start of honours projects.

For the pilot version of the scheme, brochures outlining the eight-week programme were distributed at ANU and UC in October, calling for written applications. In December, after exams, eight university students or recent graduates were selected (by application and interview) from an initial 14 applicants.

The interns inducted came from four campuses:- ANU (2 undergraduates majoring in Botany, plus one recent Honours botany graduate); University of Canberra (3 undergraduates majoring in Applied Science/Resource Management); Charles Sturt University, Wagga (1 undergraduate majoring in Applied Science/Amenity Horticulture); and Ballarat University College (1 recent M.Sc. graduate in Vegetation Rehabilitation). Gender balance was 7 female : 1 male, reflecting the approximate ratio among the initial applicants.

Interns from the University of Canberra and Charles Sturt University were able to use their participation in the programme to gain formal credit points, while those from ANU were not.

The interns were unpaid; attempts to secure stipendiary funding were not successful this time around. All interns were registered as Gardens volunteers for the purposes of insurance cover. The scheme complements the CBG Volunteer Mounting Programme, which has been in place for 18 months.

With one eye on industrial considerations, where possible we directed the interns' efforts to labour-intensive support functions that help to clear specimen processing backlogs and in other ways assist full-time staff, freeing staff time for more qualitative work.

Training sessions were given by personnel drawn from the Australian National Botanic Gardens (Herbarium, Living Collections Section, Research Unit), the Australian Biological Resources Study, other units of the Australian National Parks and Wildlife Service, and CSIRO Division of Plant Industry. The bulk of training, and all supervision, was provided by ANBG staff. Training sessions made up c. 50% of the pro-

gramme hours; the other 50% was work output to CBG priorities.

Two one-day field trips (Tinderry Range and Kangaroo Valley) were included in the programme.

### Programme outcomes — benefits to the participants

All participants received, on completion of the programme, a certificate detailing the experience and skills gained and the tasks performed (see list below), together with a general job reference. Where course credits were available to interns, appropriate documentation was supplied. Later needs for more job-specific references will also be met.

One very positive outcome was the joint authorship by all eight interns of a short paper (Alston *et al.*, *Austral. Syst. Bot. Soc. Newsletter* 74, March 1993) on *Dampiera fusca*, involving research and writing on conservation status assessment, identification key construction, geological and vegetational correlations, and descriptive character interrogation.

The Friends of the Botanic Gardens kindly advanced book vouchers worth \$50, redeemable at the Botanical Bookshop, for each intern. This provided a gesture of appreciation for their diligence and effort.

### Programme outcomes — benefits to CBG and ANBG

Through the programme we gained a university-level workforce that could be deployed on various tasks more demanding (physically and in terms of time and botanical training) than we would be willing to ask of our regular (mostly retired) volunteers. The interns performed tasks substantially different from the "regulars".

The interns' programme was designed to yield approximately 130–140 person-days (net) of assistance to the Gardens. That is, once deductions were made for the time that we spent training them and giving them lecture/practical sessions, we intended to come out with a net gain of 130–140 person-days of free assistance.

In practice, we had some time over-runs on training sessions, particularly in basic plant identification and in the processing of the interns' own collections (including databasing). I estimate that our net gain was of the order of 110 person-days free assistance, i.e. 22 weeks. This is value-for-(non)money by any calculation. Efficiency will be

significantly increased in subsequent years, and staff-time spent on preparation of handouts, lectures, and other training aids will be considerably reduced.

We also gained a close relationship with promising students who will be entering the scientific workforce over the next few months or years, and we were able to train them not only in techniques of biological collection maintenance but also in the importance of correct scientific vouchering, good data collection and entry, and other skills. We will, I think, remain in contact with some or all of these interns as they move into the workforce (two have already returned as temporary employees). All interns were indoctrinated into the social and scientific importance of botanic gardens and scientific collections (living and preserved), and their connection with conservation and natural resource management.

Staff presentation and supervision skills were advanced as a result of the programme. An expanded version of the lecture on presentation and poster skills will be re-run as staff training.

Links between CBG and the universities were strengthened somewhat, and favourable coverage of the programme was received in the campus newspapers at UC and Charles Sturt, and in other publications.

### Conclusions

The pilot version worked well, although there will be some restructuring of the programme next time around. The interns were enthusiastic, as were the staff (despite the demands of keeping the interns supplied with work and supervision).

A full post-mortem was held at the end of the programme, which incorporated detailed evaluation sheets filled in by the interns. The outcomes were very positive, and a similar scheme will be run next summer (1994). There are possibilities for expanding the programme slightly to allow recruitment for very specific tasks (e.g. research assistance, computer application development, archival projects), although this will depend on having suitable projects ready to go, and on the relevant staff receiving appropriate training in management of volunteers, as well as on industrial considerations.

As with any source of curatorial assistance, the most efficient use of the interns for dealing with labour-intensive specimen processing tasks requires a lot of pre-processing. It is important that large tasks be accumulated to an even stage of preparation, allowing a "process-line" approach for efficiency of scale. This is interspersed with more

varied and skilled tasks as the interns gain ability and confidence. In the 1993 programme, our main problems related to lack of some of this type of preparation in the preceding months; once the programme is under way, there is very little time for catching up on the actual organisation of the work to be provided. The ability of eight motivated people working in a concentrated way to shift large volumes of routine material is phenomenal.

Provision of a stipend or substantial honorarium in the future is highly desirable. It is certain that many potentially good candidates are precluded from participation by the need to find paid employment during their university breaks. Paying full wages is nevertheless problematic — if full-wage funds are available, there is no reason (other than philanthropy) for maintaining the very intensive general training component of the programme, which demands a lot of staff time; and it may as well be simply a programme for summer casual employment. Providing partial wages is of course industrially problematic, for good reason. A substantial stipend seems like the best way to preserve the internship aspect while not totally disadvantaging those who are financially strapped.

**Programme summary:  
Australan National Botanic Gardens  
Herbarium Botanical Internship  
Programme 1993**

**Lecture Sessions**

- Social and scientific roles of botanic gardens, herbaria, and biological collections
- Biological databases — role and scope
- Principles of plant nomenclature; the International Code of Botanical Nomenclature
- Flora writing, and the *Flora of Australia* project.
- Taxonomic revisions and techniques — sources of data; theoretical approaches
- Work in Progress seminars: (1) An integrative approach to the taxonomy of the Orchidaceae; (2) Cryptogam taxonomy
- Work of the ANPWS — Endangered Species Unit, Wildlife Monitoring Unit, Greening Australia, Save the Bush, Environmental Resource & Information Network
- Scientific communication — journals; meetings & conferences; e-mail; the refereeing process; means of popular communication with non-scientists; networking with non-professionals
- Jobs and funding in Australian botany and related fields — sources of jobs and funding; developing a C.V.; first publications and

- developing a publication list; job applications
- Work in botany and plant ecology in Canberra (visit to, and talks at, CSIRO Division of Forestry & Australian Tree Seed Centre; CSIRO Plant Industry; CSIRO Microscopy Centre)
- The Australian Network for Plant Conservation

**Herbarium Curation Skills**

(all hands-on, all continuous for the duration of the programme)

- Role of research and reference collections
- Principles of archival preservation, collection arrangement, and specimen/data retrievability
- Handling, preparation, and mounting of preserved plant specimens (vascular & non-vascular)
- Herbarium label data — interpretation, entry, editing, and retrieval
- Set-up and maintenance of a local field or reference herbarium
- Implementation of revisions in herbarium and on database

**Laboratory and Glasshouse Techniques**

(all hands-on)

- Starch-gel electrophoresis (full day) — principles, gel and specimen preparation, interpretation
- *In vitro* seed germination (full day)
- Hand-pollination of Orchidaceae

**Fieldwork Skills**

(all hands-on; two full-day trips)

- 1) Field trip planning
  - Setting objectives
  - Topographic map reading; determination of map grid references; determination of latitude & longitude; use of gazeteers; use of geological maps
  - Collecting permits — application for, coverage, and protocols
  - Principles of collection vouchering (type of material, duplicate specimens, etc.)
  - Field gear; field safety
- 2) In-field skills
  - Fieldwork and collecting ethics and protocols (lecture session — biosanitation, landowner liaison, minimum-impact collecting)
  - Primary field data collection (landform, geology, soils, vegetation structure & floristics, frequency, population variation, specimen numbering)
  - Vascular plant collecting techniques (specimen selection and pressing methods)
  - Non-vascular plant collecting techniques (fungi,

bryophytes, lichens)

- "Difficult specimen" techniques (bulky or soft material; tropical conditions; spirit collections)
- Collection of live vascular plant material for propagation (seeds, cuttings, transplants)
- Basic 4WD recovery technique (electric winch)

#### Plant Identification Skills

- Vascular plant identification (continuous, field and herbarium), including main literature
- Non-vascular plant identification (2 days, field and herbarium), including introduction to main literature sources for identification of Australian fungi, bryophytes, and lichens
- Demonstration of on-line identification techniques — eucalypt INTKEY (on DELTA), and North Queensland rainforest trees interactive key
- Use of ANBG Public Access Herbarium and

ANBG Library

- Construction of dichotomous plant identification keys (practical exercise, half-day)
- Use of dichotomous identification keys (continuous)

#### Communications and Data Skills

- Data entry and retrieval (local IBIS database)
- Use of electronic mail (local network e-mail; introduction to Gopher system; e-mail to remote terminals; e-mail messages to fax terminals)
- Display posters (introductory techniques)
- Seminar techniques (preparation and use of overheads and slides; lecture session)
- Publication — joint authorship of short communication on extension of range and identification problems with *Dampiera fusca* (Goodeniaceae).

## A.S.B.S. Inc. BUSINESS



### Subscriptions

Unfinancial members will not receive any *Newsletters* after this one; these members should have received a reminder notice with this issue. Subscription rates are printed on the inside back cover, and I would remind you that the student rate is only available to *bona fide* full-time students.

Members who read the report of the Fifteenth General Meeting in the last issue of the *Newsletter* will have noted that subscription rates will again rise in 1994. We hope to be able to hold the rate at this level but the new charging schedules being introduced by Australia Post are not favourable for non-standard articles like the *Newsletter*, and they may result in substantial increases in postage costs.

### New Members

The new Constitution, recently adopted by

ASBS Inc., requires more stringent procedures for acceptance of new members. This issue includes a form for application for membership, which requires that prospective members be moved and seconded by existing members and that this form, with the appropriate fee, be sent to the Secretary, who will refer the nomination to Council for approval. Since the Secretary and I are in different cities, this will create some problems with the movement of money. I am, therefore, now proposing that this process be streamlined slightly so that the Secretary delegates the initial processing of applications to me. I will send the application on to him, and hold the subscription monies until such time as the application is approved by Council.

I anticipate that the new "Application for Membership of the Australian Systematic Botany Society Inc." form will be printed in the *Newsletter* in the last issue for each year.

### Newsletter

Members are reminded that back-issues of most *Newsletters* are still available for purchase. The price depends on the date of the issue. Contact Barbara Wiecek (co-editor) for details.

Peter Wilson  
Treasurer, ASBS Inc.

## REPORTS



### Australian Biological Resources Study

We are very pleased to be able to announce that another volume of the *Flora of Australia* has been forwarded to AGPS for publication. This is *Volume 50*, containing descriptions of the vascular flora of all of Australia's external territories, excluding Norfolk and Lord Howe Islands. It is the largest single volume that we have yet published, with 630 pages, and is expected to be available in late June or early July. It contains contributions from eleven authors, three illustrators, and eleven photographers.

This volume, and its companion, *Volume 49*, dealing with Norfolk and Lord Howe Islands, differ in a number of respects from the others in the series. The most obvious difference is that these books are area-based rather than covering discrete taxonomic groups continent-wide. Very early on in planning for the *Flora of Australia*, a decision was taken to confine treatments in the main series to continental Australia and Tasmania, and to treat the external territories in a separate volume. Once work started on the latter, it became apparent that the number of species would dictate two rather than just one volume.

Organisation of contributors has also been essentially geographic, with major contributors supplying text for a whole island group; these contributions were then combined into a single, taxonomically-continuous sequence. David Du Puy (in association with Leonard Foreman) has written many of the Christmas Island families, with most of the rest being supplied by Robyn Barker; Ian Telford contributed most of Cocos (Keeling) Islands, Ashmore Reef, Cartier Island, and the Coral Sea Islands; and I wrote the subantarctic dicotyledons and pteridophytes, Elizabeth Edgar

wrote the subantarctic monocotyledons, David Jones the Orchidaceae (p.p.), Peter Green the Oleaceae and Plantaginaceae, and Benjamin Stone the Pandanaceae. Roger Hnatiuk contributed the introduction to the subantarctic section, and Kevin Kennelly that for Ashmore Reef/Cartier Island. Peter Green has prepared the accounts of the plants of Norfolk and Lord Howe Islands for *Vol. 49*.

The introductory chapters provide a check-list of the vascular flora of each territory, as well as notes on geography, climate, vegetation and ecology, history of botanical exploration, and other facets of the islands. This is followed by a key to families for each territory. The main text is arranged in a single family sequence, with keys to genera and species covering all areas. As usual, there are a large number of colour and line illustrations.

In the last three months, recruiting for the Flora Section has continued. Jane Mowatt and Katy Mallett have been appointed as Assistant Scientific Editors, while Annette Wilson will be joining us in early July as Scientific Editor. Jane has been with ABRS for over a year in a temporary capacity, while Katy came on a temporary appointment at the beginning of the year. Annette has previous experience in flora production in Western Australia, having been associated with both the *Flora of the Perth Region* and the *Flora of the Kimberley Region*. She is currently completing a Ph.D. at the University of Adelaide. At the time of writing, interviewing is underway for the position of Publications Assistant.

During May, I visited Melbourne and Adelaide to talk to contributors in those cities about the progress of their research. This followed brief visits to Sydney and Melbourne by Helen Hewson in March and April, respectively. These are the first stages in a major review of the timetabling of the remaining volumes of the vascular flora, and of preliminary and continuing planning for the non-vascular *Flora* volumes, which are starting to take shape. I hope to visit other major centres later this year, to talk to as many contributors as possible.

The contact numbers and address for ABRS remain:-

Australian Biological Resources Study  
Flora Section  
GPO Box 636  
Canberra, ACT. 2601.

Fax (06) 250 9448  
 Tel (06) 250 9443 Helen Hewson  
 (06) 250 9442 Tony Orchard

Tony Orchard  
 Executive Editor  
 Flora of Australia

From time to time, it is necessary to adjust commitments pertaining to ABRs grants. Accordingly C. Gross will not be providing *Chamaecrista*, but will work on Epacridaceae p.p. and A. George will not be providing *Andersonia*, but will work on Proteaceae p.p.

Recent Australian Botanical Liaison Officers have requested that every attempt be made to have enquiries resolved in Australia (particularly library enquiries) before seeking the assistance of the ABLO in England.

Helen Hewson  
 Director, Flora  
 ABRs



**Australian  
 Botanical  
 Liaison  
 Officer**

Since writing my last report for the *Newsletter* I have experienced the splendour of a European Spring, and visited herbaria in Edinburgh, Leiden, Berlin, Florence, Lyon, and Dublin, receiving some marvellous hospitality from European friends and colleagues.

But first, I will turn to routine ABLO affairs. The torrent of inquiries in April was followed by a relative lull in May. Bee Fong Gunn, a botanical artist from Darwin, spent a couple of fruitful weeks working here before and after the Kew Botanical Art Symposium in May, sharing ideas with a number of present and former Kew artists in the process. Peter Valder also dropped in briefly to examine the *Wisteria* collection. Les Pedley is con-

tinuing his work here on *Desmodium*.

The Australian flora seems to be a subject of fascination for the botanically-interested British public, judging by the attendance at this year's Kew Winter Lecture Series. The theme of the series was "Sir Joseph Banks and Australia", marking Banks' 250th birthday. My talk was entitled "Australian Rainforest Proteaceae", which prompted my next-door neighbour to say: "It sounds very impressive, but I have no idea what you're going to talk about". This was probably a more common reaction than I had anticipated, but nevertheless a full and appreciative audience turned up.

I found all of my visits to European herbaria interesting and profitable for a variety of reasons, but a few matters of general interest emerged. At Edinburgh I was surprised by the number of Robert Brown's duplicates, several species being represented by two or more syntypes (cf. my comment in March about Brown duplicates at K). The one type that I really expected to find there, that of a species that had been cultivated at the Edinburgh Botanic Gardens in the 1820s (*Persoonia pallida* Graham), turned out to be at Kew all along. Perhaps this was to be expected, given that Edinburgh did not acquire a herbarium until 1839. I visited Florence primarily to examine Labillardière types, many of which are represented there by several syntypes. I was, however, surprised to find duplicates of most of these in B-W, and some in TCD too. Despite the fact that all of Berlin's collection of Proteaceae survived the war, Sprengel's types proved to be absent.

The herbarium of the Université Claude Bernard, Lyon (LY), is a massive, dusty collection (c. 3.8 million specimens), curated by one botanist, Prof. Paul Berthet. It includes Michel Gandoger's herbarium, and the Australian types of a number of his proteaceous "species". Gandoger is described by Stafleu & Cowan (1976, *Taxonomic Literature* 1: 909) as "one of the greatest splitters ever", a judgement that is exemplified by his treatment of *Persoonia pinifolia* R.Br. This species includes no significant morphological variation, and yet Gandoger gave it two additional synonyms. Seeing his whole *Persoonia* collection gave me more of an insight into his approach to systematics. For several "good" species, Gandoger gave every specimen in his herbarium a new name. The rest were left alone, including specimens belonging to several "good" species that were un-named at the time. The only one of Gandoger's *Persoonia* epithets that is currently recognized, *P. recedens*, seems to have been picked out purely by chance.

A number of Australians will be visiting Kew for the Monocot Symposium in July, and perhaps some will be staying for the meeting on "Models in Phylogeny Reconstruction", to be held at the Natural History Museum during August 2-4. The latter certainly will be worth attending for anyone interested in systematic methodology, and perhaps for those interested in the sociology of science too. Just about all of the top people in the field have agreed to talk, including Farris, Felsenstein, Nelson, Olsen, Donoghue, and Lake. The registration fee is £35 (£15 for students), and forms can be obtained from Dr Robert Scotland, Department of Botany, University of Oxford. In my next report, I will let you know how these two meetings went.

Some reports from previous ABLOs have included ABLO v Brummitt squash results. However, soccer, not squash, is my game; and sadly Dick no longer plays football. So, I played for Kew in the home game against RBG Edinburgh, which Kew won 12-1 (but lost the series on aggregate 14-13, home and away!). We also played Wakehurst Place, away, losing 2-3, due in part to the ABLO missing a sitter just before half-time. Oh well, it's the cricket season now, anyway.

Peter Weston  
ABLO

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### A.S.B.S. Melbourne Chapter

A.S.B.S. Melbourne Chapter seminars are held at 6 pm, usually on the first Monday of the month. They are held at the National Herbarium of Victoria, Royal Botanic Gardens Melbourne, corner of Birdwood Avenue and Dallas Brooks Drive, South Yarra. Refreshments are available from 5.30 pm. All members and visitors are welcome.

#### Seminar Programme, July-October 1993

*Monday, July 5*  
Bill Molyneux  
Austraflora  
"An indirect road to botany"

*Monday, August 2*  
Philip Short  
National Herbarium of Victoria  
"Twelve months at Kew (England)"

#### *Monday, September 6*

Marco Duretto  
School of Botany, University of Melbourne  
"Diversity within the *Boronia grandisepala* complex (Rutaceae): escarpment specialists from Arnhem Land"

#### *Monday, October 4*

Roger Spenser  
National Herbarium of Victoria  
"A horticultural flora for south-eastern Australia"

#### *Monday, October 25*

Laurie Martinelli  
CSIRO Information Services Branch  
"Future directions in scientific publishing"

Further information can be obtained from me on (03) 655-2313.

Tim Entwisle  
National Herbarium of Victoria

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### International Organization for Plant Information

The World Vascular Plant Checklist Committee, with Karen Wilson (NSW) as convener, has been working hard towards its first goal. Since the meetings in Xalapa last November, the committee has met in London and Miami, and will meet in Geneva in June.

IOPI has begun publication of a newsletter, to provide information on its objectives and progress. *IOPI News - 1* is available from either Karen, at the National Herbarium of New South Wales, or Alex George at:-

'Four Gables'  
18 Barclay Road  
Kardinya, W.A. 6163.  
Phone: (09) 337-1655.

Members of IOPI are reminded that the next General Meeting will be held in Yokohama, Japan, at 11 am Saturday 28 August 1993. Further details will be circulated by the end of June. Items for the agenda should be sent to Alex George by 28 June. Nominations for five positions on the council are also due by the same date.

Alex George  
Secretary, IOPI

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## International biodiversity workshop

An International Windows of Opportunity Workshop (WOW) was convened by the Environmental Resources Information Network and the newly-emerging Tropical Countries Biodiversity Network (currently comprising CONABIO of Mexico, INBIO of Costa Rica, Kenya National Museums, and LIPIU of Indonesia) in Canberra in early March. Some 27 people from the international community attended, along with about 40 from within Australia, representing many government agencies and non-government organizations.

A brief summary of the workshop can be seen in the *ERIN Gopher* newsletter, and more detailed reports from the workshop will appear in the *ERIN Gopher* later in the year. However, the participants wish to place immediate emphasis on the following general conclusions.

In principle, and in the spirit of Agenda 21, access to basic biodiversity information should be unrestricted. In particular:-

- We strongly endorse the ERIN philosophy of national electronic networking, with geographical information system (GIS) and specimen data, development of biodiversity data management standards, and development of data custodianship responsibility.
- Basic specimen data and biodiversity data models, and the analyses of them, should be made maximally available over the Internet electronic network.
- If membership needs to be charged for access to biodiversity information, then the charges should only be for maintenance costs rather than for cost recovery. Fees should be negligible for academic institutions, minimal for non-profit institutions, and appropriate for commercial institutions.
- If there is to be restricted access to selected biodiversity information obtained through basic taxonomic and inventory efforts, then it should be only to facilitate a process (e.g. conservation of endangered species) rather than to extract commercial profit.
- Plan now for international or endowed support in perpetuity for the intellectual effort and costs of updating shared biodiversity databases (authority files, specimen data, GIS layers, research registries, etc.).
- Ensure (through technical innovation and collaboration) that updates of international databases are distributed in a reliable and timely manner to enable update of national or local databases.

- Work towards technical systems and institutional agreements for full international electronic repatriation of the biodiversity specimen data stored in association with large international collections.
- The "price" of national access to the international information network and its derivative products is full electronic internationalization of national information.
- Promote electronic networks as the much-preferred method for flow of biodiversity information to, from and within all countries.
- Taxonomists are a world-level resource, and should be supported by world-level aggregated resources. However, obtaining the maximum taxonomic output as a consequence of such resources will also require substantial restructuring of the taxonomic workplace, mission and support structure.
- The current efforts towards restructuring of biodiversity information processing institutions, as evidenced in the bustle of workshops and reports, should be documented as widely-circulated case studies.
- Now is the moment of opportunity for biodiversity information processing institutions to fully network among themselves, both electronically and philosophically.
- A major effort is needed to assist decision-making bodies at all levels to recognize electronic management and distribution of biodiversity information as a highly legitimate and important academic, technical and social activity to be rewarded accordingly.
- Priority should be given to the acquisition of primary point-based and specimen-based data, rather than aggregated or interpreted data, as the basis for decision-making and analyses that are reviewable, verifiable and freely combinable.
- Within the area of biodiversity management, international funding agencies should be encouraged to support and encourage the informal and opportunistic model of the international Window of Opportunity Workshop, convened inter-institutionally by middle-management on a field of particular interest.

For more information, contact Arthur Chapman, tel (06)-250-0376, e-mail arthur@erin.gov.au, John Busby, tel (06)-250-0384, e-mail john@erin.gov.au, or Winnie Hallwachs, e-mail djanzen@mail.sas.upenn.edu.

John Busby  
Environmental Resources  
Information Network

## Queensland Herbarium

All seminars will be held in the Entomology Conference Room, Agricultural Research Laboratories, Meiers Road, Indooroopilly (unless otherwise noted) on wednesdays at 1.00 p.m.

### Seminar Program, June–December 1993

*Wednesday, June 30*

Paul Forster and Roslyn Burgess

Queensland Herbarium

"Montane flora of the Boonah – Border Ranges area"

*Wednesday, July 14*

John Carter

Division of Land Utilisation,

Dept of Primary Industries

"Near real-time modelling of Queensland pastoral systems"

*Wednesday, July 28*

Tracy Adams

Dept of Environment & Heritage

"Nature Search 2001"

*Wednesday, August 11*

Don Sands

CSIRO Division of Entomology

"Birdwing butterflies and *Aristolochia* habitat loss"

*Wednesday, August 25*

Rod Fensham

Dept of Environment & Heritage

"Dry rainforest: a contradiction in terms"

*Wednesday, September 8*

Helen Wallace

Entomology Dept, University of Queensland  
"Pollination biology of Proteaceae"

*Wednesday, September 22*

Yvonne Ross

Botany Dept, University of Queensland

"Seed banks and seedling pools in relation to regeneration in subtropical vegetation"

*Wednesday, October 6*

Bill Dennison

Botany Dept, University of Queensland

"Biogeography and ecology of seagrasses"

*Wednesday, October 20*

David McFarland

Dept Environment & Heritage

"Ground parrots and the world of heathland"

*Wednesday, November 3*

Peter Bostock

Queensland Herbarium

"Wet tropics: fern flora and data bases"

*Wednesday, November 17*

Bill McDonald

Queensland Herbarium

"Vinethickets of central Queensland"

*Wednesday, December 1*

George Batianoff

Queensland Herbarium

"Sea-dispersed flora of Queensland"

Enquiries: Paul Forster on (07) 877 9328 or  
Ailsa Holland on (07) 877 9316

Paul Forster

Queensland Herbarium

## REVIEWS

### Practical Taxonomic Computing

By Richard J. Pankhurst. Cambridge University Press, Cambridge. 1991. xi+202 pp. ISBN 0-521-41760-0. \$85.

Some books strike you as being good from beginning to end, while others annoy you from start to finish; and the rest are a bit of both worlds. Unfortunately, this book fits into the last category

— parts of it are very useful, parts of it are pretty erratic, and parts of it made me want to tear the pages out and throw them into the recycle paper bin.

The book itself is basically an update and reworking of Richard Pankhurst's earlier book, *Biological Identification. The Principles and Practice of Identification Methods in Biology* (Edward Arnold, 1978). However, this time, as well as the four chapters about identification

methods, there is a chapter on databases, one on classification, and one on expert systems. This expansion of topics is a clear indication, if nothing else, of the inroads that computers have made into the working life of taxonomists.

These inroads are not, of course, confined to the relatively specialized world of taxonomy. Computers have come out of whatever dark and musty hole they have been hiding in for the previous 50 years, and have spread like a plague into all facets of modern life. It is not all that long ago that computers were huge machines that took up entire rooms, and required all sorts of complex instructions to perform even menial tasks. Then Apple released the first completely-assembled personal computers in 1977 (while I was a university undergraduate), and IBM released the first personal computer suitable for business people in 1981 (while I was a postgraduate). Since then, computers have bred in a way that makes rabbits look celibate, and have spread in a way that makes wildfires appear to move in slow motion.

What are we, conservative people that we are, to do about this? Not a lot, unfortunately. Scientists have, by their very nature, always been at the forefront of computer usage, and so it should not come as any surprise that computers have been welcomed with open arms in systematics. What has perhaps caught more than a few systematists by surprise is the speed with which computer usage has spread in the past 10–15 years, and the depth to which it has influenced our work practices.

With this background in mind, it becomes obvious that what we need is a book about the uses to which computers can be put in taxonomic work. After all, computers are (at least at the moment) just a tool — a "productivity" tool, as the computer people express it. They are supposed to help increase our productivity at work, by being a tool that can relieve us of some of the more tedious parts of our work (such as mathematical calculations). They should also open up new possibilities for us, by allowing us to undertake tasks that we would never have even contemplated before (such as collating and inter-relating huge amounts of information — organizations such as IOPI would have been unthinkable even a short time ago). This is why many people have referred to the current restructuring of society as the computer "revolution", because the social consequences of these changes in work practice are potentially as large as those of the so-called "industrial revolution".

So, if computers are supposed to be of some

use in taxonomy, someone had better tell us what these uses are; and this is apparently what Richard Pankhurst has set out to do. Unfortunately, it's very hard to work out who this book is actually aimed at. If it is intended to be used by the computer novice, then far too much of the information is either wrong, or left out entirely, to be of much use to them; if it is supposed to be aimed at current users who want to know more about computing, then large slabs of the book are redundant; and if it is for computer experts, then the book falls far short of what they need.

The book often seems to be a rather arbitrary collection of bits and pieces of information that the author knows something about from personal experience, and has decided to put in as a result. It is therefore rather difficult to discern any unifying theme to the book. The closest that I can get is to point out that it is often based around worked examples from a particular computer program for each type of computer usage in taxonomy. Thus, the book is about applications rather than explanations — the theoretical introduction to each section is sometimes a bit skimpy, and a lot of the information is therefore imparted by working through the example. This is certainly one way to do it, but there is very little satisfaction to be had from actually reading a book set out in this way.

The production quality of the book is quite good, although there is the usual collection of typographical errors. There are a number of illustrations to break up the text, but many of these contain a great deal of text themselves. The index is quite comprehensive, and the list of references is usefully broad in scope. Those of you who are female will, however, find no reference to yourselves anywhere in the text, as all computer users are treated as being male. The price of the book is a bit steep, even for a hardback.

The book has eight chapters, plus an appendix. It starts, not unexpectedly, with a General Introduction (10 pages). This is where the impact of computers could be usefully assessed, where the enormous possibilities of computers could be explained, and where some enthusiasm for the topic could be engendered. Unfortunately, no such things occur — the impact, possibilities, and enthusiasm are all assumed *a priori*. What we get instead is a bit of background information, some terminology, and an explanation of the data set that is used as the primary example throughout the rest of the book. This is all very necessary, but it is far short of what is needed — after all, the most obvious audience for this book is people who need to be made aware of what computers can do for them,

and this audience is told no such thing.

The second chapter is about Databases (33 pages). It explains their uses quite well, and how they are set up, and how they are queried. However, the choice of topics is a somewhat eclectic mix; in particular, the section on database languages seems bizarrely out-of-place. Nevertheless, this is one of the chapters where the potential uses of computer technology are made most obvious, especially in the section on example applications.

The third chapter, on Classification (44 pages), is the low point of the book. The book is titularly about "practical" computing, and this section is a very uncomfortable mix of necessary background information about classification theory with the practical application of this theory to computer technology. It certainly doesn't get the mix right — the explanations of phenetic and cladistic methodology are woeful, although cladistics fares much the worse of the two. Anyone who has only learnt about classification techniques from this book needs to clear their mind completely, and then needs to go and read a book that is specifically about these topics. This is not to say that there aren't extremely useful sections in this chapter, as indeed there are — it's just that they are interspersed with such complete inaccuracies and inadequacies that they are lost to anyone who doesn't already have a strong background in these topics.

The inadequacies of the chapter range from simple things like a list of useful references for biological nomenclature that doesn't mention Charles Jeffrey's excellent book on the topic; to statements about objects being "split off one at a time" in a single-linkage clustering (which is agglomerative, not divisive); to the lack of discussion about the robustness of the various phenetic techniques to violation of their underlying mathematical assumptions, in spite of the fact that the assumptions are discussed in the book and that several published studies have evaluated them. Furthermore, the list of available computer programs does not include the widely-used Australian package PATN (or even its predecessor, NTP).

However, it is the section on cladistics that leaves most to be desired, and these are the pages that I was tempted to rip out. There appear to be two explanations in the chapter for many of the topics — there is first a brief introduction, along with a completely faked example, and then there is a more detailed explanation. It is the first part that is the most woeful, and in many ways it contradicts the later amplifications. For example, synapomorphies are defined (twice) as "correlated character sets"; the author equates "genealogical

distance with genetic distance" rather than with classification rank; only outgroup analysis for character polarity is mentioned; there is much confusion of cladograms with character-state trees; and the worked example uses a non-monophyletic group along with arbitrary coding of characters and their polarity (all of the other examples in the book are realistic — this is the only one that is forced; the arbitrary assignment of polarity means that there is no necessary cladistic structure in the data set and therefore there is no phylogenetic information to be analysed).

The later section doesn't necessarily fare too well, either. For example, many of the so-called "problems" claimed for cladistic analysis also apply to all other classification techniques; there is much confusion of evolutionary parsimony with descriptive parsimony; the author naively claims that "if suitable fossils were available for study, polarity could be decided without any doubt"; and there is no mention of the fact that the *a priori* rationale for the procedures allows an objective assessment of what constitutes the "best" tree, whereas phenetics has no such assessment. The author also claims that groups defined by symplesiomorphies "might be paraphyletic", whereas they *must* be, since all taxa with the related apomorphy have to be included in the clade to make it monophyletic, unless some other character supports the monophyly. Furthermore, only parsimony techniques are discussed, and methods for molecular data are specifically excluded.

Only a few other problems in this section can be listed here, or you'll become bored by this tirade. The reasons for rejecting outgroup analysis for character polarity (p. 76) are bizarre, to say the least; and the author places great weight on the "statistical significance" of tree structure (e.g. p. 77), which is only useful if the procedures used are an appropriate model for phylogenetic data. The following statements appear to be philosophically naïve (the first is a universal truism, the second is ridiculous): "This kind of argument may be plausible, but it is not direct evidence; it is just a credible hypothesis" (p. 74); "Statements about character compatibility are facts and not hypotheses" (p. 83). Finally, the author ends by suggesting that phenetics has "few subjective decisions", in spite of the plethora of techniques available to choose from, and that taxonomists should "experiment" with both cladistics and phenetics because "each type of method has different aims" — but wouldn't it be better to decide on your aims first, and then choose the appropriate method?

Chapters 4–7 are about identification methods,

and they are a definite improvement on the previous chapter. They start with Conventional Identification Methods (22 pages), continue with Computerised Identification Methods (53 pages) and a History of Identification Methods (5 pages), and end with Applications in Computerised Identification (6 pages). Chapter 4 is a good introduction to biological identification methods, although some of the examples insist that Fig. 1.1 has missing data (which doesn't seem right to me). The chapter starts from scratch, and then develops all of the necessary theory, which is far more detail than we got in the chapter on databases. Also, I can't see why chapter 6 isn't the introduction to chapter 4.

Chapter 5 is interesting, as it makes clear the way in which computer identification has developed over the past 20 years. For example, the original on-line identification programs of the 1970s were developed from manual punched-card poly-claves, but it is now obvious that they are simply one version of computer expert systems — in other words, they are a particular application of a much more general class of computer applications. In a similar way, construction of keys is simply an application of decision trees. The chapter is quite effective, although I would have thought that the "practical" part should include things like a discussion of the trial-and-error nature of choosing character weights. It is also somewhat inconsistent in presentation. For example, the section on interactive keys describes how an example program works, while the section on computer-generated keys describes the programming considerations instead. The summary comparison of the different methods also seems to ignore the advent of laptop computers, which is certainly unexpected.

Chapter 7 is probably the most "practical" one in the book, as it makes mention of specific computer applications for identification. However, it would be even better if it included mention of a wider range of the available programs individually, and it would also be improved if there were more references from the 1980s and 1990s. Once again, the referencing is inadequate, in that there is mention of lists of identification guides without mention of David Frodin's mammoth tome about floras of the world.

Chapter 8, on Expert Systems (6 pages), is a brief introduction to the topic, and does not go into the depth that the other chapters do. It is almost a token gesture.

In the final analysis, this book is a bit too erratic to safely recommend to anyone. The content is basically a somewhat eclectic collation of computer-related information that contains much that is useful hidden among things that are either irrelevant or just plain wrong. Furthermore, the author provides no real overview of the topic, nor does he engender any enthusiasm for the potential uses of computers in taxonomy. As an introductory book, it therefore fails to live up to its promise, and it certainly can't be considered as anything more than an introduction. Given the lack of any competition, this book may find a useful place in any institutional library, but given its price and its oddities it certainly isn't value-for-money for an individual taxonomist.

David Morrison  
Department of Applied Biology  
University of Technology, Sydney

## NOTICES

### Books for sale

The following works by Ferdinand von Mueller are available for sale from:-

Prof. Denis Carr  
17 Collings Street  
Pearce, A.C.T. 2607.  
Phone: (06) 286-1131.

#### Bound volumes

- Iconography of Australian Species of Acacia* — 13 decades
- Iconography of Australian Species of Acacia* — decades 7-13, including index
- Eucalyptographia* — 10 decades

*Description and Illustration of the Myoporinous Plants of Australia*

*The Plants Indigenous to the Colony of Victoria* — 2 volumes

#### Unbound sets

*Iconography of Australian Species of Acacia* — 13 decades

*Eucalyptographia* — 10 decades

*Iconography of Australian Salsolaceous Plants* — 9 decades

Also available is Joseph Hooker's essay *On the Flora of Australia etc.*, and the introductory essay to the *Flora Tasmaniae* (Vol. III of *The Botany of the Antarctic Voyage etc.*).

## COMMENTARY

### Current problems in university herbaria

Many of you know me as Bob Kral, and know that I am director/curator of the Vanderbilt University Herbarium (VDB). I have been curating and teaching Botany here since my arrival in 1965 from Louisiana. My charges were: (1) to establish an herbarium, and (2) to teach plant taxonomy and related subjects. In 1965 the Herbarium had c. 20,000 acquisitions; it now has over 250,000.

Today we are a good regional herbarium for the southeastern U.S.A., and we have a fair representation from elsewhere in North America, Mesoamerica and Mexico, with the beginnings of representation from parts of South America. Our best holdings from the southeastern U.S.A. are specimens of Alabama, Tennessee, Georgia, Florida, Louisiana and Arkansas plants.

The role of the herbarium towards undergraduate and postgraduate teaching has not been neglected. Classes are taught in the herbarium, and large teaching sets of vascular plants representative of North American herbaceous and woody flora are made available for class use.

We also house other natural history collections, most notable being Dr. Fred Wolf's teaching and research collections of fungi. Specialty collections are mainly as given in the *Index Herbariorum*. Critical holdings are in monocot groups such as Cyperaceae, Eriocaulaceae, Liliaceae, and Poaceae, and in dicot groups such as Asteraceae, some Lamiaceae, and Melastomaceae (*Rhexia*).

You will also see, from studying the entry in the *Index*, why service from VDB is often slow or non-existent. VDB has rarely received proper support from the University, nor has it ever received substantial outside support. The operating budget is as much as the Department has been able to give. Departmental chairmen have been supportive generally, and they have tried, but without success, to convince higher-ups of any real need or values. Titles such as I have put into the *Index*, namely "Director-Curator", are meaningless except as paper entries. I am not salaried to do these jobs, nor is there any salaried support staff. Such research associates as have been entered in the past have been non-salaried. Such help as is available is that donated by my own graduate students or intermittently through hiring of work-study students.

I should have given a higher priority to the

necessary politics of gaining internal as well as external support, but I was too content to do my teaching and to pursue my research and fieldwork. If one works to develop a research facility, then little time is left for much else; yet if one works to convince administrators and others of the value of a research facility, then there is not time to develop a facility.

Yet, because of the hard work involved in getting, identifying, mounting, filing, documenting, and using plant specimens, there is a good herbarium here. If this place ever gets the funding it now deserves to have, if it finally gets some staff and workers, it then can provide the kind of service that it should.

The problem today (1993) can be stated simply. Some of the people in the Administration and Department are of the opinion that there is no problem with replacing me with a non-tenure-track worker who would probably be not much, if anything, more than a technician-custodian. What is particularly wrong with this is that, by not replacing me with a tenure-track traditional taxonomist-curator, a very useful support facility for teaching biology will languish.

When herbaria and museums are down-played, under-supported or neglected, when those who curate them are not given a role as tenured support faculty members, then the very programmes in biology that should be turning out competent biologists to do bioinventory, field biology, and community ecology (all of which are necessary for natural resource management), cease to do so. Many students enrol in biology because they want this sort of background; if they cannot get this in a particular biology department, then they will go to one that does provide it. Curriculum planners who do not recognize this are short-term thinkers. We need the new and fundable disciplines that are more molecularly-oriented, but even these require a substratum of traditional staff members and facilities.

Similar problems are currently being encountered in other (particularly smaller) university herbaria throughout the U.S.A., and I presume that they are also happening in other countries. It seems to be imperative that we counteract these problems by publicising them as widely as possible.

Robert Kral  
Vanderbilt University Herbarium  
Nashville, Tennessee. U.S.A.

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

**AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED**  
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Return this form, with the appropriate subscription, to the honorary treasurer:-  
Dr P.G. Wilson  
National Herbarium of New South Wales  
Mrs Macquaries Road  
SYDNEY. NSW. 2000.

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### Telephone and Fax Numbers for Major Australian Herbaria

International dialling sequence from outside Australia:-  
add the Australian country code 61 and omit the leading zero of the area code.

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This list will be kept up to date, and will be published in each issue.  
Please inform David Bedford (NSW) of any changes or additions.

## The Society

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

## Membership

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

## The Newsletter

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

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

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

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

## Notes

ASBS annual membership is \$25 (Aust); full-time students \$12. Please make cheques out to ASBS Inc., and remit to the treasurer. All changes of address should be sent directly to the treasurer, as well.

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

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## Cover

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