Australian Systematic Botany Society NEWSLETTER

No. 65 DECEMBER 1990

Calandrinia sp.

Price: $5.00

Registered by Australia Post
Publication No. NBH 8068

ISSN 1034 -1218

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INCORPORATED

Office Bearers

President

Dr J.G. West
Australian National
Herbarium, CSIRO
GPO Box 1600
CANBERRA ACT 2601

Tel (06) 246 5113
Fax (06) 246 5000

Vice President

Dr G.P. Guymer
Queensland Herbarium
Meiers Road
INDOOROOPILLY
QLD 4068

Tel (07) 377 9320
Fax (07) 870 3276

Secretary

Dr B.J. Conn
National Herbarium
Mrs Macquaries Road
SYDNEY NSW 2000

Tel (02) 231 8131
Fax (02) 251 4403

Treasurer

Dr D.B. Foreman
National Herbarium
Birdwood Avenue
SOUTH YARRA
VIC 3141

Tel (03) 650 9424
Fax (03) 650 5917

Councillors

Dr J.A. Chappill
Department of Botany
University of
Western Australia
NEDLANDS WA 6009

Tel (09) 380 2212
Fax (09) 380 1001

Dr J.M. Powell
National Herbarium
Mrs Macquaries Road
SYDNEY NSW 2000

Tel (02) 231 8139
Fax (02) 251 4403

Chapter Conveners

Adelaide:	Dr Bill Barker	Melbourne:	Mr David Albrecht
Armidale:	Mr John Williams		Dr Trevor Whiffin
Brisbane:	Mr Laurie Jessup	Perth:	Miss Annette Wilson
Canberra:	Dr Helen Hewson	Sydney:	Prof Roger Carolin
Darwin:	Mr Clyde Dunlop	Townsville:	Dr Betsy Jackes
Hobart:	Dr Tony Orchard		

Affiliated Society: Papua New Guinea Botanical Society

NANCY BURBIDGE MEMORIAL LECTURE, 1990

THERE IS ONE THING GREATER THAN ARMIES: AN IDEA WHOSE TIME HAS COME

Roger Carolin
Pulman's Cottage, Berry, NSW.

It is with great pleasure that I present this address in memory of Nancy Burbidge. Nancy has a very special place both in my history and in the history of Australian botany. As for my personal debt to her, way back in 1955 she painted such a wonderful picture of Australia that I was persuaded to accept an appointment at the University of Sydney which I held for 34 years. In terms of Australian botany's debt to her, the long list of scientific papers and books she wrote is enough to show this. But I always think it rather a shame that there is no indication on the volumes of the Flora of Australia *of her involvement in initiating this project.*

As this shows the subject owes debt to so many and it set me thinking of where the greatest debts lie. The result of those thoughts is what follows.

Long ago, when the Greeks were expanding their empire with the help of their barbarian kinsmen the Macedonians, a gentleman in Athens was building one of the greatest collections of plants that the world had seen to that day. Great, not so much in the variety of plants such as the Babylonian gardens had had a few centuries before, but because they had been gathered together for the specific purpose of instructing pupils on their scientific and empiric use. Here was the first reasonable reference collection of which we have any knowledge. Indeed, so important was their use that the gardener described them all in the written greek language so that their salient points could be recognised and other specimens of the same type could be identified elsewhere than in his garden. Theophrastus had a particular flair for writing instantly-recognized descriptions but having described the plants he then had to arrange them. It was at this point that he had to solve what was to become the great enigma for those wishing to arrange organisms systematically. That is whether to use a system from which relevant information could be obtained easily or one which reflected the basic similarities between organisms. We would nowadays call this a choice between a data storage/retrieval system and a natural system. For Theophrastus this represented a choice between the age-old systems of folk taxonomy and the teachings of his (and Alexander's) mentor, Aristotle.

Although the solitary botanical work to come down to us purporting to be Aristotle's is most likely not of his authorship, we do have a reasonable idea of his concepts of classification and biological species, from his works on animals. They bear repeating here since they set the theme for much of scientific thinking on the subject right down to the present day. It is extraordinary that over 2000 years ago a man set out principles which we have been pursuing, on and off, since then. Firstly about the species which was the unit of natural variation so far as he was concerned.

'The definition of a species (or for that matter any other taxon) is achieved by most closely describing its primary substance or essence', he wrote. But, he knew its essence could be known and we can only describe the outward display of its essence, the (morphological) characteristics. And the essence leaves an individual organism at its death as its 'soul'. The search for this 'essence' of a species etc., is a recurrent theme through systematic investigations, indeed throughout most metaphysical speculations. It did not, however, particularly worry Theophrastus. What concerned Theophrastus

was whether he should construct a system whereby plants were classified with those other plants which they most closely resembled in essence, or should he use a system which was more easily used by people who were not natural philosophers. The same problem confronts vulgarizers of botany to this day--shall we force people to be scientific or shall we make it easy? In fact Theophrastus, like a good empiricist (he was not an Athenian incidentally but merely lived there) opted for a combination of both methods! The actual arrangement he arrived at is not important; what is important is that here, right at the beginning of our subject, we find problems which have had to be confronted and have been solved in different ways throughout its history. It reduces, at this stage, to a choice between scientific classifications and folk classifications.

A recurrent theme in the scientific stream is the relationship between the natural method and logical division. The natural system is a classing of like with like in an hierarchical relationship, it is essentially a polythetic, agglomerative process. Logical division also results in an hierarchical relationship but the rules are different; it is essentially a monothetic, divisive process. Consequently it results in a different series of class relationships. Although the Greeks of Aristotle's time used the method, it was best summarised by Joseph much later. His rules for logical division are:

1. Division must be exhaustive
2. Constituent species of a (taxon) must exclude each other
3. One (organ) *fundamentum divisionis* must be used as far as possible in all stages and strictly so at each individual stage.

Logical Division and a natural system of classifying like with like are not compatible. Eventually we will see that the science put the two methods to different uses, but to begin with they were confused.

Now, a particular feature of classification which Aristotle emphasized was that it is not simply a system for storing data. A good classification is a method for generating knowledge. It teaches us something about the objects being classified. Thus each classification should have a purpose in mind, the generation of new knowledge.

Folk classifications, on the other hand, had been entirely data storage/retrieval systems. They had provided an hierarchical system of taxa and usually each taxon was given a name. Folk classifications had unwritten rules for giving names, usually consisting of one or two words, which were, in essence, very like our present International Botanical Code of Nomenclature. Scientific classifiers regarded the best description of the essence as the name, which thus might consist of many words.

There was another difference between folk taxonomy and early scientific classification, that is the dominance of the genus concept over that of the species.

To Aristotle the species was the most important unit. He writes in *Categoriae*: 'For if anyone should render an account of what a primary substance is he would render a more instructive account, and more proper to the subject, by stating the species than the genus'.

In folk taxonomy this is not so. It is the genus which is the pivotal category. How does this arise? The species represents mere variations on the theme of the genus in terms of its usefulness. The genus is the category which represents the largest change in information content as one progresses down the hierarchical trail towards a specific identification. And since folk taxonomies are essentially data storage/retrieval devices, it is not surprising that the category which indicates the greatest information gain is the most important.

Let us, then, try to summarize the basic ideas which were current at the beginning of our subject divided as it was into two main streams:

Scientific Classification

1. Descriptions of taxa are reflections of their essence
2. The Natural System groups taxa with others which have the most similar essences into an hierarchical system
3. Logical Division divides the natural world using *fundamentum divisiones*
4. The name is the description
5. Classification is a method of generating knowledge

N.B. 2 and 3 and not compatible

Folk Classification

1. Descriptions of taxa spell out the characteristics which are materially useful
2. The hierarchical system groups those taxa together which have similar relevant (useful) properties
3. The name is a reference handle
4. Classification is an identification method

Much of the history of systematic procedure is the way in which scientific classification has been modified by folk classification.

I don't want this discourse to become yet another description of the history of systematic botany but I want to show how the trends have been developed and interpreted by various systematists since Theophrastus. And for several centuries after him the main track of botanical work was largely the folk taxonomic empirical track.

It would be repetitive to recount all the so called herbals which were copied during roman and medieval times in Europe. It is sufficient to draw attention to Anazarbeus Dioskorides, a greek physician in the employ of the roman army whose account of plants useful to medicine and alimentation was based upon the principles of folk taxonomy but was a rather cumbersome and inefficient data storage/retrieval system. It was, nevertheless, accepted as the most accurate account of botanical science available.

It is a reflection on the importance of this *Compendium* in the science of the western Europe that more than a millenium after the simple Greek surgeon gathered the information and wrote it down, a remarkable man was appointed to the University of Bologna not as a Reader in Botany or even in Medicine but as 'Reader in Dioskorides'. That man was Luca Ghini and he represents the start of a revolution in Botany equivalent to the molecular one which it is presently undergoing.

Luca Ghini is almost forgotten now but he deserves to be remembered for at least two reasons. One is that almost all the famous botanists of the late 15th and early 16th centuries studied under him and from their work it is clear that although he was a Reader in Dioskorides he effectively turned the world's back upon written authority in Botany. From that time on, examining the plant itself was the way to make decisions about its properties, not through reference to someone else's writings. Ghini also appears to have invented probably the most important tool of systematic Botany, the herbarium of dried plants. Using these collections, the botanist can now not only check the writings of previous workers, but can also discover new information about the plants concerned whilst working within the confines of one building. A much more efficient method than the widespread travel that would be required without such collections. It is difficult to see how Botany could have made the strides it did in the next few centuries without this invention.

The coming of printing to Europe provided botany with a considerable impetus and in the early years some very beautiful books were published such as Brunfels' *Herbarium Vivae Eicones* and Fuchs' *De Historia Stirpium*. Neither, however, really obeyed any but the very simplest classification rules. Fuchs, indeed, arranged the species described in alphabetical order. Not a good natural system and a deplorable data storage/retrieval system. They were an advance on Dioskorides only in that the artists, true to Ghini's inspiration, drew their illustrations from life not from other peoples' drawings and I always think that Hans Weiditz, the illustrator and block executor of Brunfels' book, should be recognised as the german father of botany rather than either Brunfels or Fuchs. It was, however, south of the Alps that the theoretical aspects of the botanical revolution of the fading years of the 16th century were developed by yet another of Ghini's students.

I have no doubt that the most important person of this renaissance is Andrea Caesalpino. He was the first intellect since Theophrastus of any calibre, of whom we have record, who applied himself diligently to the problems raised by Aristotle. What is the essence of a species? How shall we best describe it? What knowledge do we expect a classification of plants to give us? Caesalpino was a professor at the papal Sapienza University during the last years of the 16th century. Like Aristotle, he considered that all living things have a soul. Plants were like animals: they also had a soul and this resided at the junction of the root and shoot. It is this soul which is the essence of the individual and

therefore the essence of the species consists of the parts of the soul which appear to be the same. Now, the soul cannot be described, let alone known. How shall we best represent it? This will be accomplished by describing those parts which are essential to the species. Essence and essential after all, come from the same root! The most essential features of a species are the reproductive parts of its constituent individuals, for without them the species would not propagate and would not continue to exist. A description of the reproductive parts provides us with the most satisfactory description of the species. Since they are the most important parts of the species it is upon them that the creator will have lavished his greatest care and consequently a classification based upon them will show us the pattern behind god's creation. At one stroke we have a *fundamentum divisionis*, a basis for a natural system and a statement about what the classification is supposed to tell us.

What an amazing *tour de force*. For all its quaintness to our ears it represented a real break with medieval botanical tradition and the traditions of folk taxonomy. Set aside the inadequate understanding of the importance of other parts of the plants; after all Stephen Hales' *Vegetable Statiks* and Wollf's *Allerhand nützliche Versuche*, the dawn of Plant Physiology, were a century and a half away, and here we have a man with the breadth of vision to suggest that we can start to understand the mind of God!

It is a vision not to be lost in the coming centuries. The method, and the *a priori* reasoning, is often repeated today in different words and for different reasons but let us take a look at some of the practitioners in the centuries immediately after Caesalpino's.

Caesalpino tried to use Logical Division. This we now know is a mistake when we are trying to produce a natural classification. During the early years of the 16th century Kaspar Bauhin was attempting to group similar plants together but without the benefit of Caesalpino's elegant theoretical background. No assumptions about the importance of various organs are made, an assessment is made on the basis of characters which appear to be chosen on a purely intuitive basis -- unconscious induction. The result is a polythetic natural system. Thus Caesalpino and Kaspar Bauhin represent the two streams of natural classification, deductive from *a priori* assumptions and inductive with *a posteriori* reasons.

It is to morphology that early systematists necessarily turned and it is apparent that until the bases of morphology was understood there would be discrepancies in comparisons between taxa. Caesalpino had recognized the propagating units of the flower as the 'essential' parts of the species. And, although he described naked seeds (1-seeded fruits) and enclosed seeds (true seeds) he considered them to be equivalent. In other words he equated structures which nowadays we would consider to be analogous, i.e., similar in function. But comparisons between homologous structures are necessary for natural classifications and a logical method of morphology was needed. Maybe it is not surprising that this was realized by a mathematician and it was a young mathematics professor from Thurbingen, Jung, who spelt out the foundations of botanical homology in his *Isagoge*.

Jung never attempted a botanical classification. It was left to an English puritan clergyman from Essex to apply Jung's principles to plants as a whole. John Ray set out very clearly his method and his classification. He was attempting to follow Caesalpino's vision to work out the pattern of natural variation. Indeed John Ray went even further down the Faustian path than the Italian when he wrote that he was 'thinking the thoughts of god after him' and the method that he was using to do this was natural classification. Ray, in fact, did not use logical division at the lower levels of his hierarchy. Moreover, he did not give very clear reasons for the *fundamenta divisiones* which he did use at the higher levels. Indeed, these are sometimes those of folk taxonomy such as herbs shrubs and trees and they appear to be convenience categories. In arranging his *genera proxima* (equivalent to genera) within *genera summa* (equivalent to families) he attempted a truly natural system. The escape from Logical Division is important for it allows a polythetic system to be used and a real natural system to be constructed.

Half a century after Ray we see the reaction against the polythetic inductive method. It didn't last long, and the main protagonist himself considered it only one aspect of systematics. The Linnean reaction however, had a lasting effect in practical terms. Linnaeus' Sexual

System of plant classification was an attempt to simplify classification procedures so that specimens could be identified satisfactorily with the minimum of fuss. It was based strictly on logical division with a clear and unequivocal *fundamentum divisionis* at each stage of the classification process giving a monothetic system. It provided the model for the development of identification keys but did not generate knowledge. Thus, as a classification in Aristotle's sense it was a failure. Linnaeus knew this and tried to develop a natural system but failed to finish it. The Sexual System solved the problem of making classification easy, even easier because it was embedded in an outrageous sexual allegory. Anyone with a modicum of knowledge could now 'classify' and identify plants and have some fun doing it. It seems instructive to me that the one class that accepted Linnaeus' Sexual System so wholeheartedly was probably the greatest collection of amateur naturalists the world has ever seen; the clergy of the Church of England during Hanoverian and early Victorian times.

One further reaction that Linnaeus set in motion was a reversion to the folk taxonomy nomenclatural system of binomials.

I want to emphasize that although we tend to think our subject started with Linnaeus, in fact what he did was give us two practical tools with which to pursue a profession which had a more important history before him. It is Caesalpino and Kaspar Bauhin to whom we should turn to see the start of our subject in modern times.

Linnaeus was a glitch in the system albeit one which had a permanent effect. It was to John Ray that most of the later 18th century and 19th century botanists turned for inspiration and it was Alphonse de Candolle who developed these ideas most brilliantly in the *Theorie elementaire de botanique* of 1829. From these ideas came the concept of the Generalized Ground Plan of a taxon, again a recognizably inadequate description of the essence but one which gave some impetus to the next development.

The great advance in knowledge produced by biological classification came just after the middle of the next century. It would certainly have astounded and terrified John Ray for it suggested to many that the god he knew was superfluous.

It was Charles Darwin's careful use of systematic biology, constructed on the basis of like classed with like, intending to expose knowledge, that was one of the cornerstones of his argument for Evolution. Together with this he provided a mechanism whereby evolution could be brought about. Evolution by natural selection subsumes almost every phenomenon of the Natural world. As the environment changes so the selection process changes. This truth applies to plants and animals, ecological systems, even the combinations of subatomic particles during the environmental changes since the Big Bang and, dare I say it, to human societies. It is a true unifying principle and we ignore it at our risk. In fact the idea was set in motion by an almost contemporary of Aristotle, Demokritos. The rejuvenator in modern times was our classification of living things. Aristotle might have been less astounded than John Ray and Demokritos would have not been astonished at all.

Despite the acceptance of Evolutionary Theory, the distinction between deductive and inductive systems was maintained. For a time in the 1960's and 70's the so-called numerical taxonomists pedalled their inductive system arguing that only by ignoring evolution whilst classifying organisms would we infer new evolutionary hypotheses. The cladists, of course, take the diametrically opposed view to assume evolution has occurred and use a set of assumptions and deductive theorems to produce a classification which becomes an hypothesis about how evolution has occurred. This, within limits, becomes refuted only if the *a priori* assumptions about the advanced or primitive status of character states are refuted. This classification is then used to postulate still other hypotheses of an historical nature, something which many of you have discussed at the last symposium meeting.

This again emphasises that biological classification is not an end in itself, it is concerned with the generation of hypotheses, a modern way of saying what Aristotle said.

But there was still the problem of providing a good diagnosis, a description which most closely reflected the essence of the taxon under consideration. And, indeed, there was the argument about the essence, for many thought, unlike Aristotle, that it was knowable but we simply did not possess the techniques necessary. As biologists' horizons expanded it became clear that form was not the only

reflection of essence of a particular taxon that one could examine and describe. There was physiology and there was chemistry and there were chromosomes and so on. And these were all recognised to be attributes of the taxon, in particular the species. Each had its partisans who considered it the best reflection of the essence.

Even in the 17th century, John Ray had tried to avoid the problem of which set of characters should be used to define species. He thought of the species in terms of crossability and inheritance. As a corollary, the traits of a species were transmitted from generation to generation by blood-lines. Of course blood-lines were recognised long before Ray but he, so far as I can see, was the first to suggest that they had importance in the species concept. The 'blood lines' of a species produced its form, physiology, etc. It was, to all intents and purposes, the best description of the essence. However, now the emphasis was on inheritance rather than the 'blood' itself and there followed a great hunt for the basis of this inheritance. Well, you all know that that hunt resulted at the turn of the 19th and beginning of the 20th centuries in the chromosome theory of inheritance, in which genes strung along a chromosome determined the external form. At that stage we were no closer to the essence than before since genes were still described by their effect. And whatever the cyto-taxonomists said, the chromosomes were no better a reflection of the essence than other features.

Nevertheless, the theory gave a clearer insight into the nature of the species and other taxa and it resulted in a sharpening of Ray's concepts of the species, which was after all essentially a genetic one, by the Swede Turesson. Based upon particulate inheritance and the effect which the environment had on this, Turesson referred to his concept as the genotypic response of a species to the environment. A catchy if teleological way of putting it. It was an attempt to synthesise the concepts of ecology, evolution, genetics and taxonomy. The synthesis which biological classification had produced was influencing the classification itself. A feed-back mechanism had started.

With the discovery of the nature and function of DNA and the genetic code which it provided, most people think we have found the essence. Here at last, after a search which has lasted over 2000 years, we have found the actual substance which determines how an individual behaves and functions. The codes which are shared at the different levels of the taxonomic hierarchy are the essence of those taxa. The 'soul' no longer enters into our consideration when we are attempting to classify living things; biological classification is not going to tell us anything about it.

What generalities can we conclude from this examination of systematic botany over the past 2 millenia?

Firstly, although in science there is a sort of cult of the experiment, experiment is not the only way that hypotheses are generated or tested. Biological classification was largely responsible for the generation of the one great unifying concept of modern science. Systematics is a very successful generator of knowledge (hypotheses).

Secondly, the hypotheses generated depend upon the cultural background within which they are framed. Caesalpino would hardly be taken seriously in the 20th century and Hennig would undoubtedly have been burnt in the 16th! Indeed, the classifications themselves depend on culture in the same manner; which is only another way of saying that classifications themselves are theory laden. Which, in its turn, is only another way of saying that one picks a classification to suit the questions one wishes to ask of nature.

Whether one accepts inductive or deductive, scientific or folk, polythetic or monothetic and so on, these generalities hold. And we should not consider that we are the culmination of systematic effort. The questions subsequent generations will want to ask are not those we are asking and the cultural framework they will work in will be different to ours.

The cultural background which we presently live in is one of free ranging enquiry in science, technology, art and most other aspects of our lives. This has been developed in Western Europe and on the shores of the Atlantic Ocean over the last 300 years and exported to other parts of the world. Even now, most of the planet's population live in other cultural backgrounds. It is sobering to realise that it has lasted such a short time and only once before, to our knowledge, in the history of mankind has a culture with a similar attitude to knowledge

existed. That was on the shores of the Ionian sea for a brief period of about fifty years almost 2500 years ago.

The greatest threat of our times is not the environmental problems that beset us. It is the restriction of this free enquiry, for without it 'Ideas whose time has come', might never see the light of day and solutions to our dilemmas may never be found or may even be suppressed. Without it biological classification would never have acted as the dynamo driving biological enquiry and it would never have exposed anew Democritos' universal generalisation of nature.

Now I come to the title. Each step in this history which I have examined has required a particular cultural background for its acceptance. Democritos' generalisation had to wait until the 19th century AD for even partial acceptance. Ideas may be promulgated but not accepted however good they may be. Victor Hugo summed this up so well when he wrote: 'There is one thing greater than armies: an idea whose time has come'. And this has been an account of ideas in botany whose time came.

☺

ARTICLES AND COMMENTARY

SCIENCE, SYSTEMATICS AND SPECIMENS

B.J. Conn and J.M. Powell
National Herbarium of New South Wales, Royal Botanic Gardens,
Mrs Macquaries Road, Sydney, 2000, NSW

Hypotheses are nets: only he who casts will catch. - Novalis

A response to Clifford et al. Nature *346: 602 (16 August 1990)*

Clifford and his co-authors argue that the majority of specimens in natural history collections are redundant and infer that they can be destroyed without loss of information. In their view, specimens are required for the initial 'collection' of 'data' only; once collected the data can be taken as given. Their argument is based on two spurious premises: that 'data' are entities that are merely 'collected' by scientists and that scientific knowledge is infallible. They have not only misunderstood the role of herbaria and systematics or taxonomy in science, but the whole basis of science. All knowledge is theoretical and thus fallible, but testable and subject to re-interpretation in the light of new evidence. Data are interpretations not immutable 'facts'.

Systematics provides the theoretical framework within which inferences and generalisations are drawn throughout biology. All biological research requires various levels of taxonomic knowledge. Furthermore, systematics aims not only to provide names for living organisms but to improve understanding of their relationships and of natural variation within taxa. It aims to present a comprehensible system of classification and is critical to the documentation of the world's biological diversity. The herbarium collections are fundamental to systematics and the broad-based research that is undertaken by these institutes.

Clifford *et al.* suggest that for further revisionary studies specimens could be re-collected. However, re-collection of whole suites of species covering broad geographical areas is not cost-effective, and in many cases not feasible. Field observations can provide supplementary information, but never replace the information contained within herbarium collections.

Systematic research and taxonomic curation are complementary. The results of research are embodied in taxonomic curation and the collections highlight those areas that require further detailed evaluation. Both provide the basis for high quality identifications and biological advice.

A plant description is an interpretation of the information that a specimen contains as constrained by present systematic theories, understanding and technology. The original specimens will reveal much more information to future researchers as advances in knowledge and technology occur. Furthermore, a description is a *precis* of information useful for various specified purposes, but can not be used as the basis of future taxonomic decisions. New information can be gained only from the specimens not from the static, theory-bound literature.

To evaluate science by anything but scientific principles, as done by these authors, is invalid. We would argue that the development of biological knowledge should not be constrained by inadequate economic decisions. Governments demand high quality information on a wide range of biological issues. Biologists must ensure that the controllers of public monies understand the needs of our work so that we can satisfy their requirements. We must not allow bad political decisions, usually involving inadequate economic policies, to determine the quality of our science. ☺

ARE HERBARIUM COLLECTIONS USEFUL IN NON-TAXONOMIC STUDIES? An examination of Allocasuarina littoralis and A. torulosa

Gabriel M. Crowley
Department of Geography and Environmental Science, Monash University, Clayton VIC 3168.

Introduction

If the entreaties of economic- and botanic-rationalists are to be followed, we may see wholesale culling of herbarium collections. Clifford *et al.* (1990) contend that large herbarium collections are of little use and that funds used to maintain them should be redirected to project-oriented field studies of living populations. However, calls for the redirection of funds is hazardous in times of ecomonic stringency, as they are likely to result only in the removal of funding from herbaria, without their redeployment within botanical research. Therefore any re-assessment of herbarium funding policy must be based on a far-reaching debate about both current herbarium practices and desirable alternatives.

If we are to determine whether herbarium specimens are useful, then we must have a knowledge of the uses to which they are put. Herbaria keep visitors books, but these merely record the purpose of the visit, often only the taxa consulted, and not the relative worth of the consultation to the overall study. Annotations to herbarium sheets are only made when specimen identifications are determined or (in some herbaria only) where material is removed. The claim by Clifford *et al.* that herbarium specimens are rarely referred to in non-taxonomic studies is therefore difficult to dispute.

Phenology of Allocasuarina littoralis and A. torulosa

I have examined herbarium specimens of *Allocasuarina littoralis* (Salisb.) L. Johnson and *A. torulosa* (Ait.) L. Johnson from CANB, CBG, JCT, MEL, NSW and QRS in an attempt to determine whether the reproductive phenologies change with latitude, and I present here an assessment of the information available from these specimens.

Collection frequency

For phenological studies, representative specimens must be available from both throughout the species' range and throughout the year. Herbarium specimens of *A. littoralis* and *A. torulosa* had been collected from throughout the species' distributions, but there was a paucity of collections at certain times of the year (Fig. 1), particularly at extremities of range. Specimen frequency suggested that collection trips to the far north of the continent (eg. Iron Range) were most frequent in June, while those to Tasmania were largely restricted to the summer months. There was also some indication that collection trips may be more frequent during vacation periods. The apparent concentration of collections to the south of the species' ranges probably reflects the herbaria visited. However, greater collection intensity close to herbaria, or along frequently travelled routes, is undoubtedly a problem in any herbarium survey.

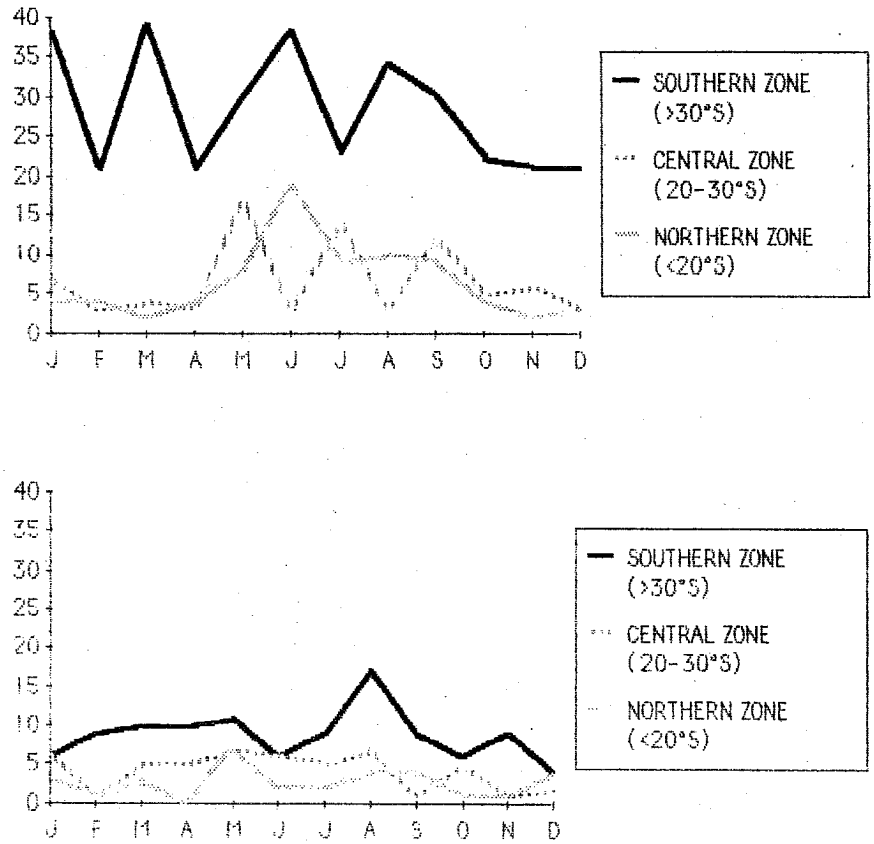


Fig 1 Collection frequency of (a) Allocasuarina littoralis *and (b)* A. torulosa.

Collector's information

Notes on specimen labels were often not very informative, particularly regarding the number of collection numbers relating to one individual, the number of individuals included under one collection number, the reproductive condition of specimens, and whether comments made referred to the individual collected.

There were frequently two or more herbarium sheets containing material collected on the one day, at the same locality and by the same collector, but to which no personal collection numbers had been allocated (eg. *A. littoralis*: CANB 331730 and CANB 305772). In such cases it was not clear whether more than one individual plant had been sampled. Even where collection numbers had been allocated, collection and/or subsequent collation practices sometimes obscured whether such numbers referred to one or more individual plants. As these species are usually dioecious, monoecy could not be assumed from herbarium sheets bearing both male and female reproductive structures unless these were attached to the same shoots or annotations recorded that the individual collected was monoecious. This information was not always provided (eg. *A. littoralis*: CBG 007856, CBG 012408, JCT/S-229, JCT/S-230, JCT/S-231, JCT/S-251, MEL 620080). Confusion about whether collector's numbers should apply to one or more individual plants was highlighted by the comment 'male and female from different trees' (*A.littoralis*: NSW 62151).

Where specimens were vegetative, it was not usually recorded whether or not there had been any reproductive material on the plant sampled. Some specimens bore enormous or deformed cones, yet no indication was made whether these were typical of the population or collected

only because of their curiosity value. Where cones had dehisced, it was often not clear whether seeds had been expelled before collection, or after collection and subsequently lost.

It was often not clear whether notes referred to the individual specimen collected, to the observed population in general, or to the collector's assumed knowledge of a species (correct or otherwise). Thus notes such as 'dioecious male specimen' (*A. torulosa*: CBG 043097) could be assumed to refer to the specimen collected, whereas 'often monoecious' (*A. torulosa*: NSW 147086) could not be assumed to refer to more than the collector's general knowledge of the species.

Collector's behaviour

The impression was gained that collectors generally emerge in vacations, particularly in good weather, are more inclined to collect plants in flower or fruit, and may lump together all material from the one species as one collection specimen, or collect several shoots from the one plant without indicating they have done so. The exceptions to this behaviour may be the rule, but without clear records, anyone examining herbarium material must assume otherwise.

Usefulness of collections for phenological study

With these limitations, it was impossible to identify distinct periods of flower or fruit formation. All that could be done was to record the proportion of specimens each month which bore reproductive structures at various stages. It may be that these species exhibit irregular reproductive patterns and that little else could be gleaned from the collections. However, had collection methods been consistent, a more definite conclusion about the regularity or irregularity of reproductive cycles could have been made. As it stands, this study will need to be followed up by field observation at some expense, but had herbarium collections been thorough and well documented, the need for further field studies would have been less extensive.

Ratios of dioecious:monoecious and male:female individuals could not be determined. This may always be beyond the scope of herbarium collections because of the propensity to collect plants deemed to be of interest by the collector rather than those representative of a population or community.

Those studying other aspects of ecology would have found the collections equally unhelpful. Localities were often vague and rarely included bearings or altitudinal data. There were few notes on soil type or vegetation communities.

Suggested modifications of collection and collation procedures

The following is a suggested list of procedures which would make herbarium collections more useful for phenological (and ecological) studies.

Each region should be visited several times a year and specimens collected of all species whether vegetative or reproductive. The following data should be collected.

Species. Collector and collection no. Date. Locality (Lat. Long. Alt.).

Site data: eg. aspect, slope, soil type, vegetation type.

Specimen data: Height, Girth.
Reproductive structures:
Male: buds, mature flowers, post-mature flowers.
Female: buds, mature flowers, aborted flowers, immature fruit, mature fruit, post-mature fruit.
Bisexual: buds, mature flowers, aborted flowers, immature fruit, mature fruit, post-mature fruit.
Indeterminate: no reproductive structures.
Not recorded.

[Population data: Height, reproductive condition.]

When specimens are collated if specimens are broken for duplicates or to allow different structures to be mounted this should be noted. If there is no evidence that different segments come from the same plant, this also should be noted.

Collection and collation of plant specimens is one of the first things to be taught in any botany course. If a change in herbarium procedure is to

occur, then a uniform system should be adopted across the country and taught to all botany students so that all material collected will be useful. While there may be some resistance to making plant collection more onerous, the highly successful '*Banksia* Atlas' project (Taylor and Hopper 1988) has demonstrated that collectors given *pro forma* sheets and adequate guidance are prepared to record detailed information, although they may have been more enthusiastic because they knew it was to be used in a definite project. Record sheets for the project contained much of the information listed above, and could be universally adopted, with some alteration to make the categories applicable to individuals rather than populations, and to a wider range of species.

To assist with assessment of herbarium procedures, visitors books could be made more detailed, and copies of resulting publications and thesis abstracts kept. Lists of these could be collated in appropriate specimen folders. Shortcomings relating to data required for particular studies could also be noted.

Other studies

An examination of notations to the herbarium sheets, other than those of taxonomic revision, showed that *A. littoralis* and *A. torulosa* specimens had been sampled for a study of pollen morphology, which has since resulted in publication (Kershaw 1970). No doubt this study would have been both more time consuming and more expensive had herbarium specimens been unavailable. Voucher specimens had also been lodged for a study of chromosomal variation, also published (Barlow 1958, 1959a,b). If the specimens used in these studies are destroyed and the taxa dealt with are subsequently revised, the opportunity for a simple re-evaluation of the original research will be lost. Moreover, as it may be difficult to foresee the need for herbarium specimens in future research programs, destruction of specimens may cause unnecessary further expense. For example, DNA studies, which can utilise dried specimens, might not have been envisaged by curators rationalizing their collections earlier this century.

Data banks

Clifford *et al.* (1990) suggest data banks of the information on specimen labels could be kept when specimens are destroyed, but that such data, already available, is rarely consulted. Indeed the above analysis suggests there is little point in keeping such information, other than for distribution, as it is likely to be of little ecological value. So unless the information is initially collected in a useful form, there is no point in transfering it to computers. A data bank would have the advantage of eliminating the need for visits to herbaria to collect the information. However, data entry would be time consuming, and therefore expensive, and may be unjustifiable except in instances where the data is certain to be used.

Ethical considerations, among other problems, have long made the widespread collection of animal specimens undesirable, and in many studies voucher specimens are already considered to be unnecessary. This is particularly the case for studies of distribution (eg. *The Atlas of Australian Birds*; Blakers et al. 1984). But detailed information on ecology can also be usefully collected without voucher specimens as shown by *The Banksia Atlas.* Herbaria may not be the natural repository for such records. Unusual sightings of birds are mainly recorded in newsletters rather than museums, with editors responsible for the vetting of all accounts. If records of plant species are to be accepted without voucher specimens, a suitable vetting process would need to be devised, and long-term funding assured.

The morphological and chromosomal studies referred to above relied on data obtained directly from the specimen rather than on information recorded on the labels. A data bank system would be unable to process such data in the off chance that it would one day be used. While much phenological information could be recorded adequately on computer, this information would be lost should a taxonomic revision occur, and insufficient information recorded to allow new identifications to be made.

Conclusions

The future of herbarium collections should not be determined on the basis of whether or not they are useful, but rather whether or not they can and should be useful. It would appear that herbarium collections are of limited use in their current conditions for studies involving detailed phenological analysis. This situation can be reversed but only by a massive change in specimen collection and collation practices. Whichever system is adopted, it should be done so uniformly across the country. Data banks may have a role, but this may be to augment rather than replace herbarium collections, as problems caused by taxonomic revision may be insurmountable.

Acknowledgments

I wish to acknowledge the helpful comments of Dr B.A. Barlow, Dr B.R. Jackes and Dr S.T. Garnett, and the assistance of herbarium staff, Dr B.A. Barlow (CANB), Dr J. Ward (CBG), Dr B.R. Jackes and Mrs A. Murray (JCT), Dr H.I. Aston (MEL), Dr K.L. Wilson (NSW) and Dr B.M.P. Hyland (QRS). Dr G.A. Duff and Dr S.T. Garnett kindly assisted with data collection.

References

Barlow, B.A. (1958) Diploid and tetraploid *Casuarina littoralis* Salisb. (Syn *C. suberosa* Ott. and Dietr.). *Aust. J. Bot.* 6: 38-46.

Barlow, B.A. (1959a) Chromosome numbers in the Casuarinaceae. *Aust. J. Bot.* 7: 230-237.

Barlow, B.A. (1959b) Polyploidy and apomixis in the *Casuarina distyla* species group. *Aust. J. Bot.* 7: 238-251.

Blakers, M., Davies, S.J.J.F. and Reilly, P.N. (1984) 'The Atlas of Australian Birds'. (Melbourne University Press, Carlton). 738pp.

Clifford, H.T., Rogers, R.W. and Dettman, M.E. (1990) Where now taxonomy? *Nature.* 346: 602.

Kershaw, A.P. (1970) Pollen morphological variation in the Casuarinaceae. *Pollen et Spores.* 12: 145-61.

Taylor, A. and Hopper, S. (1988) 'The Banksia Atlas'. (Australian Government Publishing Service, Canberra). 258pp. ☺

POOR SLIDES AND POOR SPEAKERS: CAN ANYTHING BE DONE?

D.E. Symon
Adelaide Botanic Gardens & State Herbarium,
North Terrace, Adelaide SA 5000

The recent ASBS Conference opened with the announcement that a prize would be given for the best student paper presented. It closed with the statement that no paper was worthy of a prize. Regrettably the same could be said of too many of the professional papers.

By my score about one third of the speakers would have failed to pass a school test and more than 50% (or even higher) of the slides and overheads ranged from inadequate to totally unreadable.

What can be done to improve this sorry example?

Giving wooden spoons would result in further deforestation.

By the time speakers arrive at a Conference it is generally too late for changes to be made. If organisations insisted on their staff giving a run through of their papers and slides before they left, the more blatant failures could be avoided. Surely this is not too much to ask and could readily be done before a lunchtime audience of a few colleagues.

Some Conference visitors could start asking for their money back. ☺

LIBRARY COLLECTIONS

Helen Hewson

It has been drawn to our attention that some library holdings and personal collections are being 'lost' to the rubbish dump. The former occurs where holdings are duplicated (either actually or through several editions) and the

library is short of space; the latter occurs when the family is unaware of the value.

Librarians are encouraged to contact the librarian of the nearest State or Commonwealth Herbarium before destroying botanical works (including reprint collections). Trustees of botanists estates are encouraged too to contact the relevant institution. Members of ASBS and the Associate Director, ABRS, Box 1383, Canberra 2601, ACT, are all willing to advise.

Owners of personal collections of books, journals and reprints are kindly requested to leave instructions in their Will. No doubt antiquarian and natural history booksellers would be delighted to purchase the holdings if a donation is not desired.

I understand that the Melbourne University Baillieu Library accepts and maintains very valuable personal collections. No doubt phycologists, bryologists, pteridologists and botanical historians will be delighted to learn that they hold the Sophie Ducker Collection -- this generous lady having chosen to organise for her personal collection to be housed in this way upon moving to a smaller home. ☺

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY INC. - BUSINESS

MINUTES OF THE 13TH GENERAL MEETING CANBERRA, WEDNESDAY 29 AUGUST 1990

Huxley Lecture Theatre
Australian National University, Canberra

Meeting opened at 5:35 p.m.

1. Attendance

The President, Dr Judy West, welcomed the 34 members and 3 visitors to the 13th General Meeting.

2. Apologies

Barbara Briggs, Tim Entwistle, Don Foreman, Rod Henderson, Estelle Ross.

3. Minutes of 12th General Meeting held in Sydney on 28 June 1989

The minutes of the previous General Meeting (28 June 1989) were published in the *Austral. Syst. Bot. Soc. Newsletter* 60: 30-34 (1989). The minutes were accepted [moved J. Powell; seconded G. Guymer. Carried].

4. President's Report

'The proceedings of the Botanical History Symposium were published by the Society and that of the Sydney Symposium were published in Volume 3(1) of the *Australian Systematic Botany* journal. I thank Dr Laurie Martinelli (CSIRO Publication Service) for allowing these papers to be published in that journal.

'The Council arranged for the production of T-shirts, sweaters and mugs which display motifs advertising the Society. It is hoped that these items will raise revenue for the Society and improve the profile of the Society.

'This year Council has instigated the Student's Prize to interest more students to present papers in systematics. It seems appropriate to have such a Prize because fewer students are studying systematics at tertiary level.'

5. Treasurer's Report

In the absence of Don Foreman, Barry Conn presented the following audited Treasurer's report for the calendar year of 1989 (1 Jan. - 31 Dec. 1989) and the following unaudited summary for the period of 1 Jan. - 30 June 1990.

Membership of the Society

'At the present time the Australian Systematic Botany Society Inc. has 346 members in Australia and 30 members overseas. A number of people have resigned from the Society in recent times and people with long standing

arrears in their subscriptions have also been deleted from the current list.

Income

'The income for the Society comes from a variety of sources, the most important being the subscriptions from members. This yielded $5721.75 for the year ended 31 December 1989. The Society continues to earn valuable extra income from interest on various Term Deposits. Other income has again come from the sale of *Flora and Fauna of Alpine Australasia ($353.44)* and *Evolution of the Flora and Fauna in Arid Australia* ($227.11) most of which has come through the Canberra book sales. I would like to thank Frances Quinn and Helen Thompson for their efforts in this regard.

Subscriptions

'Most people have responded very well to our recent drive to catch up on unfinancial members. Members should now be aware of the new policy on unpaid subscriptions. Also please do not forget to let either myself or the Secretary know if you change your address.

Expenses

'Production costs associated with the Newsletters including Post Office registration fee and printing of envelopes was our major expense for the year totalling $4587.12.

Sydney Symposium

'The Society provided an advance of $3000.00 for the symposium and obtained a net return of $4631.86.

CSIRO Journals

'An increasing number of members now take advantage of the offer made by CSIRO to obtain journals at a reduced rate through the Society. I would ask that people ordering journals forward their subscriptions at the same time as the offer is only available to financial members. If anyone has had difficulties receiving their journals please write direct to the CSIRO Publication Service in Melbourne.

FASTS

'During the year FASTS changed the method of charging their fees. It is now based on a financial year rather than a calendar year and as a result we had to pay two subscriptions within the one calendar year.

'Correspondence from FASTS has been passed on to the Council and I am sure relevant information will appear from time to time in the *Newsletter*.'

6. Editor's Report

The following Editor's Report was presented by Barbara Barnsley.

'This last year we have attempted to improve the visual quality of the *Newsletter* contents with the inclusion of photographs, logos and book covers. A conscious effort has also been made to increase the number of book reviews and books of interest in the Recent Publications section of the *Newsletter* and especially to include some humour and human interest.

'You may have noticed how little we receive from the Chapters or their Conveners. For instance I can not remember any contributions from Armidale, Brisbane, Darwin, Hobart, Perth or Townsville Chapters in the three years that I have been Editor. We have heard from the Papua New Guinea Botanical Society but would always be pleased to receive more news.

'We are hoping to include photos and/or a short biography of current ASBS Councillors and contributors to the *Newsletter*, which we hope will be useful, informative and fun.

'Michael Crisp and I have been editing the *Newsletter* for almost three years and that period has been very worthwhile for me personally and I have enjoyed meeting people both in person and by letter. We now feel however that it is time for someone else to take over as editor. The usual period for a person to fill the position appears to be two to three years and a change would be healthy for the *Newsletter*. Perhaps it is time for the editorship to move away from Canberra as I am sure the content has been influenced by our being in Canberra. So I give notice that Michael and I will stand down at the end of 1990.

'I would like to thank everyone for their co-operation, especially Mike who has been such a

strength to me. I am not very well known to the botanical community nor do I have a particularly good botanical knowledge - just a willingness to learn and work, as well as a desire to help the Society - so Michael's guidance, knowledge and editorial skill has been invaluable to me. Thank you Mike.'

A vote of thanks to Barbara Barnsley and Mike Crisp was proposed by Judy West and supported by the Meeting. Judy requested that offers for editors should be made to her, Barry Conn or Mike Crisp.

7. Fund Raising Activities

Judy West advised the Meeting that the Council had decided to produce T- Shirts, Sweaters and Mugs which advertised the Society, as well as raising funds. These items are now available for purchase. Helen Hewson organised raffles during this Symposium as a means of raising money for the Society.

8. Research Fund

Helen Hewson presented the following report:

At the 12th General Meeting, 28 June 1989, approval was sought to set up an ASBS Research Fund. The ASBS Council agreed in principle and was prepared to set aside $5000 initially. The membership at that General Meeting was not totally enthusiastic. There was a general feeling that the project was 'over ambitious' because the amount of money available was small and that the amount of work involved in administering the Fund would not justify the outcome. However, it was agreed that the proposal should be investigated. A subcommittee was set up: Helen Hewson (Convener), Jocelyn Powell, Gordon Guymer, David Morrison and Molly Whalen.

The aim of the Research Fund is to support botanical systematic research by students.

In the climate of concern for stability of the World's biodiversity, it is essential that the core of scientists include competent taxonomists. Concurrently, governments are cutting back and the viability of our discipline is not assured, whilst few would doubt its desirability. Scientists are increasingly being placed in the position of having to help themselves to survive. Although the proposed Research Fund may not help research directly in the short term, it will assist some students to gain a better outcome in their education process. Encouragement of these people is vital.

Tax deductibility is not available because the Society is not an Institution. Hence, it is certain that the initial capital will be small. If, for example, the Fund contained $10,000 earning interest at 10% annually ($1000), this would enable $500 to be reinvested and $500 for a grant(s) in the first twelve months. The caution expressed by the Membership does seem to have been valid. Nevertheless, it does seem possible to respect their concern and set up a small Research Fund. Establishing a separate investment account allows for the integrity of the Fund to be maintained, with the possibility of disbanding the Fund should a future Council find it undesirable to continue it.

Judy West suggested that the profits from the sale of T-Shirts, sweaters, mugs and raffles be identified and set aside for the Research Fund, without actually opening a separate account. The Meeting agreed that the Society should assess the feasibility of accumulating sufficent capital from such sources.

9. Student Prize

Judy West announced that Council had decided to award a prize to the best paper presented by a student at this Symposium. The award included $300 and a one year subscription to *Australian Systematic Botany* which was donated by the CSIRO. Judy moved a vote of thanks to Dr Laurie Martinelli for organising the donation of this journal [supported by the Meeting].

Helen Ramsay suggested that a lesser prize could be given to students for presenting a poster, however, Pauline Ladiges felt that students should be encouraged to present their research in spoken form.

10. Current Symposium

Judy West informed the Meeting that Drs Pauline Ladiges and Laurie Martinelli have agreed to consider papers presented in this Symposium for publication in special issues of *Australian Systematic Botany*, together with those austral biogeography papers presented in the recent Hennig Meeting.

The Society advanced $1550 to assist Drs Clive Burrett, Bernard Michaux and Mr Mark Coode to present papers at the Symposium.

Judy proposed a vote of thanks to the organisers and helpers, viz. M. Crisp, H. Hewson, M. Henwood, P. Hattersley, M. Fagg, J. Croft, H. Thompson, Elaine Cooper, J. Palmer, F. Davies and J. Taylor.

Mark Coode offered the remainder of his advance (i.e. $200) to the Research Fund, after the payment of the registration fees for the Hennig Meeting. This offer was accepted with thanks by the Meeting.

11. Future Activities/Symposium

Judy West stated that several localities for future symposia had been discussed by Council. These included northern Queensland (Mareeba-Atherton), South Australia (Adelaide), Western Australia (Albany) and Tasmania (Hobart). One symposium topic suggested was 'Rare and endangered species'. Jocelyn Powell suggested a symposium on more recent biological speciation (e.g. Pleistocene), including aspects of dispersal and biogeography, biodim interpretations, macrofossil and pollen evidence. Bill Barker suggested that a trans-Tasman Symposium would be worth considering. Phil Garnock-Jones agreed that such a symposium would prove very stimulating and sufficient support could be found within New Zealand. Patrick Brownsey informed the Meeting that although the New Zealand Botany Society and the New Zealand Systematic Association were not very active, the infrastructure still existed so that a symposium could be organised.

It was agreed by the Meeting that any proposals for a symposium should be discussed with the President.

12. 'Where now for Taxonomy?' - Response

Judy West briefly summarized the contents of the article by Clifford, H.T., Rogers, R.W. & Dettmann, M.E. 1990. 'Where now for taxonomy?' in *Nature* 346: 602. Extensive discussion of the consequences of this article had occurred during the Hennig Meeting. She suggested that the Society should respond to this article [strongly supported by the meeting]. The contents of a suitable response were discussed at length.

It was agreed that Council should prepare a reply. It was mentioned that Rogers and Clifford had also prepared an article for *Search*, titled 'Realizing the potential of burdensome collections'.

13. Any other business

None

14. Council Elections

Barry Conn, the Returning Officer noted that Mike Crisp was unable to stand for election. He acknowledged the excellent work that Mike had done on Council over the last four terms. Since only one nomination was received for each position on Council no elections were necessary. The council for the next term include:

President:	Judy West
Vice-President:	Gordon Guymer
Secretary:	Barry Conn
Treasurer:	Don Foreman
Councillor:	Jenny Chappill
Councillor:	Jocelyn Powell

15. Subscriptions 1991

After a discussion of the appropriate subscription rate, the following motion was proposed:
That subscription rates be increased from $20 per annum to $22 per annum for ordinary and institutional membership, with student rates maintained at $12 per annum. [moved Barry Conn; seconded Alex George; carried unanimously].

Meeting closed at 6:25 p.m. ☺

TREASURER'S REPORT FOR THE YEAR ENDED 31 DECEMBER 1989

Receipts

Interest		
On cheque account		173.99
Term deposits		1497.92
Term deposit		539.05
Redemption of compound interest		4270.87
Subscriptions to ASBS Inc.		5721.75
Subscriptions for CSIRO Journals		2985.00
Sale of Botanical History Symposium		5386.99
Return from Sydney Symposium		4631.86
Sale of Alpine Symposium Proceedings		353.44
Sale of Arid Zone Proceedings		227.11
Sale of Newsletters		12.30
Advertisement in Newsletter		30.00
		25830.28

Payment

Printing Newsletters		3190.00
57	650.00	
58	680.00	
59	680.00	
60	1180.00	
Typing Newsletters		417.00
58	115.00	
59	50.00	
60	252.00	
Postage Newsletters		529.62
57	144.60	
58	148.10	
59	139.90	
60	96.92	
Printing of Envelopes		408.00
Post Office Registration Fee		42.50
Payment for CSIRO Journals		2405.00
Bank Charges		15.29
FID	6.29	
FDT	9.00	
Sydney Symposium Advance		3000.00
FASTS Subscription		2170.00
Jul 88-Jun 89	1085.00	
Jul 89-Jun 90	1085.00	
Audit fee for 1988		125.00
Illustration for cover of newsletter		100.00
		12402.41

Summary: Bank Account Movements

Balance at 1 January 1989	5828.05
Add Receipts for Year	25830.28
	31658.33
Less Payments for Year	12402.41
Balance at 31 December 1989	**19255.92**

Summary: Bank Fixed Deposits

Balance at 1 January 1989	15670.87
Redeemed during year	4270.87
Balance at 31 December 1989	**11400.00**

Audit Report

I report to the members of the Australian Systematic Botany Society Inc. that I have examined the above Statement of Receipts and Payments for the year ended 31 December 1989 and confirm that they are in accord with the books and records of the Society.

(signed) **J.A. Kellet**
Chartered Accountant
Corio, Victoria
Dated 27 August 1990 ☺

STATEMENT OF ASSETS AND LIABILITIES UP TO THE PERIOD ENDING 30 JUNE 1990

Assets

At bank	$26,189.36
On deposit	$11,400.00

Society Newsletters in stock

Month & Year	No.	Quantity	$ Each
March 1981	26	1	1.00
May 1981	27	19	1.00
Sept 1981	28	4	1.00

March 1982	30	33	1.00
Sept 1982	32	7	1.00
Dec 1982	33	59	2.00
March 1983	34	50	2.00
June 1983	35	62	2.00
Sept 1983	36	68	2.00
Dec 1983	37	58	2.00
March 1984	38	71	3.00
June 1984	39	99	3.00
Sept 1984	40	91	3.00
Dec 1984	41	122	3.00
March 1985	42	22	3.50
June 1985	43	47	3.50
Sept 1985	44	61	3.50
Dec 1985	45	55	3.50
March 1986	46	182	3.50
June 1986	47	74	3.50
Sept 1986	48	74	3.50
Dec 1986	49	152	3.50
March 1987	50	39	3.50
June 1987	51	61	3.50
Sept 1987	52	65	3.50
Dec 1987	53	93	3.50
March 1988	54	61	3.50
June 1988	55	87	3.50
Sept 1988	56	76	3.50
Dec 1988	57	44	3.50
March 1989	58	39	3.50
June 1989	59	54	3.50
Sept 1989	60	10	5.00
Dec 1989	61	28	5.00
March 1990	62	23	5.00
June 1990	63	131	5.00

300 unsold copies of *Evolution of the Flora and Fauna in Arid Australia* @ $20.00
(The Society obtains 5/63 of proceeds)
9 unsold copies of *Flora and Fauna of Alpine Australasia: Ages and Origins* @ $21.00
857 unsold or unpaid copies of *History of Systematic Botany in Australasia* @ $40.00

Liabilities

Unfinancial members		
Australian:		
36 Owing 1 year subs	20.00	$720.00
27 Owing 2 year subs	40.00	$1080.00
Overseas:		
3 Owing 1 year subs	20.00	$60.00
5 Owing 2 year subs	40.00	$200.00

History of Systematic Botany in Australasia
.... Invoices for books not yet paid for $800.00

AN UNAUDITED SUMMARY OF TRANSACTIONS UP TO 30 JUNE 1990

Credits

Subscriptions	3423.63
Interest Term Deposits	1058.83
Interest Cheque Account	376.06
Interest Accrued	395.36
Arid Zone Symposium sales	127.00
Alpine Symposium sales	77.00
Newsletter sales	388.20
Advertisement	50.00
History Book Sales	1733.00
Contributions History Book publication	9000.00
Total credits to 30/6/1990	16629.08

Debits

Printing Newsletter		1420.00
61	690.00	
62	730.00	
Postage Newsletter		358.76
61	207.00	
62	151.76	
Typing Newsletter		138.00
61	54.00	
26	84.00	
Subscriptions for CSIRO Journals		2970.00
Term Deposit		4000.00
Bank Charges		9.07
Postage refund for Canberra Book Sales		90.20
Postage review copies Botanical History Book		62.60
Stamps and Tuff Bags Botanical History Book		359.80
D.Foreman Postage and Receipt Books		23.85
Total debits to 30/6/90		9432.28

D.B. Foreman Treasurer ☺

STUDENT PRIZE

The Council of the Society decided to award a prize for the best paper presented by a student at this year's symposium 'Indo-Pacific Biogeography: at the Crossroads'. The award included $300 and a one year subscription to *Australian Systematic Botany* which was donated by CSIRO. The prime purpose of the prize is to encourage more systematics students to join the Society and to actively participate in our symposia.

The prize will always be judged by a panel of ASBS members and based on a number of criteria, including the student's grasp of the subject, the breadth of scope covered in the paper, presentation, and the ability to respond to questions or comments. It is the Council's wish that a reasonably high standard of student presentations be maintained, and this may mean that in some years no prize is awarded. If there is only one student paper the prize will not be awarded by default.

At this year's symposium we were pleased to have three student presentations. For various reasons, the judging panel felt that, while the topic of each paper was interesting and relevant to the symposium, each could be greatly improved in particular ways. Hence, the judges decided not to award the prize in 1990. We would hope that this in no way discourages others from participating in the future and Council requests all supervisors of students to encourage them to take part. It is important that graduate students have the opportunity to present their research in spoken form and to make themselves known to other workers (and potential employers!) around Australia.

Judy West
President ☺

ASBS RESEARCH FUND

The Melbourne account holds over $600 and the Canberra account holds over $1200. This money has been made from sales of ASBS sweaters, T-shirts, mugs and scarves and from other fund raising activities in Canberra at the August Symposium and at BIOTA 90 in October. The latter included 2 raffles, a lucky door prize, and sales of secondhand books, craft and novelty items (engraved glassware, bookworm bookmarks and computer mouse cozies). We have not resorted to lamington drives yet. Nevertheless we are making progress -- nearly $2000 in three months. We look forward to other Chapters taking some fund raising initiatives to swell the coffers even faster.

Helen Hewson ☺

FUTURE MEETINGS

The following meetings have been proposed for Society involvement:

Auckland, New Zealand
November or December 1991

Theme(s) and symposium topics are being sorted out now. There will be field trips, including one of South Island vegetation based in Christchurch.

Organisers:
Anthony Wright, Auckland Museum
Colin Webb & Phil Garnock-Jones, DSIR

A General Meeting of the Society will be held with this meeting.

Honolulu, Hawaii
August, 1992

The Botanical Society of America has invited ASBS to meet with them for their annual meeting, which meets in conjunction with the American Institute of Biological Sciences. It is anticipated that some members of ASBS might be involved in organising a symposium with an Australian (or austral) flavour, and that we would have participation by a few members.

We would not have a General Meeting in Hawaii.

Perth, Western Australia
August/September 1993

The proposed title for the symposium is:
Australian Plants in Peril: the New Role for Plant Systematics

It is intended that the symposium be held at University of Western Australia and would be followed by a 2 or 3 day field excursion to the south-west of the State focussing on areas of high species diversity.

The theme of the symposium will be biodiversity and conservation biology and will possibly cover subjects such as:

- species richness and endemism in the Australian flora
- rare and endangered species
- diversity and evolution at the species level

The Western Australian group have established an organising committee of Jim Armstrong (convener), Jenny Chappill, Kingsley Dickson, Neville Marchant and Bruce Maslin.

Judy West, President ☺

AFTER DINNER SPEECH

ADVICE FOR THE OVER-EDUCATED

Editors' note: This is an almost authentic version of the after-dinner talk presented during the ASBS symposium on Indo-Pacific Biogeography: At the Crossroads, *on the 29th August 1990.*

It seems to have become traditional at these two conferences [the IXth meeting of the Willi Hennig Society, and the ASBS symposium] for botanists to begin by apologising to their audience; so I don't see why I should be any exception now. I've been told that I look a bit seedy today, so I'll start by aplogising for this inelegance of mine. However, I've spent the past week living in a house with Bill Barker, and anyone here who's ever had to do that will realise just how difficult it is.

Bill has a quick cat nap at about 10:30 in the evening, and then suddenly comes alive for the rest of the night; usually wanting to do cladistic analyses of his *Euphrasia* data, so that he's got something to present during his talk tomorrow. In order to create the appropriate ambience, he opens a few Coopers, since (as you should all realise) this provides the ideal circumstances for doing cladistic work. Unfortunately, this behaviour is a bit rough on those of us who are used to drinking our ale a bit earlier in the day -- before the sun goes down. Consequently, I wish to firmly deny having had anything to do with whatever cladograms Bill presents tomorrow morning.

When I was first asked to give this talk, I said 'no' quite deliberately, because I had no idea what I would talk about. However, when my arm was twisted again, much later, I was in the process of writing a book review for the *ASBS Newsletter*. You may have noticed that in the [second] last newsletter, there was a review by Mike Crisp of Arthur Cronquist's latest book. Now, this review was five pages long and had twenty references; so, I thought I'd write one that was six pages long and had thirty references -- which was longer than the book. An obvious case of one-up-manship.

In order to pad this review out to the required length, I decided to spend the first page writing about myself -- which is more interesting than the book. In this part of the review, I noted that I had never wanted to be a botanist -- on the grounds that very few other people probably did either. For example, Peter Valder used to tell the story about when he was an adviser for new undergraduate students at Sydney University, telling them what subject combinations they should take. Only once did someone rush up to him and say: 'I want to become a botanist'. So, Peter thought about this for a moment, and then looked back at him and said: 'Have you considered therapy?'

Given this sort of attitude, it occurred to me that a useful after-dinner talk could discuss some of the insights that I've gleaned in the process of becoming a botanist. Obviously, most of what I've learned as a botanist I've learned from other people, who either were or were becoming botanists. So, this talk is going to be about people.

Now, the person who rushed up to Peter Valder, with such an outrageous suggestion concerning his future career, was Peter Weston; so, I think we all have something to learn from him. Consequently, Dr Weston will have a part to play in tonight's proceedings. Furthermore, Peter and I both come from Sydney University, and so we were both trained by Roger Carolin, at least as far as systematics is concerned -- not that this is anything that Roger is necessarily very proud of. Anyway, Roger also has an obvious role to play tonight. Finally, the last person to ask me to give tonight's talk was our illustrious [ex] vice-president, Michael Crisp. Therefore, I'm going to get even with him now -- Mike will also have a starring role in tonight's cast.

So, what we have here tonight is a series of aphorisms -- or advice for the over-educated, as Oscar Wilde once put it. These will be a series of take-home messages; each of which will, I'm sure, contribute to your appreciation of botany as part of your chosen life-style.

I think we might start with Roger Carolin. When I was first an undergraduate student, I used to wonder why, unlike anyone else in the School, Roger had this pokey little office tucked away in the middle of the herbarium. After all, it was half the size of any other associate-professor's room, it leaked like a sieve when it rained (usually all over the type specimens he had on loan), and it reeked of naphthalene. Maybe, I thought, the naphthalene is supposed to preserve his youth. However, later on, I realised what was going on -- this was a defence mechanism against students. No-one was ever going to disturb him in this den.

So, when I became a lecturer myself, I decided to emulate Roger -- it was obviously an important consideration in a continuing career path. I managed to get an office that was actually a curtained-off part of a laboratory. Everyone else in the building had an office with four walls and a door -- I had three walls and a shower curtain. And it was a repulsive curtain at that. Still, it worked -- no-one was ever going to come and get advice from a lecturer who lived in a shower recess.

Therefore, aphorism number one is:- Make sure you have an effective defence mechanism against unwanted pests.

Aphorism number two is this:- If your boss doesn't take you seriously, then maybe you shouldn't either.

This aphorism is actually derived from a pair of memos between Roger Carolin and Spinny Smith-White in the 1960s. Like all biology schools, the one at Sydney University has a field research station. This one is at Pearl Beach, just north of Sydney, and it was given to the university by Minnard F. Crommelin. However, Miss Crommelin didn't die when she left her property to the university; and, so, she continued to live there for some years after undergraduate students started using the place for their introductory course on the plant kingdom. With this potential conflict in mind, Spinny, as head of the school, decided that he should send a reminder to Roger, who was about to take a class up there; which I just happen to have a copy of.

[*Copy unfortunately unavailable!*]

Roger's reply is dated the following day.

[*Copy also temporarily unavailable - it is possible that David will be able to relieve your curiosity in a later* Newsletter.]

For aphorism number three, I think we should turn to Peter Weston. The enthusiasm that Peter showed in wanting to be a botanist as an undergraduate has not waned over the years; which I think someone should do something about. However, late in 1980, Peter bounded up to Roger Carolin and said: 'I think we should go to New Caledonia'. Roger then quietly explained that he was already married; so, to put everyone's minds at rest, they decided to take a few chaperones -- Tony Martin, Peter Clarke (who was the school's plant collector), and myself. I learnt many things on this trip, some of which I'll share with you tonight.

The first of these aphorisms is:- Make sure that you're the one sitting by the swimming pool.

One of the objectives of the trip was for Peter Weston to collect *Boronia koniamboensis* and *Garnieria spathulifolia*, both of which grow near the summit of Mt Koniambo, on the south-west coast of the main island. Therefore, we dutifully rolled up one day, and set ourselves up at the hotel near the base of what appeared to be a fairly small hillock. The two Peters looked condescendingly at this mere pimple, and decided that they could knock it off by lunchtime the next day.

So, they got up bright and early the next morning, setting off optimistically with a backpack containing a small amount of water and the traditional black plastic garbage bag. On the way out of the hotel, they stole half a pawpaw from a local tree, since it was too early for breakfast. Some hours later, Roger, Tony and I got up to a warm sunny day, and wandered lazily into the dining room to partake of a delicious continental breakfast.

Shortly after this, the two Peters discovered that they may have underestimated this particular mountain. The part that you can see from the hotel is only the beginning; and once you get past the first rise, you can see the real

summit off in the distance, a long long way away from where you're standing. Suddenly, the water and the now deceased pawpaw seemed completely inadequate. Still, like all true botanists, there was no thought of going back; and they set off determinedly through the scrub.

Meanwhile, Roger, Tony and I had finished our repast, and were considering what strenuous activity should come next. We then realised that the two young chamber maids were swimming topless in the swimming pool. We decided to go and sit by the pool.

Back up on the mountain, the last of the water was being consumed, and they were still only halfway to the top. As a result of the intense heat, Roger, Tony and I had to move our chairs under a poolside umbrella. Some time later, the chamber maids got dressed and left, and we realised it was time for lunch. I put on several kilograms in New Caledonia, as a result of this active lifestyle.

As we emerged from lunch, ready for a quiet siesta, our two heroes on the mountain had finally made it to the top, and were searching feverishly for the plants they were after. Surprisingly enough, they had no difficulty at all in finding them, and put the precious specimens safely into the rather flimsy garbage bag. They then looked around, and contemplated the lengthy walk back the way they had come. They quickly decided that the most parsimonious way back down again was at right angles to the direction of the hotel, because there was a nice green grassland halfway down that side that led to a farm house, where they might (in spite of not having a word of French between the two of them) be able to get a lift back to the hotel.

As they set off on this new route, the scenery by the swimming pool had improved again, and Roger, Tony and I were studiously lounging there with half-closed eyes. However, the two Peters were quickly realising that they'd made a serious taxonomic error -- it wasn't grassland at all, it was lantana, mixed in with guava for good measure. These two are supposed to be botanists, and they can't even tell a monocot from a dicot. Still, there was no going back now, so they plunged bravely into the shrubbery. The plastic garbage bag did not last long.

Now, I've only got Peter Clarke's word for this, but apparently at this stage Dr Weston went 'completely troppo' -- he madly threw the specimens and the tattered plastic bag into the air, and yelled: 'I can't take it any more'. Peter Clarke, of course, was a plant collector, so he frantically rushed around collecting the specimens again, and putting them in the backpack.

Meanwhile, Roger, Tony and I had realised it was time for a late afternoon gin and tonic. Just as we took our first sip, this battered old Peugeot 404 utility roared up to the hotel, and two scarecrows staggered out. In the following confrontation, they never did explain how they'd managed to tell the French farmer that they wanted a lift to the hotel. Nevertheless, since that day, I've always tried to make sure that I was one of the ones sitting by the swimming pool.

The next day of this trip was full of things to learn. I'm sure you'll recognise the appropriate aphorisms when they come past.

The day started quite well, actually, and continued that way until mid afternoon, with lots of plant collecting being done. However, the trouble started when we arrived at the hotel. We had been relying on Roger's impeccable schoolboy French to communicate with the hotel proprietors, but this time he seemed to be taking longer than usual. When he finally emerged, shaking his head, he explained that the owner was a French Canadian and that she had gone back to Canada for a holiday -- and the people looking after the hotel in her absence were loathe to accept our accommodation vouchers.

So, we decided to press on to the next hotel. This was quite some distance away over the hills, and we had some difficulty finding it. Therefore, we stopped at a shop to ask our way. In response to Roger's immaculate vernacular French, the gentleman being questioned pointed back the way we had come, and repeated the word 'sheep' insistently. We looked at each other blankly for a while, because we couldn't remember any merinos back there. However, the light eventually dawned when we realised that he was saying 'ship' with an outrageous French accent, and was referring to the small ferry back on the river.

We crossed on the ferry, and set off again. Shortly after this, the road came to an end, with no hotel in sight. So, we decided to try the next hotel, which was even further away down the coast. Now, I was doing the driving at this stage, and I have a certain affinity with wooden bridges -- I always get a nail in a tyre when I cross one of them. This evening was no exception. We all

got out to investigate the damage, while Roger wandered off to find somewhere to camp for the night, because the sun was just setting.

The vehicle we were driving was a small Renault van, and (for some unexplained reason) it had only one jacking point on each side of the vehicle. After we had been jacking for a while, we realised that only the back part of the van was rising off the ground. On closer inspection, we discovered that the weld that was holding the cabin onto the main body of the van was beginning to open up -- so the van was splitting in two before our eyes.

At this stage, a car drove up, and Roger wandered over to talk to the driver. Unfortunately, his impeccable schoolboy French completely failed him at this vital point -- he had no idea how to say 'flat tyre' in French. So, he just pointed at the van and said: 'Psssss...'. The guy in the car casually leaned out, looked at the van, and said in a broad accent: 'Ah, so you've got a flat tyre have you?'

Meanwhile, the weld on the van had decided to hold for a while, and the front (where the flat tyre was) finally started to rise off the ground. So, we quickly whipped off the old tyre, put on the spare, and roared off into the night.

After a while, we came to one of those eloquently expressive road signs, that depicts a car driving off the end of a pier into the water. Peter Clarke, who was driving, correctly deduced that this was a description of what was about to happen to us, and came to a stop just as the road disappeared into the water. We had obviously come to another ferry across a river, and the ferry, as well as the hotel, were equally obviously on the other side of this river.

We all got out, realising that this time the day really had come to an end, as ferries in obscure backwaters don't run at this time of the night. Roger wandered off again to look for a likely camping spot, while the rest of us stared uselessly at the water reflected in the headlights. Suddenly, we heard a quiet 'putt ... putt ... putt ...' off in the distance across the water, and we began to contemplate the possibility that maybe our luck had changed.

It was an eternity before the ferry appeared, and when it did we began to wonder about our luck. The ferry itself was only two planks of wood, with a loose chain down each side, no gates at either end, and an outboard motor that was too small even for a bathtub. And the ferryman was like something out of 'Orpheus in the Underworld' -- as he emerged sepulchrally into the beam of the headlights, this was definitely Charon come to take us across the River Styx.

As the ferry arrived, no-one moved. Roger looked at us and said: 'What's the matter?' This attitude is obviously what Barbara Briggs was referring to at last year's conference, when she said that Roger gave the organising committee 'moral leadership' -- his conscience is clear, but what the rest of us mere mortals?

Eventually, we dramatically took our souls into our hands, and boarded the ferry. It was a very slow trip, as the river was rather wide and our hearts were beating fast. However, we made it; and, some apparently shorter time after this, we arrived at the hotel. It was ten past nine, and the dining room closes at nine. Will this day never end? However, Roger's French had recovered by now, and he persuaded the proprietor to keep the food on for a few more minutes -- probably, by threatening the man with eternal damnation, or at least a severe earbashing from the half-starved waifs with him. Still, we knew our luck had finally changed.

We were right -- that night the hurricane started. The two Peters and I (who were sharing a bungalow) spent the rest of the night trying to find a solution to that old Chinese puzzle:- is it possible to arrange three beds in the one room in such a way that none of the occupants are being rained on? The answer in this case was 'yes', as we proved empirically. The next morning we discovered that Roger's room didn't leak at all -- moral leadership must have some benefits, I suppose.

The next day was, in fact, another epic, and our luck hadn't changed at all. However, I think I should save that up for another talk. So, let's now depart from New Caledonia for a while, and go back to Australia in the early 1970s. For those of you who don't know, Mike Crisp never wanted to be a taxonomist either -- he got into it accidentally, just like I did. Mike's Ph.D. project was an ecological study of plant regeneration at (as it then was) Koonamore Vegetation Reserve in South Australia, which had been fenced off from sheep grazing earlier this century.

So, when he had nearly finished his thesis, he applied for (and was given) a job as an 'ecologist' at the Canberra Botanic Gardens. When he turned up for duty, he discovered that

what his boss really wanted was a taxonomist. Apparently, there had been a certain feeling of tension between the Gardens and the other, slightly older, herbarium in Canberra when the Gardens had proposed setting up a herbarium of their own -- and they had felt the need for a small subterfuge in the acquisition of taxonomically-minded employees. However, Mike obliged, and changed direction in mid-career.

The upshot of all this was that Mike never got around to publishing all of the work in his thesis, in spite of the fact that it was pretty good stuff. Therefore, some time ago, Mike asked me to have a look at the unpublished part, and collaborate with him on re-analysing the data and writing it up. So, I went back to his original data sheets, to get the raw data that I needed.

Along the way, I found some very interesting material. For example, there were all sorts of notes from Mike to himself, telling himself what he was doing, and why. Now, I don't know about the rest of you, but I worked out what I had been doing for my Ph.D as I wrote up the thesis; while Mike seems to have tried to explain it to himself every month or so. A complete waste of time, of course, except that it makes very interesting reading now.

There was also the photo that's in the [second last] *ASBS Newsletter*, showing a very young Dr Crisp, with his flared trousers and bouffant hairdo, and a very embarrassed-looking Judy West, wondering what she's doing in the middle of a desert with these other loonies.

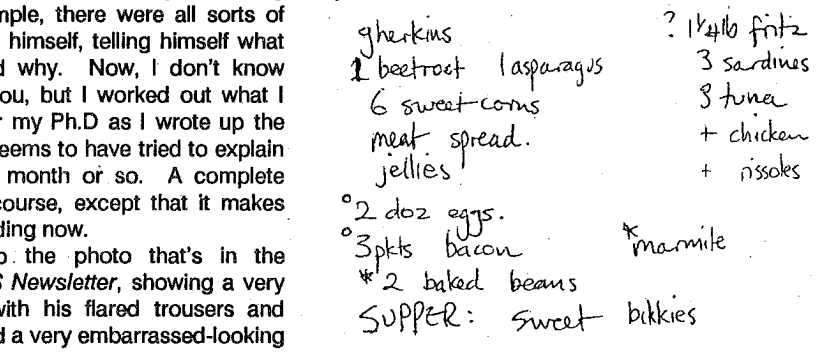
However, there was also another piece of paper that I found, which is perhaps the most interesting of all. It claims to be a menu for a field trip that Mike made in mid 1971. When I first showed this to him, he commented that it looked, from the quantities of ingredients involved, as if he had made this particular two-week trip alone. So, I thought we might go over this tonight and evaluate it, to see if we can't work out why this trip might have been a solo effort.

From such an evaluation, I think we might deduce the following aphorism:- If you want people to go on field trips with you, then don't eat baked beans for breakfast.

Actually, it specifies 'two baked beans' -- which is odd, because normally they come in cans with more beans than that. Still, Mike is a scientist, and scientists use SI units, so maybe it refers to two kilograms of beans -- which would be a real worry.

There are, in fact, several worrying aspects to this menu. For instance, there is a completely unspecified quantity of 'marmite' to be consumed for breakfast, as well. Now the question here is:- why is this man not eating Australian? After all, you can mix vegemite with your baked beans just as easily as marmite, and it wouldn't be any more repulsive.

There is also a reference to a dinner containing '*fritz*' -- which should appeal to those of you from South Australia. However, perhaps the most worrying part of all is the reference to '*sweet bikkies*' for dessert. I think all of the rest of us stopped using such expressions when we were ten years old, so perhaps Dr Crisp could join us.



Partial Field Trip Menu list for M.D.Crisp

We're getting near the end of this talk, so let's return one last time to New Caledonia, because I should, I suppose, tell you at least one story against myself. The aphorism involved is:- Make sure it's raining when you return the hire car.

As I mentioned earlier, we were driving a small Renault van. This vehicle had the word 'Europcar' written in very large orange letters on the sides; which I quickly realised was the French word for 'beware', because it meant there were Australians inside, who don't know how to drive on the right-hand side of the road.

Being in this vehicle while the others were driving was a hair-raising experience, to say the least. Roger had this tendency to go across causeways at full speed, leaving two metres spare on his side of the vehicle, and two centimetres on your side. The front-seat passenger used to curl up into a foetal position every time we approached one of these things.

Meanwhile, the two Peters had this terrifying tendency to try and side-swipe telegraph poles, which the New Caledonians have conveniently placed on every curve in the road system of Noumea.

However, the only person to actually damage this much-abused van was myself. In general, I didn't find it too difficult to adjust to driving on the wrong side of the road -- you just find the stream of traffic that appears to be heading in the direction you want to go in, and follow it.

Unfortunately, I was driving out of a carpark once in Noumea, and there wasn't another vehicle in sight. At that moment my mind went blank, and I had no idea which side of the traffic island I was supposed to drive on. So I compromised, and drove into the traffic island instead. I hit the sign post that was telling me which side of the island I should be on, denting the van and smashing the side mirror in the process. I then drove down the wrong side of the road, round the corner and back onto the right side of the road again, while trying all the while to pretend that nothing had happened. The only casualty was a pedestrian, who collapsed laughing.

In addition to this, the van used to vibrate a fair bit. This meant that, one by one, all of the screws that were holding the interior together were coming loose. As they fell out, we gathered as many of these as we could, hoarding them up in the ashtrays. A further indignity for the poor van was the fact that it had been raining some of the time, and so we were bringing large quantities of sticky red mud inside.

So, the night before we were due to fly back to Australia, we cleaned out as much of the mud as possible, and replaced as many of the screws as we could find. There was nothing we could do about the mirror or the dent.

Fortunately, it was raining again when we got to the airport; and this gave Roger an idea. We filled the van's petrol tank just outside the airport, and then parked the van within sight of the airport terminal, but as far away as we reasonably could. We then grabbed our bags, and made a dash through the rain to the terminal itself. Roger found the car rental representative, and handed over the keys. She looked out at the rain, then doubtfully over at the van some distance away, and said: 'Is the van allright?' Roger looked her straight in the eye, and said: 'It's full of petrol'. We immediately checked through customs, in case the rain stopped.

I think that it's about time for me to finish. In trying to work out how to end this speech, I was reminded of the way Woody Allen used to wind up his stand-up comedy routines, back at about the time Roger and Spinny were exchanging memos. He said: 'I wish I had some sort of affirmative message to leave you with; but I don't. Would you take two negative messages?' Well, I only have one negative aphorism to leave you with:- If you want to keep your friends, then don't make fun of them during after-dinner speeches.

Thankyou.

David Morrison
Department of Applied Biology,
University of Technology, Sydney, PO Box 123,
Broadway NSW 2007. ☺

PERSONAL NEWS

RETIREMENT OF BOB JOHNSON

On 26 July Dr R.W. (Bob) Johnson retired as Director of the Queensland Herbarium and the Queensland Department of Primary Industries Botany Branch. To celebrate his 42 years service for the QDPI two retirement functions were held for Bob, one on the afternoon of 25 July from members of the Department and friends, and an evening at the St. Lucia Golf Clubhouse from the Queensland Herbarium and close friends on 27 July.

At the former function Bob was presented with a squatter's chair and a brigalow cane. Farewell speeches were made by colleagues from the Department branches and other institutions, including two in verse, reflecting Bob's research activities on brigalow. At the

evening function Bob was presented with a specially commissioned painting of *Ipomoea saintronanensis* R.W. Johnson after members of staff had honoured Bob with speeches. This was followed by the first performance of '**Brigalow Bob**' by the Queensland herbarium choir and orchestra. The most entertaining part of the evening was provided by Bob himself in his speech of thanks, in which he reminisced for an hour about his life as a Queensland botanist, including many amusing anecdotes about experiences with former botanists C.T. White, Stan Blake, Selwyn Everist and Lindsay Smith. The evening ended with another celebration for Bob, the sharing of a cake to mark his 60th birthday.

Bob Johnson with his brigalow cane in his squatter's chair at the QDPI retirement function in his honour, 25 July 1990.

Bob and Toni are presently enjoying a well deserved post-retirement trip to Africa, Europe and the USA, but Bob will be back later in the year to work in the Botany annexe and continue the 17 unfinished projects he was unable to complete because of managerial duties.

Bob joined the QDPI as a cadet in 1948, studying part time for a B.Sc. on botany and soil science at the University of Queensland. After graduating in 1952 he was appointed as a botanist and assisted Selwyn Everist with many research projects before embarking on ecological research of brigalow. The initial four year survey of Queensland's brigalow country, from which his nickname 'Brigalow Bob' was earned, was followed by a six year transfer to the Brigalow Research Station at Thomby, NW of Theodore in central Queensland as Officer-in-Charge. Then followed a four year spell at Utah State University, where Bob undertook a Ph.D. in range management, with part sponsorship from the Australian Wool Board.

Bob returned to Australia in 1974 to the position of Assistant Director, Botany Branch, succeeding Selwyn Everist as Director in 1976. Since then he has had a major role overseeing the computerisation of the label data of the herbarium collection of over 500,000 specimens (HERBRECS), presently one of the largest two computerised herbaria in the world.

As well as earning a reputation among his peers as a first-class researcher and scientist, Bob's managerial skills were widely recognised by his being appointed Officer-in-Charge of the Agricultural Research Laboratories at Indooroopilly and by his position as president of two esteemed Australian societies, the Royal Society of Queensland (1981-82) and the Ecological Society of Australia (1985-86). In addition he was a moving force in the founding of the Federation of Australian Scientific and Technological Societies (FASTS) to improve the profile of scientists in this country.

The staff of the Queensland Herbarium will miss the leadership and example of dedication and friendship that Bob gave us, but we know we shall also be seeing a lot more of him in the years to come in the retired botanists' wing of the Botany annexe with Les Pedley, John Parham and Philip Sharpe.

Bryan Simon ☺

BRIGALOW BOB

Music: D. Witte/arranged F. Rich
Words: Bryan Simon
First Performance: Queensland Herbarium Choir and Orchestra
St. Lucia Golf Clubhouse, 27 July 1990 at the farewell dinner to mark the retirement of Bob Johnson

1. When he was a very young ecologist
   he worked hard and then he went out to the bush,
   as the Officer in Charge and the Research Botanist

he got to know ev'ry kind of plant there was.
Then he got a Wool Board Scholarship to go
to the USA to study with Goodall.
And so well did our Bob do
that old Selwyn called him back
to appoint him the Assistant Director.
In the annual report
his publication list grew short
as the research on brigalow
made way for management.

Our Robert Johnson studied brigalow for years
But tonight comes to his retirement as the boss.
From *Acacia harpophylla* to helping every fella'
We thank you Bob and wish you all the best.

2. He took over well at Indooroopilly,
of the ARL as well as Botany.
As the years went by he joined many learned bodies too,
ASBS, ESA to name but two.
Then there was the Royal Society of Q;
He was President in 1982.
There was ABRS too,
NORMA, CHAH and FASTS as well,
and reviews on other places interstate.
The Convolvulaceae
was researched so carefully,
ev'ry leaf and ev'ry flower
looked at statistically.

Refrain

3. In the middle of his term as director
he and fam'ly they moved out to acreage,
and with all the horses too
and the many things they do
the Holden was used for carting bales of hay.
Our Bob published many papers and some books
in the QJAS, Vegetatio;
and The Weeds of Queensland too,
Savanna Symposium,
to the Flora of Central Australia.
HERBRECS gave him a challenge
keeping check of label data,
now it's written as a paper
to be published in Taxon.

Refrain ☺

PROFESSOR ERIC HOLTTUM (1895-1990)

Richard Eric Holttum, botanist, born Linton Cambridgeshire 20 July 1895, Junior Demonstrator in Botany Cambridge University 1920-22, Assistant Director Botanic Gardens Singapore 1922-25, Director 1925-49, President Singapore Gardening Society 1937-39, 1947-53, Professor of Botany University of Malaya 1949-54, Honorary Research Fellow Rijksherbarium Leiden 1955-90, President British Pteridological Society 1960-63, Honorary Research Associate Royal Botanic Gardens Kew 1977-90, President International Association of Pteridologists 1981, married 1927 Ursula Massey, (died 1987; two daughters), died London 18 September 1990.

'He was a very modest man greatly liked for his wide views, helpfulness, kindness and geniality (despite his deafness in later years), among botanists, horticulturists and members of the Society of Friends. His testimony at Quaker meetings for worship arose out of his deep spiritual insight, which he also revealed in his contributions to the Friends Quarterly on scientific and religious truth, on metaphysics and mysticism, on a personal Christology. Few botanists of our time will have left a more enduring and valuable legacy of taxonomic achievement'.

William T. Stearn
Extract from *The Independent*, Friday 28 September 1990. ☺

NEW EDITORS IN 1991

Barbara Wiecek	David Morrison
Royal Botanic Gardens	University of Technology
Mrs Macquaries Road	PO Box 123
SYDNEY NSW 2000	BROADWAY NSW 2007
Tel (02) 231 8150	Tel (02) 436 6256
Fax (02) 251 4403	Fax (02) 906 6045

Please note that all manuscripts, outstanding book reviews, reports and notices should be sent to the new Editors at one of the above addresses. If possible they should be on disk. ☺

REPORTS

18TH ANNUAL MEETING OF THE COUNCIL OF HEADS OF AUSTRALIAN HERBARIA

The Council of Heads of Australian Herbaria met at the National Herbarium of Victoria on 16-17th October.

Members present were: Dr J. Armstrong (PERTH), Dr B. Briggs (NSW), Dr R. Chinnock (AD), Dr M. Crisp (CBG), Mr C. Dunlop (DNA), Dr G. Guymer (BRI), Dr A. Orchard (HO), Dr J. Ross (MEL - Chairman), Dr J. West (CANB)

Other Participants: Mr A. Wright (AK) representing New Zealand Herbaria, Mr G. Morris present on the afternoon of 16th and representing the Council of Australian Museum Directors (CAMD), Dr P. Bridgewater present on the morning of 17th to discuss matters of mutual interest relating to Australian National Parks and Wildlife Service, Dr M. Malipatil present on the morning of 17th and representing the Council of Australian Entomological Collections.

The principal items discussed were:

Index to Taxonomic Literature in Australia

Council re-affirmed its commitment to indexing literature and accepted the conditions relating to the provision of an annual computer tape of Kew Record laid down by Kew. CBG was nominated by Council as the central Australian institution to which Kew should issue the formal licence and Council agreed to meet all expenses incurred in obtaining the annual tape.

The chairman undertook to request Kew to have a formal agreement drawn up at the earliest opportunity.

Herbarium Workshop

Following the very successful workshop held in Adelaide at the beginning of this year, Council decided to hold another workshop, in Sydney in 1992. Like the Adelaide workshop, the Sydney workshop will be aimed at persons in the technical range.

Current Taxonomic Research on the Australian Flora

The next edition is being prepared in Canberra by CANB and CBG and is due for publication at the end of 1991. It will be available on disk and as hard copy. Information for the next edition will be solicited from persons currently working on the flora in due course.

Few copies of the 1989 edition remain and these are available on request from Judy West (CANB).

A request has been received from the Acquisitions Librarian at the Natural History Museum (BM) for a copy of each of the pre-1989 editions. If any member has an unwanted copy of any of the pre-1989 editions please send it to the chairman who will forward it to the BM.

Central Register of Photographs held in Australian Herbaria of Type Specimens housed in Overseas Herbaria

Dr Orchard distributed copies of the first edition of the register to members of CHAH and pointed out that not all herbaria had responded so that the register was nowhere near complete. Herbaria were encouraged to provide Dr Orchard with institutional records of photographs held and members of ASBS are encouraged to do likewise. Information on the details required are obtainable from Dr Orchard.

Mr Wright reported that a similar project was being undertaken by New Zealand herbaria.

Movable Cultural Heritage Act

It is understood that changes to this Act will be announced shortly and information to hand suggests that the movement of herbarium material by way of exchange or loan overseas will be excluded from the provisions of the Act. Herbaria will still need to comply with the provisions of the Wildlife Protection Act.

Update of List of Microfiche held in Australian Herbaria

An updated list compiled by Judy West was published in the *Newsletter* (63: 21).

CHAH Submission Concerning Biodiversity Funding

CHAH decided to write to the Minister of the Department of the Arts, Sport, the Environment, Tourism and Territories, emphasising the importance of maintaining and curating herbarium collections, and stressing the important role of taxonomists and taxonomic research in understanding and recording biodiversity.

Herbarium Specimen Database Projects

It was reported that Jim Croft hopes to secure funds from ABRS to run another HISPID (Herbarium Information Standards and Protocols for Interchange of Data) workshop during 1991.

Australian Botanical Liaison Officer (ABLO)

Procedures employed to select a candidate from among the applicants were discussed at some length. It was agreed that in future each unsuccessful applicant will receive comments from the member of CHAH representing the State/Territory in which the applicant resides.

Australian Plant Name Index (APNI)

Dr Bridgewater reported that APNI will be published in four volumes in the Australian Flora and Fauna Series later this financial year. CBG will take over the responsibility for maintaining and updating APNI.

Census of Australian Vascular Plants (CAVP)

CAVP was published on the 20th September and Dr Bridgewater presented a copy to the chairman for the National Herbarium of Victoria library. CBG will be attempting to maintain this data set as part of its curatorial activity.

Much discussion revolved around mechanisms for maintaining and updating CAVP, how individual herbaria could contribute, and what they could contribute. It was agreed that in the first instance the most appropriate course of action was for Mr Croft to provide the protocols for updating CAVP for comment by members of CHAH.

Members informed Dr Bridgewater that they wished to co-operate with ANPWS in maintaining and updating the list of taxa in CAVP and could provide updates of taxon names and authorities for their respective States or Territories. However, there was no support among members for endeavouring to update the distribution data contained in CAVP in its present format and no resources will be devoted to do so. It was felt that it was more appropriate and meaningful to build up a point-based system of distribution from herbarium specimens based on longitude and latitude. All members indicated that this was the course of action that they were taking or intended to take.

Members informed Dr Bridgewater of the willingness of their respective institutions to work together with ANPWS in a co-operative venture to capture label data associated with specimens in herbaria and indicated the degree of progress already made in this regard. Members confirmed that much remained to be done. In response to a question, Dr Bridgewater indicated that some funds will be available from the Environmental Resources Information Network (ERIN) to retrieve data from specimens of certain genera/families in herbaria.

Flora of Australia

CHAH reaffirmed its support for Flora 2001 which aims to complete the publication of the *Flora of Australia* in the shortest time practicable. Members expressed concern that Flora 2001 is not a realistic target given the current level of support for taxonomy in Australia and about their ability to service the number of requests for the loan of specimens that are received directly as a consequence of the *Flora*. Most members indicated that they are barely able to cope with the current demand for loans and that any increase in demand would place them under even greater pressure. Figures provided by members revealed that on average about 50,000 specimens are loaned by the herbaria each year of which at least 80% are associated directly with work on the *Flora*. A number of options were explored with Dr Bridgewater to establish whether any mechanisms exist to assist herbaria service the loan requests that relate directly to the Flora.

In regard to the question of how ABRS funds could best be utilised to further the *Flora*, it was the view of CHAH that the bulk of the ABRS funds should continue to be used to fund

research on those taxonomic groups of the Australian flora that are poorly known, and that some funds should be employed to engage flora writers to prepare treatments specifically for the *Flora*.

Loans

Concern was expressed over the period of time that some specimens remain out on loan to an individual (in some instances over 20 years). A number of herbaria have indicated that in future they will enforce the original term of loans more rigorously.

Members reaffirmed their willingness to accept the partial return of loans.

Council of Australian Museum Directors (CAMD)

Graham Morris, Director, Museum of Victoria, represented CAMD at the meeting of CHAH and gave a brief report on the recent meeting of CAMD at Ballarat.

Council of Australian Entomological Collections

Mali Malipatil, Plant Research Institute, Burnley, represented the Council of Australain Entomological Collections, and gave a brief report on the Council which was formed earlier this year.

Reports from Herbaria

A report was given by the representative of each herbarium on news, activities, staff changes, and future developments of the individual institutions. Anthony Wright reported on the New Zealand herbaria.

Curatorial Policy for Original Artwork

Each member described briefly the policy of their institution in regard to the curation of original artwork. Members were encouraged to have their artwork catalogued and kept in safe storage.

Rare or Threatened Species

It was reported that the work of J. Briggs and J. Leigh is being continued and that label data from herbarium specimens of rare or threatened species is being entered into a national database at CANB.

Next Meeting of Council

The next meeting of CHAH will be held in Queensland.

J.H. Ross
Chairman
National Herbarium of Victoria
Birdwood Avenue
South Yarra, 3141 ☺

AUSTRALIAN BIOLOGICAL RESOURCES STUDY GRANTS 1991

Australian Capital Territory

Australian National University.

Watson, Dr L. Automated taxonomic revision and keys for Poaceae-Pooideae for *Flora of Australia*. $36572.

CSIRO Division of Plant Industry.

Hyland, Dr B.P.M. Databasing Australian National Herbarium, QRS, Atherton. $37644.

Palmer, Ms J. Flora treatment of Amaranthaceae (*Alternanthera*, *Amaranthus* and *Gomphrena*). $15874.

Unattached

Adams, Mr L.G. *Flora of Australia* treatments for Gentianaceae and Caryophyllaceae (excluding *Colobanthus*, *Scleranthus*, *Spergularia*, *Stellaria* and *Polycarpaea*). $39220.

Bruhl, Mr J.J. Automated taxonomic revision and keys for Phyllantheae - Euphorbiaceae for the *Flora of Australia*. $30000.

Eichler, Dr Hj. Taxonomic revisions in Ranunculaceae, Zygophyllaceae and Apiaceae in Australia. $5000.

New South Wales

National Herbarium of New South Wales

Conn, Dr B.J. Revisionary studies in the Australian Loganiaceae. $13750.

Conn, Dr B.J. Revisionary studies in the Australian Xyridaceae. $6250.

Conn, Dr B.J. Taxonomic revision of the Prostantheroideae (Lamiaceae). $27100.

Everett, Ms J. Revision of the genus *Craspedia* (Inuleae: Asteraceae). $14195.

Ramsay, Dr H.P. Contributions to the Bryophyte Volumes for the *Flora of Australia*. $4395.

Ramsay, Dr H.P. Revision of the bryophyte genus *Bryum* (including keys and illustration) for Australia. $9097.

Wilson, Mrs K.L. Revision of *Juncus* in Australasia. $16250.

Wilson, Dr P.G. Taxonomic revision of the genus *Indigofera* in Australia. $20600.

Northern Territory

Conservation Commission of the Northern Territory

Dunlop, Mr C.R. Revision of *Mitrasacme* (Loganiaceae) in Australia. $5000.

Thomson, Mr B.G. *Euphorbia* L. treatment: field work. $4000.

Queensland

Queensland Herbarium

Forster, Mr P.I. Revision of Australian Apocynaceae excluding *Parsonsia* R.Br. $35700.

Halford, Mr D.A. Taxonomic revision of the family Tiliaceae in Australia. $36714.

Henderson, Mr R.J.F. Taxonomic revision of Euphorbiaceae tribe Stenolobeae Benth. $13000.

Holland, Mrs A.E. *Flora of Australia* treatment of the genera *Trifolium* L., *Medicago* L., *Vicia* L. and *Lotus* L. (Fabaceae). $18204.

Reynolds, Miss S.T. Revision of tribes Coffeeae, Vanguerieae and Psychotrieae in part of the family Rubiaceae in Australia. $14207.

South Australia

State Herbarium of South Australia

Chinnock, Dr R.J. Flora writing nine pteridophyta families. $3943.

Toelken, Dr H.R. Taxonomic revision of the genus *Hibbertia* in Australia. $3000.

Unattached

Barker, Mrs R.M. Revision of *Sida* and *Abutilon* in Australia. $24721.

Randell, Dr B.R. Preparation of *Flora* manuscripts. $35000.

Tasmania

Tasmanian Museum and Art Gallery

Orchard, Dr A.E. Revision of *Cassinia* R.Br. (Asteraceae - Inuleae). $11319.

Victoria

Monash University

Hallam, Assoc Prof N.D. Taxonomic investigation of Anthocerotales in Australia. $18400.

Western Australia

University of Western Australia

Chappill, Dr J.A. A taxonomic revision of *Jacksonia* R.Br. (tribe Mirbelieae, Fabaceae). $17365.

Western Australian Herbarium

Armstrong, Dr J.A. Taxonomy of tribe Boronieae (Rutaceae). $20000.

Lander, Mr N.S. Revision of *Olearia* (eastern Australian species). $15886.

Maslin, Mr B.R. *Acacia* section Juliflorae; co-ordination of complete text of *Acacia* including preparation of a key to species. $57381. ☺

AUSTRALIAN BIOLOGICAL RESOURCES STUDY

Preferred Objectives for Grants in 1992

Research

Taxa needing research before satisfactory treatments can be prepared for the *Flora of Australia*. A *Flora* treatment must be submitted at the end of each research grant.

Vascular plants

Asteraceae - *Ozothamnus*
Cyperaceae
Euphorbiaceae - excluding *Phyllantheae*, *Stenolobeae* and *Adriana*
Fabaceae - *Crotalaria*, *Desmodium*, *Tephrosieae*
Juncaceae - *Luzula*
Rutaceae - *Boronia*, *Correa*

Non-vascular plants

Bryophytes
Andraeaceae
Lepidozia, *Telaranea*
Frullania

Lichens
Peltigerales
Physciaceae
Verrucariales

Fungi
Cortinariaceae
Erysiphales
Myxomycotina

Text Preparation

Grants will be provided for full-time flora writers to prepare text and maps for the *Flora of Australia*. Taxa to be prepared in 1992 include the following (some projects may extend beyond one year). Grantees may also be asked to assist specialists in preparing *Flora* contributions.

Boraginaceae - *Halgania* only
Ebenaceae
Epacridaceae
Pittosporaceae
Poaceae - Chloridoideae
Restionaceae
Sapotaceae
Symplocaceae
Verbenaceae

Census of Australian macrofungi

For further information and for application forms, please contact the Acting Associate Director, Flora of Australia, Australian Biological Resources Study, GPO Box 1383 Canberra, ACT 2601; phone (06) 2509440

The closing date for applications is 10 April 1991.

NO applications will be accepted after that date.

Current grantees are reminded that they must apply for a renewal if they wish to seek funding in 1992. Initial support for a project lasting more than one year does not mean that a renewal is automatic. ☺

AUSTRALIAN BIOLOGICAL RESOURCES STUDY - FLORA OF AUSTRALIA

The process of adjusting to the merger with the Australian National Parks and Wildlife Service continues. We are now on a new combined telephone system, with new numbers (given elsewhere in this issue).

Please note that the Flora of Australia and ABRS address has not changed. It is GPO Box 1383, Canberra, ACT 2601.

The Census of Australian Vascular Plants was published on 20 September 1990 as number 11 of the *Australian Flora and Fauna Series*. It is available from Australian Government Publishing Service bookshops for $64.95.

Our next publication will be the long-awaited *Australian Plant Name Index*. The first volume will go to AGPS shortly. Three more will follow in quick succession, and the four will be published as a set in the first half of 1991. Volumes will be available separately. All Flora staff are currently assisting in the final check of typeset copy.

Progress on the *Flora of Australia* will increase rapidly once APNI is off to the publisher. Volumes 35 and 50 are moving steadily towards publication in 1991. They should be followed fairly quickly by Volumes 16 and 17.

An unfortunate error was made when the final amendments were made before printing Volume 18 of the *Flora*. The illustrations for Figure 19 were duplicated above the caption to Figure 18. A corrected page has been printed and is available on request from the Acting Associate Director, Flora of Australia. A copy will be sent to those who received complimentary copies of the volume.

A meeting of the Flora Editorial Committee was held at the National Herbarium of Victoria on 18 October. Much of the agenda concerned planning for the remaining volumes of the vascular flora and the early volumes of the non-vascular flora. The Committee accepted the report of the Fungi Workshop held last April.

At its meeting on 1-2 November, the ABRS Advisory Committee formally recommended that a start be made on bringing Fungi into the Flora program. Preparation of an introductory volume will commence shortly. Several fungal groups have been included in the Preferred Objectives for ABRS grants in 1992. Plans to hold an Algae Workshop have been postponed due to a lack of funds this financial year.

A list of the ABRS grants recommended for 1991 is given below. Some $640000 was allocated for 31 *Flora* grants; there were 9 unsuccessful applicants.

The matter of finding the resources needed to service loans of specimens for research, including that associated with the *Flora of Australia*, has again become of increasing concern to Australian herbaria. The cost of servicing loans may be seen as an investment for the institution in terms of the benefits derived from both having its material determined by specialists and the subsequent publication of the *Flora*. Such servicing currently, however, draws heavily on institutional resources. The Advisory Committee suggests that applicants for grants on taxa involving large quantities of specimens should include in their application an item covering visits to relevant herbaria. If such visits are made well into a research project, most of the material can be processed quickly, and if any loan is then needed, e.g. of problem specimens, it will be quite small. By removing the need for many large loans it should be possible for herbaria to service small ones without straining their resources.

Australian Botanical Liaison Officer. The appointment of Dr Philip Short, National Herbarium of Victoria, for the 1991-92 term, has been confirmed.

Alex George
A/Associate Director, Flora of Australia ☺

VISIT TO PAPUA NEW GUINEA

Drs Barry Conn and Surrey Jacobs (National Herbarium of New South Wales, Royal Botanic Gardens, Sydney) visited the Central and Western provinces of Papua New Guinea (17th September - 11th October 1990). The purpose of the trip was to resolve problems in the classification and nomenclature of *Nymphaea* species of Australia and those common to this area of Papua New Guinea. One undescribed species, previously known by a collection from the Jardine River (Queensland) was collected from the Lea Lea swamps (west of Port Moresby - Central province) and from the Potkam River (east of Morehead - Western province). Several other aquatic plants were collected. After Surrey's return to Australia, Barry spent two weeks working at the National Herbarium of Papua New Guinea (LAE).

Dr Barry Conn
National Herbarium Sydney ☺

SYDNEY CHAPTER

After some years of hiatus, Bob Makinson and Siegy Krauss have successfully re-launched the ASBS Sydney Chapter. A series of monthly talks

on plant systematics and evolution, and related themes, plus other activies have been planned. Meetings are held at 6 pm on the 2nd Tuesday of each month in the George Caley seminar room at the National Herbarium of New South Wales, Royal Botanic Gardens, Mrs Macquaries Rd, Sydney.

Dr Peter Bernhardt (Royal Botanic Gardens, Sydney) presented 'South American Palomitas and Australian Spider Orchids: Floral evolution in the Geoblasteae' - 9th October 1990. He concluded that the Caladeniinae and Chloracinae overlap in their geography, morphology and phenology, and may be regarded as a single tribe through the southern Pacific Basin. Comparing their floral anatomy and pollination systems suggests that adaptive radiation has been more extensive in Australasia as nectar flowers have been replaced by 'deceitful' flowers.

Assoc. Prof. Don Adamson (School of Biological Sciences, Macquarie University) presented 'Antarctic glaciations and vegetational persistence in the Quarternary' - 13th November 1990. He proposed that the Antarctic plant communities were able to survive each Ice Age, necessitating only short distance dispersal to cope with local ice advance and retreat. It did not seem necessary to conclude that trans-oceanic recolonization was necessary. The big unknown is the extent of Antarctic glaciation during past glacial maxima.

Future Meeting

Tuesday, 11th December 1990, 6 pm.
Dr Alan Millar (Royal Botanic Gardens, Sydney)

'Jervis Bay - the Marine Botanic Garden'.

Below the crystal clear waters of Jervis Bay lurks a previously undiscovered plethora of marine algae far richer than any of us had imagined. This area may prove to be the most diverse and concentrated flora along the entire east coast of Australia.

End of Year Social

There will be a barbeque and snorkelling expedition at Nielson Park, Vaucluse, on Friday, 14th December 1990, incorporating a guided look at the rich sub-tidal algal flora of Sydney Harbour, led by Dr Alan Millar. Bring your own snorkelling gear, food and drinks. Salads and gas barbeque will be provided. Meet from 5.30 pm onwards on the main lawn behind the beach. For those not wishing to get more than their toes wet, a guided tour of the rock platform flora and fauna will also be conducted.

Other Sydney News

Book launches

On the 19th November 1990, the NSW State Minister for the Environment, The Hon. Tim Moore, launched *'Taken for Granted: The Bushland of Sydney and its Suburbs'* written by Doug Benson & Jocelyn Howell (both from the National Herbarium of New South Wales). This book describes the impact of Sydney's growth on its natural vegetation.

On the 23rd November 1990, the Premier of NSW, the Hon. Nick Greiner, launched the *'Flora of New South Wales'*, Volume 1, edited by Gwen Harden (National Herbarium of New South Wales). This is the first of a four-volume guide to the native and naturalised plants of New South Wales.

Barry Conn ☺

AUSTRALIAN BOTANICAL LIAISON OFFICER

I relieved Terry Macfarlane as ABLO officially on 3 September but this was preceded by a week of Terry showing me the ropes. This amount of time was not really adequate, particularly given the other time consuming activities such as finding a house and recovering lost personal effects. However we have now settled into a small three bedroom house in Twickenham and with our children established in school, life in Darwin seems a long time ago. Our children still

run around in their Darwin attire (i.e. half naked) but they are starting to notice the cold. A weather report now seems to be an obligatory part of ABLO duties: London continued with a long dry late summer/early autumn which included severe water restrictions. Autumn has continued to be mild and quite dry but with sufficient rain to green up the lawns. Some of the locals are predicting a very cold winter. I will have difficulty walking if I need more layers of clothing.

Greeting me on my first day as ABLO was Bob Johns for his first day as the recently appointed head of the fern section at Kew. David Frodin is also at Kew for about 10 weeks on a contract for the new edition of the Royal Horticultural Society Dictionary. When Jim Croft recently turned up there was definitely the feeling of a reunion of the ex-PNG 'old boys'. Another new appointment at Kew is Dr J.M. Lock as Editor of *Kew Bulletin*.

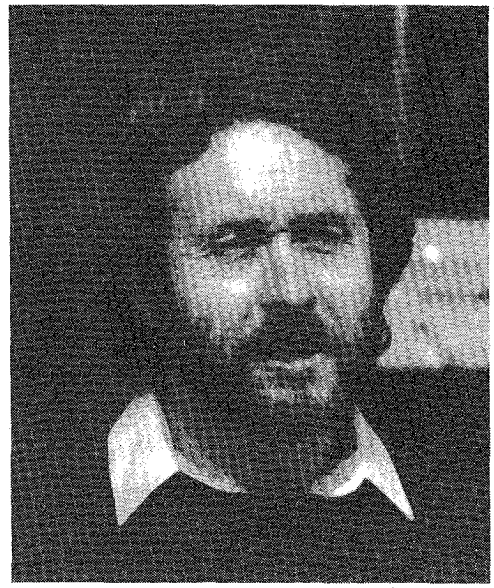
The liaison duties have been varied and interesting and taken me to such places as the archives of the London Missionary Society at the School of Oriental and African Studies! DNA is way ahead as the major user of the ABLO position but with the imminent publication of APNI Arthur Chapman also figures highly in requests.

A major event for staff at Kew was the presence of the Scientific Review Committee during the week 15-19 October. A lot of effort was put into the preparation of briefing papers and the Senior staff were required for individual interviews. Needless to say results are anxiously awaited.

Several visitors have come through Kew recently. Jim Croft and David Bedford followed on from the Delphi meeting and both spent time at K and BM looking at curatorial procedures and data base management. Bob Johnson was allowed one day from his holiday to look at Convolvulaceae and Barbara Barnsley called in for a brief 'hello'.

The Queen Mother also visited Kew to officially re-open the Palm House. During her visit she planted a *Macadamia* tree as a gift from the Victoria League of New Zealand. The reconstruction of the Palm House was completed in October 1988 at a cost of c. $18 million.

Staff shortage at Cambridge (CGE) has delayed my visit but I hope to get there in December or early in the New Year. I have no firm dates yet for visits to European herbaria but at this early stage I expect to visit Leiden, Berlin, Hamburg, Ulm, Zurich, Geneva and Paris. A trip to Dublin, possibly through Liverpool, is also planned. Requests involving visits to other herbaria may be accommodated if received in adequate time.



Austalian Botanical Liaison Officer - Greg Leach

The Species Plantarum project meeting was held at Kew 12-13 November with 76 participants. As reported previously in the *ASBS Newsletter* there have already been two meetings of the 7 originating institutions to develop an initial framework for further discussions. Peter Raven provided a summary of these meetings including the suggestion that the project have a council to establish and govern project policy and that the council should consist of c. 25 members selected largely on personal abilities and commitment to the project. The initial organising institutions were to be seen as only sponsoring institutions with no continuing rights or privileges. Nor should particular user groups or regions have mandatory representation on the council.

The Kew meeting had various speakers under two sections entitled 'The components of the Species Plantarum Project' and 'Gathering the

Information'. Other topics discussed were a family list, nomenclatural implications, publication, ownership and management, computing considerations and funding. There was considerable discussion on all of these topics. The meeting was largely a gathering of the converted in that there was never any doubt that SPP would go ahead. Consequently most discussion involved the processes for getting the project going. The meeting was not in a position to resolve most of the issues raised. Rather the comments and suggestions were noted for consideration by the council.

The meeting did approve a motion to form an interim council of 17 nominated people and that the council should meet in c. 3 months time to get the program going and establish overall policy for SPP. There was strong support that a first product of SPP should be a world checklist within 3-5 years and that the monographic part of SPP should proceed concurrently. Kew has committed resources to form the Secretariat for SPP and anybody with thoughts or suggestions on SPP can forward these to Gren Lucas.

Greg Leach
Royal Botanic Gardens, Kew, Richmond
Surrey TW9 3AB ENGLAND
(Tel) 081 940 1171/4 (Fax) 081 948 1197 ©

REVIEW

Flowering Plants of New Zealand. By C.J. Webb, P.N. Johnson and W.R. Sykes. 251 Colour illustrations, 146 pages, hard cover. N.Z.$39.95 (inc. GST)

Those expecting the same layout and level of detail as in Morley and Toelken's (1983) homonymous Australian publication, may, at first, be disappointed with this book. Unlike its Australian counterpart, *'Flowering Plants of New Zealand'* does not present detailed keys to genera, nor does it attempt to be comprehensive in its taxonomic coverage. What the authors have achieved, however, is a deceptively detailed, well presented account of the major families of flowering plants in New Zealand, aimed at a general readership.

'Flowering Plants of New Zealand' deals with 52 'important' New Zealand flowering plant families - approximately one third of the families with native representatives in the country - divided into dicotyledonous families (41) and monocotyledonous families (11). Each family is listed in the table of contents by its common name, some of which may not be immediately recognisable to Australian readers (e.g. Ice plant family = Aizoaceae). For those less familiar with common names (and Maori names in particular), there is a comprehensive index at the end of the book. The alphabetic arrangement of families by botanical family name in the body of the book, further assists in locating a particular treatment.

The layout of each family treatment is in double-page format, the exception to this being Fabaceae, Asteraceae and Orchidaceae, each with four pages devoted to them. The leading page of each family is, once again, identified by the common name, which is followed by the botanical family name(s) along with a phonetic guide to its pronunciation. It is the leading page which carries the descriptive text and two highlighted blocks of text; one containing family statistics (e.g. number of native genera in NZ and number of naturalized species in NZ etc.), whereas the other lists the floral characters of the family. The text for each family is not merely an enumeration of diagnostic characters, but contains notes on its mode of pollination, on its origins, its biogeography and economic/cultural importance. The use of jargon has been minimised, and what has been used is succinctly defined in a comprehensive glossary.

The facing page of each treatment carries captioned colour photographs of taxa representative of the family under consideration. Photographs are used extensively throughout the book, and all are of an exceptionally high standard. The plates not only illustrate exemplary flowers of each family, but also a range of fruit types, habits and habitats.

Whereas the emphasis of the book is clearly on the families of flowering plants, it is by no means restricted to this. The introduction provides a potted history of plant systematics and discusses the origins of flowering plants; both with a New Zealand flavour. The following chapter provides an organ-by-organ account of flowering plant form and function, accompanied by excellent explanatory photographs, and an informative text with little jargon.

In short, *'The flowering Plants of New Zealand'* is a well written, informative and

enjoyable introduction to some of the flowering plants one might encounter in New Zealand. Despite its target readership, this book contains much of interest to the amateur and professional botanist alike.

Reference

Morley, B.D. & Toelken, H.R. (1983) Flowering Plants in Australia. Rigby.

Murray Henwood ☺

RECENT PUBLICATIONS

Guide to Herbaceous and Shrub Legumes of Queensland. By J.B. Hacker. *University of Queensland Press (1990). Handbook. ISBN 0 702222 57 7. $79.95.*

Flora of New South Wales. Vol 1. By Gwen Harden (ed). *New South Wales University Press and The Royal Botanic Gardens. 660pp., illustrated. $70.* ☺

NOTICES

AUSTRALIAN NATIONAL PARKS AND WILDLIFE SERVICE

New Phone Numbers at Black Mountain, Canberra

There is a new switchboard serving ABES, ANBG and ERIN, all of which are accommodated on the Black Mountain site. Previously these organisations had different switches.

Switch	(06) 250 9450
Fax (ANBG and Flora)	(06) 250 9599
Fax (ERIN)	(06) 250 9449

Flora of Australia

Alex George	(06) 250 9440
Arthur Chapman	(06) 250 9441
Helen Hewson	(06) 250 9443
Paul Hattersley	(06) 250 9444
Helen Thompson	(06) 250 9445
Cheryl Grgurinovic	(06) 250 9446

Australian National Botanic Gardens

Roger Hnatiuk (Director)	(06) 250 9500
Jim Croft	(06) 250 9490
Estelle Canning	(06) 250 9463
Mark Clements	(06) 250 9472
David Jones	(06) 250 9473
Ish Sharma	(06) 250 9475
Heinar Streimann	(06) 250 9464
Ian Telford	(06) 250 9462

Mike Crisp is now Lecturer in Plant Systematics at the Australian National University. (Switch (06) 249 5111)

☺

WOMEN IN SCIENCE IN AUSTRALIA

With the assistance of WISENET (Women in Science Enquiry Network), we are preparing a collective book on 'Women in Science in Australia'.

Our plan is to gather lively and well-written short, and some longer, biographies of women who have been conspicuous contributors to science in Australia and those less well-known who need to be retrieved, who have participated in Australian scientific life, distinctively or representatively, across the past two hundred years.

We would welcome readers' help in identifying these women and ensuring that we have cast the widest net. We wish to locate the names of women in the botanical/biological sciences who have made noteworthy contributions to the science, have been inspired secondary or tertiary teachers, illustrators, and/or collectors, women who were important though often publicly unrecognised assistants of scientific or inventive husbands, women in scientific institutions, the first women members of scientific societies, and the rising regiment of women who have played pioneering or creative roles in science and technology in every State. In general those included will no longer be alive,

although exceptions will be made for major elder figures in their fields.

Suggestions touching other areas are also welcome. 'Science' covers pure and applied science and its development, technology and invention, medicine, science communication, art in science, psychology, anthropology and horticulture.

Nominations, and where possible, the name of a contributor for the 'biography', should be sent to either of the undersigned and will be gratefully acknowledged. We believe that the book, which will be illustrated, will constitute an important social history of the accomplishments and struggles, and of the character and context of Australian women in two centuries of science.

Ann Moyal
8/12 Kareela Road
Cremorne NSW

Elizabeth Newland
26 George Street
Yowie Bay NSW 2228 ☺

1991 JOHN CHILD BRYOPHYTE WORKSHOP, CANBERRA, AUSTRALIA

The dates for the Workshop are now finalised and will be from Thursday 26 September to Tuesday 1 October 1991.

Accommodation has been booked at John XXIII College, (student residences), Australian National University which is just across the road from the CBG and CANB Herbaria. The price is $50 per night per person full board.
For further information about the Workshop or Accommodation please contact:

Judith Curnow
Cryptogamic Herbarium,
Australian National Botanic Gardens,
GPO Box 1777, Canberra ACT 2601
Tel (06) 250 9461 ☺

CHROMOSOME NUMBER REPORTS

Following the decision of *Taxon* to discontinue publication of its 'Chromosome Number Reports', *Australian Systematic Botany* has decided to introduce a similar service. The first report appears in Vol. 3 No. 4 which was published on 5 December 1990 and the *Journal* plans to publish this section in the last issue of each volume.

Authors wishing to submit reports should note the report in Vol. 3 No. 4 and follow the same format, which follows that used previously by *Taxon*.

Laurie Martinelli
Managing Editor
Australian Systematic Botany ☺

REQUEST

Plea for material of terrestrial orchids

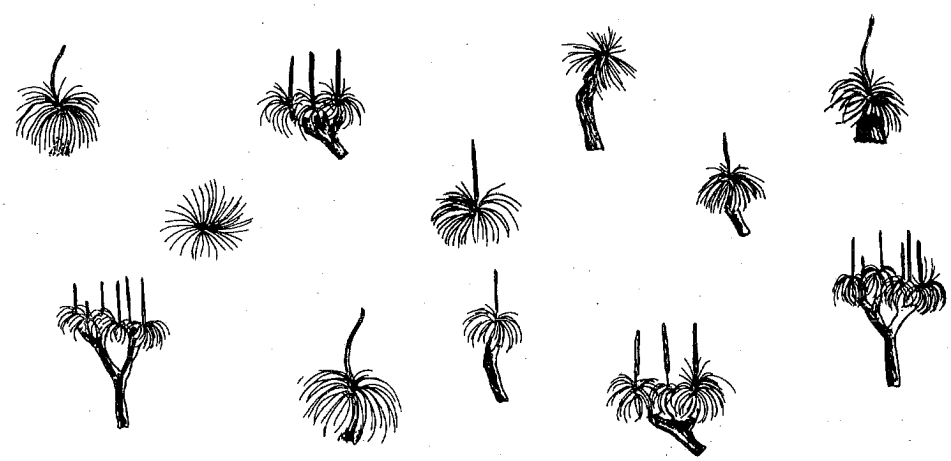
Your assistance in providing material for anatomical study of Australian terrestrial orchids is requested on behalf of Dr William L. Stern, Department of Botany, University of Florida. Dr Stern is writing the vegetative anatomy of orchids for Metcalfe's *Anatomy of the Monocotyledons*. He writes that the Australian terrestrial orchids represent a large gap in the material he has for study. He is seeking vegetative material in FAA (leaves, stems, roots and tuberoids) of any such genera. I have so far provided species of *Thelymitra*, *Pterostylis*, *Acianthus*, *Calochilus*, *Diuris*, *Microtis* and *Prasophyllum*.
He has particularly requested *Corybas*, *Stigmatodactylus*, *Epiblema*, *Orthoceras* and *Genoplesium*. Can anyone provide material of these or other genera not so far sent?

The address is:

Dr W.L. Stern
Dept of Botany
220 Bartram Hall
Gainesville
Florida 32611-2009 USA

Christopher Quinn
University of New South Wales ☺

INDEX TO AUSTRALIAN SYSTEMATIC BOTANY SOCIETY NEWLETTER NUMBERS 63-65, 1990



Some Xanthorrhoea *designs used on the ASBS mugs*

AUSTRALIAN SYSTEMATIC BOTANY SOCIETY PUBLICATIONS & ORDERS

History of Systematic Botany in Australasia

Edited by P.S. Short. A4, case bound, 326 pp. ASBS, 1990.

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

Prices:

	$
Individuals	
ASBS members	40.00
Non-members	50.00
Institutions	62.00

Evolution of the Flora and Fauna of Arid Australia

Edited by W.R. Barker & P.M. Greenslade. ASBS & ANZAAS, 1982. Price $20.

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

Flora and Fauna of Alpine Australia: Ages and Origins

Edited by Bryan A. Barlow. ASBS & CSIRO, 1986. Price $21.

The alpine environments of Australia, New Guinea and New Zealand differ from each other in terms of topography, genesis, climate and biota. They also contrast strongly with alpine habitats in the northern hemisphere. Paleoclimatology, paleobotany, biogeography, ecology and plant and animal systematics have been used here to give an understanding of the biohistorical relationships of these isolated islands of alpine terrain in the southern hemisphere.

Systematic Status of Large Flowering Plant Genera

ASBS Newsletter no. 53, edited by Helen Hewson. December 1987. Price $5.

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

Australian Systematic Botany Society Newsletter

Back issues of the *Newsletter* are available from number 26 (March 1981) onwards, excluding nos 29 and 31. Here is the chance to complete your set. Cover prices are $3.50 (nos 26-59, excluding 53) and $5.00 (nos 53 and 60 onwards).

ORDER FORM

To: Helen Thompson or Helen Hewson
ASBS Sales
Flora of Australia
ABRS
GPO Box 1383
Canberra, ACT 2601, AUSTRALIA

Please send me ..... copies of
1) **History of Systematic Botany in Australasia** at:

Individuals	$
ASBS members	40.00
Non-members	50.00
Institutions	62.00

(Please add $8 per copy for postage)

Please send me ..... copies of
2) **Evolution of the Flora and Fauna of Arid Australia**
at $20 per copy plus $5.00 each postage.

Please send me ..... copies of
3) **Flora and Fauna of Alpine Australasia**
at $21 per copy plus $5.00 each postage.

Please send me ..... copies of
4) **ASBS Newsletter:**
Nos. ..... (26-59 excl. 29, 31, 53)
at $3.50 per copy plus $1.10 each postage.
Nos. ..... (53 and 60 onwards)
at $5 per copy plus $1.10 each postage.

Please send me ..... item(s) of
5) **Sweater:** black with white design
Size(s) .....
at $25 each.

Please send me ..... item(s) of
6) **T-shirt:** black with white design
Size(s) .....
at $15 each.

Please send me ..... item(s) of
7) **T-shirt:** white with black design
Size(s) .....
at $15 each.

Please send me ..... item(s) of
8) **Mug:** white with black design
... at $8 each.

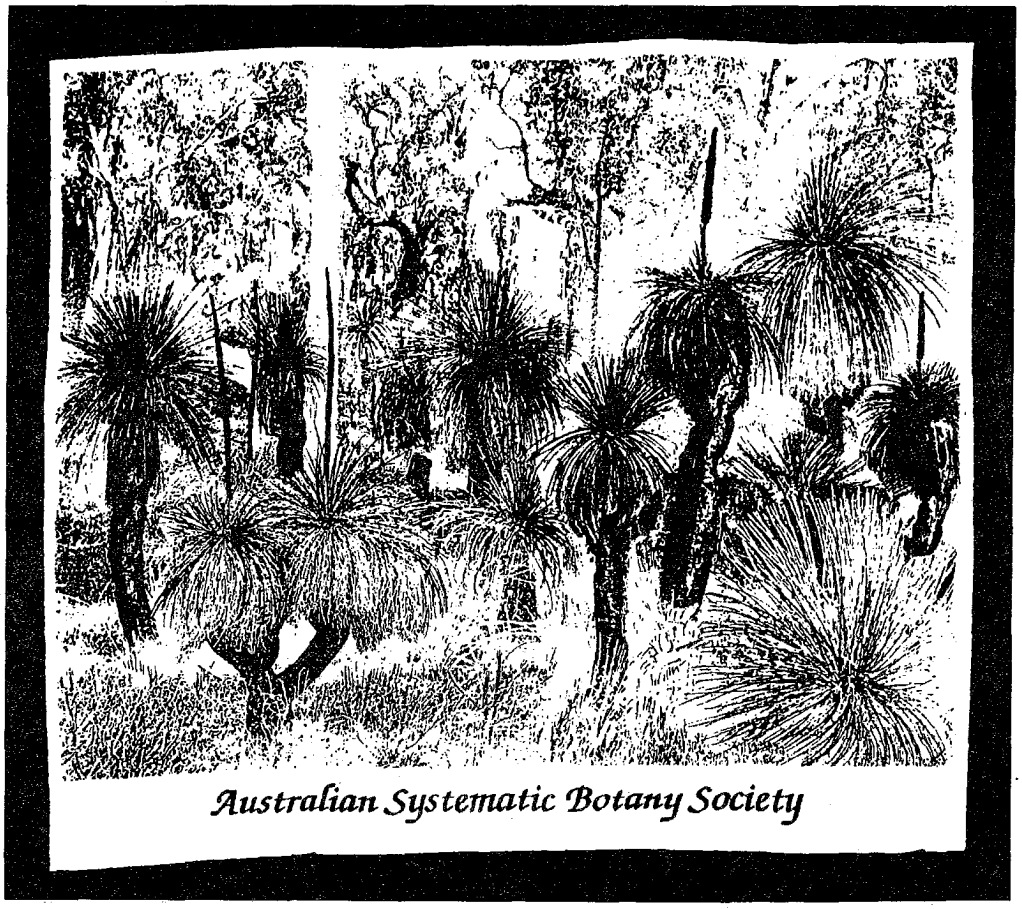
Please send me ..... item(s) of
9) **Mug:** white with black design
... 6-pack special at $42 per pack

Please send me ..... item(s) of
10) **Scarf:** (see *Newsletter* 64: 17)
... at $20 each.

Cheque for $..... enclosed, payable to **Australian Systematic Botany Society Inc.**

NAME .....
ADDRESS .....
.....
.....
.....P/CODE .....

Overseas orders: please enquire in advance about postage rates.



Designs for the ASBS sweaters and T-shirts.
Sweaters available in white on black, T-shirts in black on white and (illustrated) white on black.

The Society

The 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 and entitles the member to attend general and chapter meetings and to receive the *'Newsletter'*. Any person may become a member by forwarding the annual subscription to the Treasurer. Subscriptions become due on the 1st January.

The Newsletter

The *'Newsletter'* appears quarterly and 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 pages in length) will be considered. Contributions should be sent to the Editor at the address given below, preferably as an unformatted word-processor or ASCII file on an MS-DOS or Macintosh diskette accompanied by a printed copy, or as two typed copies with double-spacing. All items incorporated in the *'Newsletter'* will be duly acknowledged. Authors alone are responsible for the views expressed.

Notes

The deadline for contributions is the last day of February, May, August and November.
ASBS Annual Membership is $20 (Aust); students (full-time) $12. Please make your cheque out to *ASBS Inc* and remit to the Treasurer.
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 the *'Newsletter'* Editor for further information.
All address changes should be sent to the Treasurer.

Editor

Mrs B. Barnsley
Tel (06) 286 1805

Associate Editor

Dr M.D. Crisp
Tel (06) 250 9466

Australian National
Botanic Gardens
GPO Box 1777
CANBERRA ACT 2601
Fax (06) 250 9599

Editor 1991

Barbara Wiecek
Royal Botanic Gardens
Mrs Macquaries Road
SYDNEY NSW 2000
Tel (02) 231 8150
Fax (02) 251 4403

Editor 1991

David Morrison
University of Technology
PO Box 123
BROADWAY NSW 2007
Tel (02) 436 6256
Fax (02) 906 6045

Cover

Don Fortescue

This issue is printed on recycled paper.

Austral. Syst. Bot. Soc. Newsletter 65 (December 1990)

CONTENTS