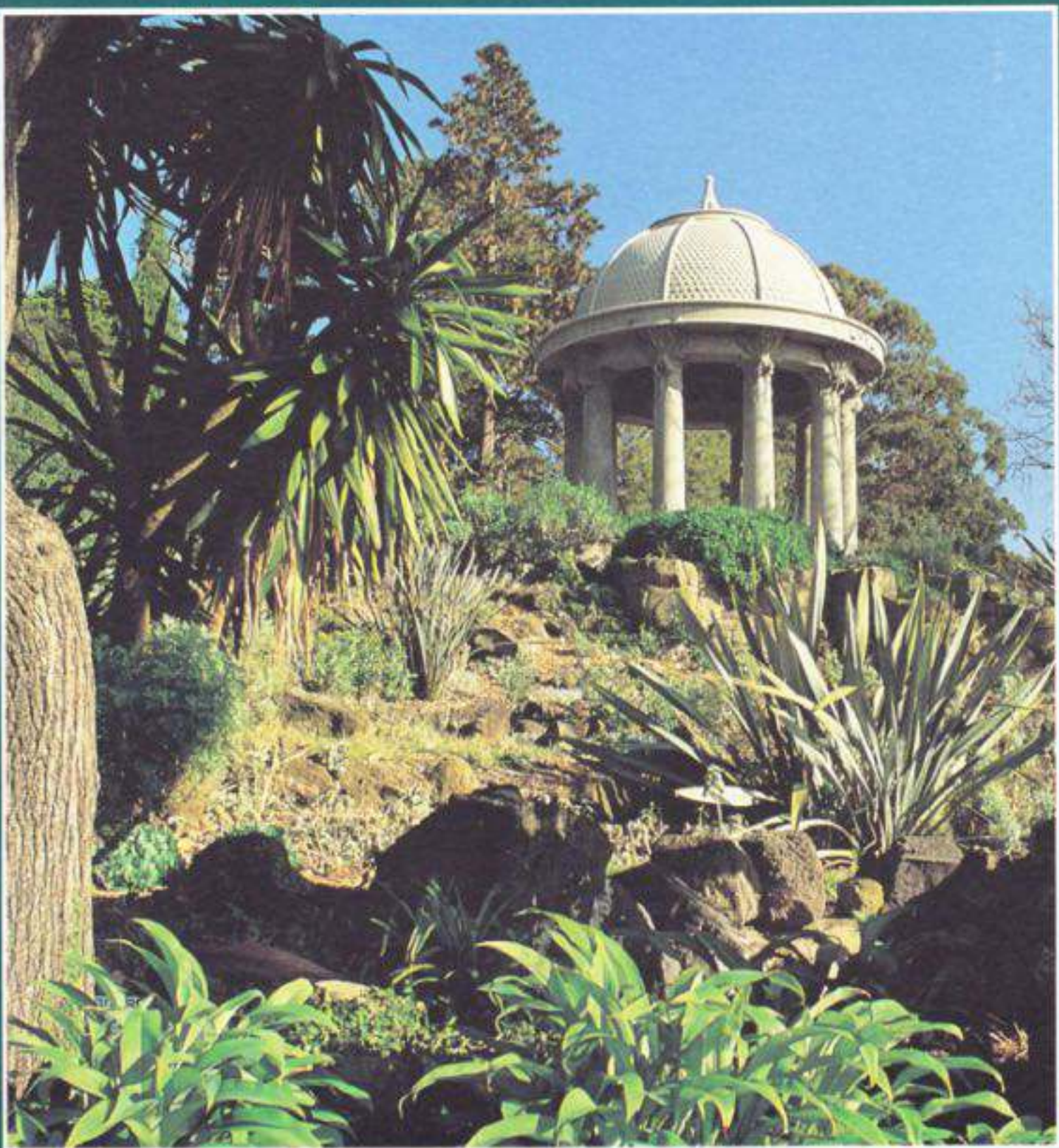
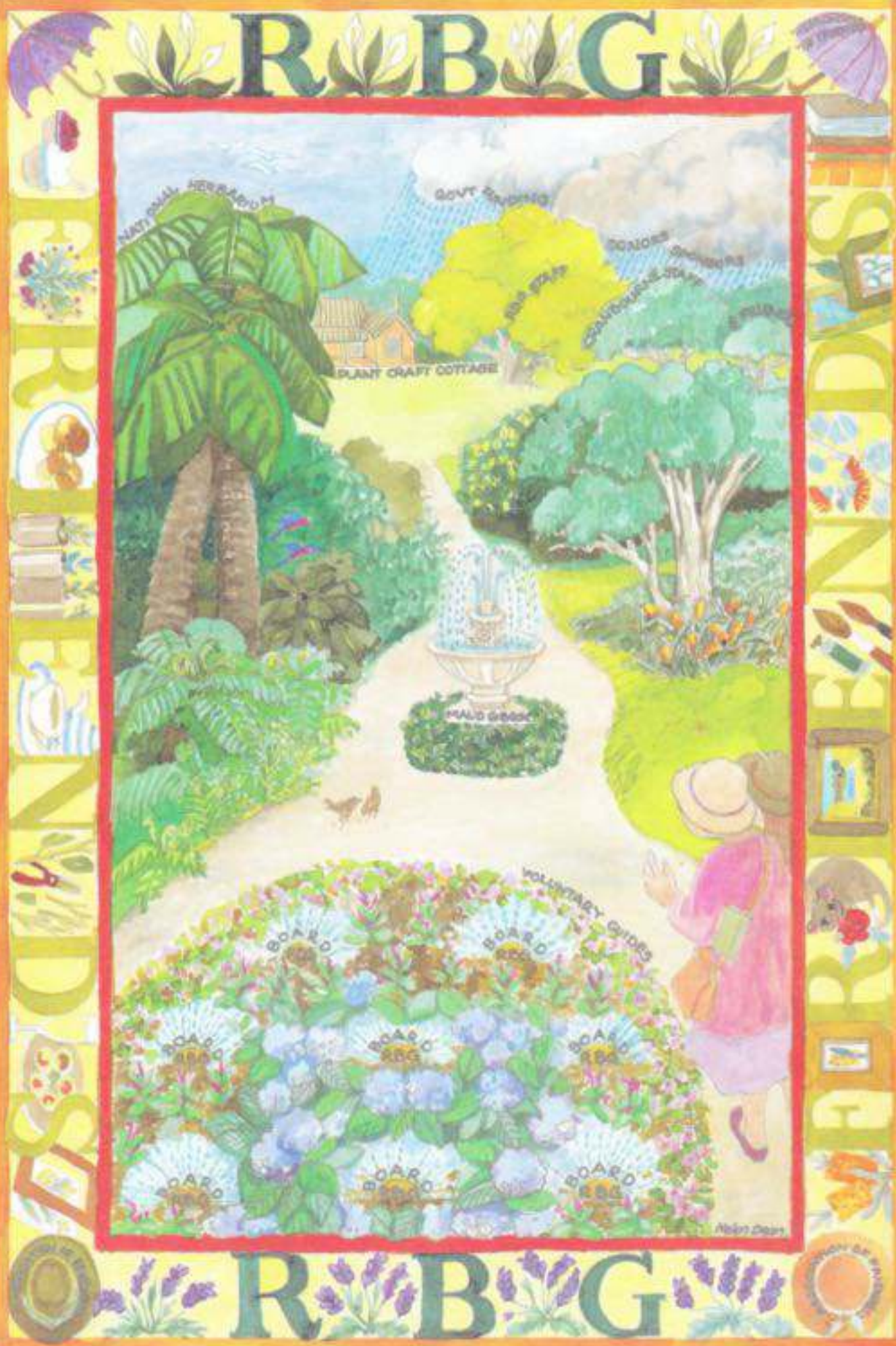


Botanic Magazine

Volume 5

Official publication of the Friends of the Royal Botanic Gardens, Melbourne Inc.





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The publication of the first volume of a new *Flora of Victoria* earlier this year was a significant achievement for the National Herbarium of Victoria.

As the Hon. Mark Birrell, Minister for Conservation and Environment, remarked at the launch of the book, "I can only agree with the view expressed by Sir Rupert Hamer in the Foreword, that this publication is 'a true milestone for botany in Victoria'. With the benefit of hindsight, we can now say that Victoria's first Government Botanist was well wide of the mark when he declared in 1863 that the botanical investigation of Victoria was 'now nearly completed'. Of course, it had only just begun", the Minister said. *Flora of Victoria* follows a proud tradition that can be traced back to the appearance in 1886-88 of the *Key to the system of Victorian plants* by Ferdinand von Mueller, Victoria's first Government Botanist. A.J. Ewart's *Flora of Victoria*, published in 1931, was next in line. More recently, students of botany in Victoria have been well served by Jim Willis' two-volume *A handbook to plants in Victoria*, published in 1970 and 1973. All these books have gradually become out of date; from about 2000 species of higher plants from Victoria known to Mueller, more than 4000 have been recorded today.

The publication of *Floras* in their various formats, from simple lists to lavishly illustrated texts, satisfies what seems to be an almost universal human need to classify things. They may deal with a very restricted plot of a few square metres, larger discrete areas such as Wilsons Promontory, the Dandenongs or the Grampians, or an even larger region such as a State or the whole country.

A new concept

The Friends of the Royal Botanic Gardens has been associated with this project from the outset about eight years ago. The idea of an up-to-date illustrated *Flora of Victoria* was suggested by Herbarium botanist Dr Barry Conn, now a senior botanist at the National Herbarium of New South Wales in Sydney. It would, of course, include the standard descriptions, keys and illustrations, and an immediate start was made on that part of the work. However, it was soon apparent that we

Flora of Victoria

by Don Foreman

Don Foreman has worked as a Botanist at the National Herbarium since the beginning of 1984. He set up a database for the Herbarium collections, and, besides being co-editor of Volume 1 of the Flora, is editor of the Herbarium's scientific journal Muelleria.

had an opportunity to do something not attempted by other States; that was to outline the history of Victoria's flora, give a general overview of its diverse plant communities, and describe the key environmental factors that influence their growth and distribution. There's been recent endorsement for this innovative concept. Extra chapters, based on the style of *Flora of Victoria, Vol. 1*, are to be added to the first volume of the *Flora of Australia* before it is reprinted in 1996.

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Distinguished authors

A panel of distinguished authors was commissioned, and in accordance with standard scientific practice all the papers were duly refereed.

Rather mysteriously a computer appeared from an anonymous donor - "to help with the production of the flora". Whoever the donor was, may I now say "Thank you". These days the machines are so commonplace that we tend to forget what it was like just a few years ago.

The task of compiling the all-important chapter on the State's natural regions and vegetation was taken up by Barry Conn, who persisted with the job even though he moved to Sydney part-way through the project.

The names Jim Willis and Frank Gibbons will be familiar to all Friends. Jim, who with co-author Helen Cohn provided the chapter on the Botanical Exploration of Victoria, has been very supportive from the beginning and it was a great pleasure to see him at the launch on 28 May 1993. True to form, Jim presented his original manuscript in beautiful copperplate handwriting. (Such is the clarity of Jim's writing that the 'Handbooks' were typeset from his handwritten copy; these manuscripts are now preserved in the Royal Botanic Gardens library.)

Frank Gibbons, a former Voluntary Guide, enlisted the aid of his friend and former colleague Jim Rowan in writing the chapter on Soils. As the manuscript unfolded over a period of several months it became obvious that this chapter would be a classic piece of work in its own right. The map which appears on page 174 is a first and was drawn especially for this volume.

Dubbed the 'doom and gloom' chapter by some reviewers, the chapter by Geoff Carr on the exotic flora of Victoria and its impact on the indigenous biota caused the editors some anxious moments, with various delays and a reference list which seemed to keep growing at an alarming rate. However, the end result is a timely reminder to us all that the worst weeds may not be those introduced from overseas, but native species taken out of their normal habitat or even the more insidious cross-pollination between garden plants and nearby native populations, resulting at times in vigorous hybrid swarms.

A happy discovery

Authors and editors often tend to view manuscripts somewhat differently, and editors' suggestions about rewriting are usually met with stony resistance by the authors. In the case of the chapter on rare or threatened plants of Victoria by Neville Scarlett and Bob Parsons, both parties were in happy agreement when a rewrite of a section became necessary with the discovery in 1991 of the daisy *Senecio behrianus*, which had been thought to be extinct, growing in a road reserve near Rochester.



Editors of the Flora, Don Foreman (left) and Neville Walsh.

The decision to include the chapter on fire came rather late in the production of the volume. However, when its need became apparent, Malcolm Gill from CSIRO Canberra produced the manuscript in record time. His rapid response was a welcome change from the slow gestation of some other parts of the Flora.

In some cases, the few chapters that met the original deadline had to be revised several times. This was done with the same goodwill with which the first drafts were prepared, and the opportunity was often taken to include new information.

Beth Gott's chapter on the use of Victorian plants by Kooris will appeal to all those with an interest in ethnobotany. The use of fire as a management tool by Kooris is well known; however, women's systematic shallow cultivation of the soil in search of 'roots', although less well-known, appears to have had a significant effect on the flora.

The chapter on the prehistory of the flora of Victoria, written by David Christophel, traces the State's flora from the earliest known vascular land plants

through to the modern-day floral elements. I was fortunate enough to spend a day with Dave and his team at the Angleses/Alcoa site and saw at first hand some of the fossils of plants that grew in the area about 40 million years ago. Many bear a striking resemblance to species now found in the rainforests of north Queensland.

Although he had just finished co-editing the *Geology of Victoria*, Jack Douglas enthusiastically tackled the task of writing the chapter on Geology and Geomorphology. This chapter traces the geological history of Victoria from the oldest known rocks of Cambrian age (about 570 million years ago) to modern landforms. Notes are given on the associated flora and fauna.

Anonymous climate chapter

The chapter on climate was contributed by various anonymous authors from the Bureau of Meteorology and no amount of coaxing would yield a single name. We could have continually updated this chapter as more data was accumulated, but in the end we decided to call it quits at 1990. In the meantime the chapter was supplemented by Neville Walsh with information about the effect of climate on the flora.

Towards the end of the editing stage and even during the typesetting it became almost a full-time job to keep the names up-to-date, due to the (alleged) propensity of botanists for

changing the names of plants. We were all disappointed when, midway through the printing phase, the publisher decided to print 1000 fewer copies than the 3000 originally proposed. This had the immediate effect of raising the price of the book to what was felt to be an unacceptably high level, considering the effort that had been devoted to making it appeal to a wide range of people – interested amateurs as well as professionals. However, already our faith in the *Flora* has been justified, with sales exceeding everyone's expectations.

Friends' contribution

Many people were involved in the production of the book and they were publicly thanked at the launch. However, let me say once more how much the financial help of the Friends has been appreciated. Over the years the Friends provided nearly \$9,500 for field trips and \$2,000 for the production of the map printed on the endpapers. A further subsidy of \$10,000 helped to keep the price of the book within bounds.

Copy for Volume 2 is now with the publishers and we hope to see it in print early next year. This will be the first of the three volumes to contain the descriptions, keys to identification, distribution maps, glossaries and illustrations for more than 4000 species of vascular (higher) plants in Victoria.



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Dealing with ferns, conifers and monocotyledons (i.e. the orchids, grasses, etc.), it is being edited by Neville Walsh and Tim Entwistle (botanists at the National Herbarium of Victoria), both of whom have also made significant contributions to Volume 1 as authors. Other contributors to Volume 2 are David Albrecht, Helen Aston, Bob Bates, Barry Conn, John Conran, David Jones, Joe Weber and Karen Wilson; these authors have all supplied accounts of different taxonomic groups.

Work on Volume 3 is already well under way with plans to have it published in 1995, the 175th anniversary of the birth of Mueller. Volume 4 was due to be completed in 1996, a year which marks the 100th anniversary of Mueller's death and the 150th anniversary of the establishment of the Royal Botanic Gardens. Only time will tell if this aim will be achieved.

What the reviewers say...

Gardening Australia, August 1993, Malcolm Campbell

"...bound to become the standard reference for plants in Victoria...This

volume sets the pace for what is to follow...The extensive list of references will prove a bonus to any serious student or field botanist, whether amateur or professional. I can't wait to see the subsequent volumes and feel that Ferdinand von Mueller's statement in 1863 that the *Flora of Victoria* was 'now nearly completed' has finally become a reality...at least for their indigenous flora!"

SGAP Victoria Newsletter, September 1993, Rodger Elliot

"...in this volume we have a wonderful book which provides us with nearly everything we should want to know regarding the ecology of Victoria's plant life... This is the first Australian State *Flora* to have such an introductory volume, and we are the richer for it! Whoever originated the idea should get a medal!"

The Age, 3 July 1993, T.R. Garnett

"...Volume 1 is introductory and will almost certainly be the most popular of the four. The cost is high but the volume contains information not available elsewhere. Certainly it is

worth more than two or three coffee-table books of photographs...This is a book of which Victoria's (not Melbourne's!) Herbarium can be proud."

Australian Horticulture, July 1993, Rodger Elliot

"...This volume is not only for botanists. It will be of inestimable value to horticulturists, landscape designers and those in allied vocations. Enthusiastic home gardeners will reap the benefits too...Inkata Press is renowned for its excellent publications and it has further enhanced its reputation with this volume."

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"New Growth from Old Trees"

The Director looks ahead



The Director of the Royal Botanic Gardens, Dr Philip Moors, likes to speak of 'new growth from old trees' when describing the situation of the Gardens in the 1990s and beyond. Three years short of the Gardens' 150th anniversary, Corporate and Business Plans, Conservation Studies and Site Analyses have set the foundation for wise decision-making and steady progress. Financial backing from many quarters has led to optimism that the recent air of stagnation has been checked, and that plans will be realised.

This article by HEATHER IRONMONGER profiles Philip Moors, Director since November 1992, reports on recent activity at the Gardens, and looks to the future.

Philip Moors grew up in the harbourside suburb of Mosman in Sydney, and moved to Canberra in 1966 to do a BSc degree in Zoology at the Australian National University. His strong interest in ecology developed there.

The next stage of Philip's career presented opportunities for acquiring skills that remain relevant today: he worked in the New South Wales National Parks and Wildlife Service, writing interpretation leaflets and preparing displays. Philip is very aware of the Gardens' role in education and visitor services.

In 1970, Philip's academic studies took him from New South Wales to Newburgh, a small Scottish village where the University of Aberdeen has an ecological field station. He met his wife Debbie, a doctor, in London in 1972. Philip did a PhD on weasels, small farm-dwelling carnivorous mammals quite common in Britain, said to be remarkable for their ferocity and bloodthirstiness.

More by chance than design, Philip joined the New Zealand Wildlife Service in 1974, and rather to his surprise spent 15 years there. His scientific research tackled the serious problem of rats - escapers from ships - which had a major impact on plants, eating their seeds and fruit and affecting regeneration. They also attacked native wildlife (but were perhaps less bloodthirsty than weasels). The New Zealand Wildlife Service was amalgamated into the Department of Conservation in 1987 and Philip was appointed Assistant Director of Research.

Birds came next. In 1989 Philip was appointed the first full-time director of the Royal Australasian Ornithologists Union. He sees his main achievements there as reorganis-

ing this Melbourne-based body, putting its administration and financial management on a much firmer footing, and raising its public profile.

RBG Director

The Royal Botanic Gardens' directorship, which Philip took up in November 1992, seemed to present the opportunity to utilise all the knowledge and experience he'd gained in the previous 26 years. This even included the problem of the bats and foxes which are uninvited Gardens dwellers, and the cherished bird population whose numbers bear testimony to the quality of the Gardens as habitat.

"I'm very conscious of the great legacy inherited from my 10 predecessors, some of whom had a profound influence. I have a strong sense of the tradition I'm proud to continue", Philip says.

"The Gardens have not always been this glorious place. Guilfoyle could only *imagine* what we can now *see*. But many of his plantings are more than a century old and showing signs of their age. The greatest challenge at the South Yarra site is to rejuvenate Guilfoyle's legacy. We must take the Gardens into the 21st century while retaining the atmosphere and landscapes which are Guilfoyle's trademark. We must 're-Guilfoyle' the Gardens", Philip declares, but he does not believe everything has to be kept slavishly 'Guilfoylean'. Perhaps some of his rockeries could be carefully removed, for instance.

"Contemporary garden design has to have a place. We'll shortly employ a landscape planner for 12-18 months to devise a framework for rejuvenation and modernisation that

we can implement over the next 10 or 15 years", Philip says. Trees are the Gardens' finest botanical feature. A recently completed census has revealed 6840 trees on the 38 ha site, substantially more than expected. The survey confirmed that one fifth are old or sick and will have to be replaced during the next 20 years. Replacement must be planned for some trees which are major landscape features.

Cranbourne planning, Guilfoyle style

The Director is excited by the creation of a new tradition at the Cranbourne Botanic Garden. "It's at the stage now that the Gardens were when Guilfoyle took over. The plantings and landscaping of the Australian Garden hold great promise", he believes. Apart from its intrinsic botanical worth, the Cranbourne Garden will have increasing value as a green heart for the most rapidly growing urban community in Victoria. It's also important in conserving wetlands and other wildlife habitat.

Philip points with obvious satisfaction to the recent advances in providing visitor facilities at Cranbourne - excellent pathways, boardwalks, viewing platforms and the Trig Point Lookout offering 360 degrees views - together with offices for the staff and the commissioning of a Masterplan for the site. He looks forward to further projects: completion of the Arboretum, and of the Australian Garden which will specialise in sand-country native vegetation; construction of lakes and wetlands along Wylies Creek, and the erection of a visitor centre. Turning to the third element of his responsibility, the National Herbarium, Philip is again heritage-conscious.

"Dr Ferdinand Mueller built his reputation as one of Australia's greatest scientists on the excellence of the Herbarium. I would like us to reinvigorate its potential for scientific research. We have incomparable collections, and I'm delighted that the Pacific Dunlop sponsorship will enable a post-doctoral fellow to be based here. Resources have been a problem and positions at the Herbarium have not been able to be filled, but we're building collaborative research programs with The University of Melbourne and La Trobe University which will be of mutual benefit", Philip says.

"The immediate problems at the Gardens are very challenging in the current economic circumstances in Australia", Philip declares. "We hold a priceless asset on behalf of the people of Victoria, but we're not about to commercialise the Gardens. We're not taking an unfettered private sector approach.



"I'm very conscious of the great legacy inherited from my 10 predecessors...I have a strong sense of the tradition I'm proud to continue." Philip Moors.

Appropriate enterprise

"Everything we do must be appropriate, but we can achieve a lot through sponsorship and revenue-raising. Money we earn doesn't end up as consolidated revenue."

Philip is keen to encourage more musical and theatrical events, so long as they would not cause any damage to the Gardens. Likewise, new projects will be undertaken over time, but the quality and integrity of the Gardens will always be respected. He has stated that the 'new growth' in the Royal Botanic Gardens needs to be in the four main areas: funding, the gardens themselves, scientific research, and education.

Government funding - currently more than 90 per cent of the budget - amounted to about \$5 million this year. The aim is to reduce the Gardens' dependence on the government by increasing revenue from rents, commercial income, donations and other sources. "There is a clear incentive for flair, innovation and entrepreneurial spirit", Philip believes.

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One area expected to generate income is the Old Melbourne Observatory Site, for which a commissioned consultants' report recommended various appropriate uses. Expressions of interest were called for, and a number of potential lessees have inspected the site.

Another with financial potential is an agreement with an Australian horticultural company to set up a database to provide nurseries with an authoritative reference source of plant names. It's a clear example that the scientific skills of Gardens' staff are of commercial value to the community.

The Gardens have already benefited substantially from donations, notably from the Herald-Sun Gardens Revitalisation Appeal in 1992 and the Pacific Dunlop sponsorship in 1993.

Significant advances

One special project under way, thanks to a large anonymous donation through the Herald-Sun appeal, is the renovation of the Australian Rainforest Border. It will eventually incorporate the eight major types of rainforest in Australia, from Tasmania to northern Queensland. Collecting trips have been undertaken, plants are being raised, and this border is expected to develop into an outstanding feature of the Gardens.

The current, very visible, installation of the automatic watering system - believed to be the biggest and most complex of its type in Australia - will result in a tremendous improvement. Sensors will detect when and how much water is required at any particular place in the Gardens.

Sprinklers will operate overnight under computer control. Both water and gardeners will be used more economically. A grant from the Trust Company of Australia will fund two positions for Burnley students for three months during summer. Three temporary gardener positions will also be occupied over summer and it is hoped several additional positions will be provided through the Jobskills scheme. Philip acknowledges that the dilapidated nature of the Gardens' perimeter fences is a problem and capital funding is being sought for their repair. On the brighter side, preparation for a new system of information signs is well advanced.

The schools education program at South Yarra and Cranbourne is active, popular and constantly expanding despite limited resources. The construction of a new Visitor Centre at the F Gate Lodge near the Herbarium will provide better facilities for meeting community interest in learning more about plants, animals, the environment and conservation.

"In 30 or 40 years' time, we will look back on the nineties as a decade of influential change", Philip predicts with confidence.

THE BOARD

The Royal Botanic Gardens Board is well pleased with its progress since 1 July 1992, when it took over management of the Gardens at South Yarra, the Cranbourne Botanic Garden and the National Herbarium from the Department of Conservation and Environment.

Several of its members are household names; others are well known in business and scientific circles; altogether it's hard to think of them in the formal bureaucratic guise of a 'Statutory Authority'.

Board members are: Mr William Irvine, Chairman; Mrs Marian Brookes, Deputy Chairman; Professor Pauline Ladiges, Ms Anne Latreille, Mr John Patrick, Mr Frank Phillips and Mr Don Saunders. Don Saunders took over from Mr Tim Harding as departmental representative in May 1993.

Corporate management style

An important milestone was the publication of the Board's first annual report, a comprehensive account of activities and achievements in 1992-93.

Looking back on the Board's period of establishment, the Chairman, William Irvine, says, "To me, it has been most interesting to be part of this transition of the Gardens from being wholly managed within a government department, to an institution that more or less is being run on private sector lines. We still operate under some public sector constraints and this is understandable given our continuing reliance on public sector funding.

"Our main early task was to find and hire a Chief Executive (the Director) which we did in the form of Dr Moors. The other transitional things then followed: the setting in place of a workable management structure, better work practices, formal budgeting, operational planning and so on - all of the

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things you automatically expect in a corporate environment. This has been a most interesting process", he sums up. As John Patrick reports, "The Board members are 'jelling together' well. They have extraordinarily good complementary interests and talents; that's becoming more recognised as time passes. There's the academic botanist Pauline Ladiges; another professional, Don Saunders, with extensive experience in land management; Frank with his business background; Marian who has links with the support groups and with horticulture, while Anne and I are good at putting forward ideas and asking pertinent questions! Anne adds to this with her great ability to communicate issues. I think we have all learned from Bill Irvine's decisive and effective chairmanship.

"The changeover has been very exciting for the Gardens. Most of our focus in the first year has been on the public face - the watering system, Tea Room renovations, new garden beds and so on. Now I'd like to see us give more support for the botanists; for example, provide for more collecting trips, and put more emphasis on the scientific areas of the institution. I also believe there'll be greater stress on conservation in the future.

"I think the Director and his staff have done an excellent job. A sense of direction and energy is apparent, and I'm very enthusiastic about the future", John says.

Marian Brookes, while looking back on a rewarding 18 months as the Board members began working with each other, is also thinking of the future. "We're full of plans", she says. "We'll make quite a lot of changes, but we'll be very careful to preserve what's most loved. Cranbourne is

going to be very exciting. There are not many new gardens of that scale anywhere else in the world."

As the chairman of the organising committee for the sesquicentenary celebrations in 1996, Marian faces the task of devising a program with events for scientists, knowledgeable amateurs and enthusiastic garden lovers.

Bipartisan support

Frank Phillips, while applauding the fact that the Gardens' management is now semi-autonomous, comments on the strong on-going support from the government, the Minister and the department.

"When the Friends promoted the idea of independent management for the Gardens, it gained bipartisan support, and that has continued. It was a very positive initiative - our activities are no longer lost as a small part of a huge department and its budget, but it's very important that our link with the department is maintained", Frank believes.

"The Corporate and Business Plans were milestones; the Gardens didn't have this vision for long-term planning previously. Now we've caught up to modern practice with other gardens in Australia and around the world. We're starting to work more effectively and can react much faster, making the Gardens far more attractive to potential corporate sponsors."

Frank added an appreciative note: "The Board clearly sees, as a critical element, on-going links with all the support groups".

Heather Ironmonger



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Rod Dunstan joined the staff of the Royal Botanic Gardens as Education Officer in April 1993 – a position funded by the Directorate of School Education. Previously Rod taught Biology, Chemistry and Horticulture in secondary schools and TAFE colleges. He filled the vacancy created by the retirement of Marion van Gameren, and declares that one of his goals is to maintain Marion's high standards in promoting environmental education. Rod gives us a personal view of his job, to which he brings enormous enthusiasm and energy.

Being the Education Officer is certainly a challenge! It is not unusual to find myself teaching 30 prep. students how to plant seeds, take cuttings or make pot pourri in the morning and then change pace to explain the workings of the National Herbarium to tertiary students in the afternoon. It calls for a good deal of flexibility in teaching style. Fortunately the task is made a lot easier by the help given, often at short notice, by the gardeners and Herbarium staff as well as members of the Friends, Voluntary Guides and Plant Craft Cottage.

During second term, I took classes with almost 2000 students; term three involved 3000, and the figure reached 4000 for the last term of 1993.

So far I have concentrated on the face-to-face teaching component of



The Gardens – an Outdoor Classroom

by Rod Dunstan

The Big Picture (above), a mural painted by Grade 3 students of Melbourne Girls' Grammar School – Gardens' neighbours. They took part in a pilot program for the introduction of 'Art in the Gardens' in 1994.

my job; it also involves preparation of educational materials and carries a heavy administrative load. Much-needed administrative assistance is in sight, fortunately.

Plants and dinosaurs

Two new activities introduced in third term – Ancient Plants and Aboriginal Plant resources – have been tremendously popular. The Ancient Plants program has forged links with the Museum of Victoria and capitalises on the current interest in dinosaurs. It has been conducted by Dip. Ed. students. The program underlines the dependence of animals, including dinosaurs, on plants. We look at some of the plants growing in the Gardens, such as cycads, conifers and ferns, that were common in the times of dinosaurs. With the help of Bob Ganton, an SEC geologist at Morwell, and Jack Douglas, a retired government geologist, I've obtained a lot of overburden clay which is soft enough to be split with a blunt knife. The kids really get a feeling for ancient plants as they find in this clay fossilised leaves and seeds about 30 million years old! They are prized souvenirs to take home.

Memorable sensations

The Aboriginal trail has also been hugely successful. This began as a

joint venture with the National Gallery, students learning about Aboriginal art in the morning and then visiting the Gardens' extensive collection of native plant species to discover how Aborigines made use of plants for food, medicine, fibre, dyes and tools. It has tended to develop as a stand-alone activity in the Gardens. Two Koori gardeners, John Belling and Kirsty McGuirk, have helped to set up and run the program, along with young Kooris engaged in employment programs.

Students walk through the Australian Border, learning of the close association that Aborigines have with their environment. The walk concentrates on plants that the students can touch and smell, or collect fallen parts from. The more sensory the experience, the more students remember. You must use 'hands on' examples.

Smoked eel and macadamia nuts are sampled, and the visit might be rounded off by a bark painting session and a string-making activity using natural fibre in the way Aborigines make baskets, bags and fishing line.

Practical horticulture is another new activity. I like to work with teachers to tailor a program to complement what a class is studying. It may relate to indigenous people, or perhaps insects; we might look at plants in the Gardens that repel insects, then the students would pot up a marigold and fashion a weird insect out of cones and other plant material.

Children love to collect unusual leaves, cones, fallen nuts; they'll pick up and keep Moreton Bay figs, leaves off the Bunya Bunya pine, bits of palm or

Dear Rod

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I Liked the gardens. I Liked to look at the larks
I Liked the way they fly. It was fun over there.
That was the best garden I Have Seen in my life.
from Stevie

Typical of the fan-mail Rod receives from appreciative students and teachers.

Banksias. They're fascinated by the textures of different species in the Australian border, and by the varied uses and smells of plants in the herb garden. The bats are a big hit, of course, and the eels intrigue. The Gardens are Gardens of Delight for children, and even the youngest visitors learn valuable lessons without realising it while they're having a thoroughly enjoyable time.

Higher education

Of course visits are more structured for senior school students. We also have many apprentices from TAFE colleges, Burnley students, and people doing pre-vocational training through employment schemes.

Weekend in-service courses are held for primary and secondary teachers at the South Yarra site, to reveal the potential of the Gardens as an educational resource. The Cranbourne Botanic Garden offers educational opportunities and in-service courses, too, backed up with a kit for Primary Teachers and a Biology Teachers' kit. Marion von Ganten is now finalising a secondary kit for Cranbourne.

I hope to expand the number of areas of the school curriculum for which teachers can make effective use of the Gardens. Subjects such as Biology and Environmental Science are already well represented, but I see great potential for Art/Craft, History and Geography: landscape drawing, botanical illustration, history encompassing the Mueller and Guilfoyle directorship eras



and the ecology of the Gardens are all possibilities.

After a pilot course late in 1993, with input from artists and art teachers, I hope to be able to offer an art program from Term 1 next year for primary children. Apart from drawing, there are great possibilities for collage and sculpture using materials in the Gardens. Further down the track, I could envisage another collaboration with the National Gallery, linking botany studies and botanical drawing for older students. I'm looking for financial support to develop that option.

Most of my 'customers' come to the Gardens as a result of information published in educational journals and teachers' newsletters, or by word-of-mouth. I hope Friends will also use their contacts to give the Gardens'

Education Service a higher profile and get in touch with me at the Herbarium if I can arrange visits. A typical outing would entail students having a morning program, eating their picnic lunch and then doing one of the Gardens' trails in the afternoon. At present, the charge is \$2.50 per child.

If bad weather forces us indoors, accommodation is a problem. The forthcoming development of the new Visitor Centre at F Gate Lodge presents great opportunities for the Education Service programs, and research is being undertaken into how it can meet educational needs as well as fulfil its other roles.

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The Role of Plant Systematic Research and the Case of the Eucalypts



by Pauline Y. Ladiges

Professor Ladiges is Head of the School of Botany in The University of Melbourne and a member of the Royal Botanic Gardens Board. Because her talk on this topic at the 1992 annual meeting of the Friends created considerable interest, we are pleased to publish an account of her address in *Botanic Magazine*.

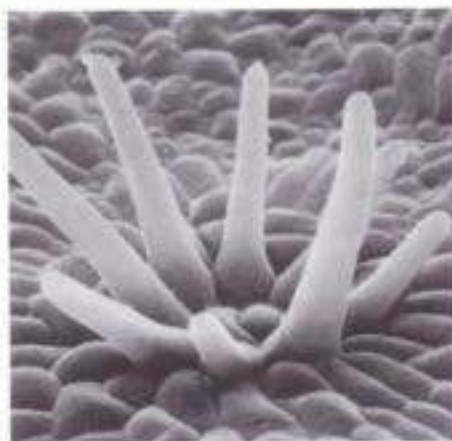


Figure 1. The scanning electron microscope allows botanists to examine the fine detail of plants, such as the structure of raised oil glands adorned with hairs that characterise some eucalypts, such as the bloodwood.

There is increased awareness by Governments and the public of the importance of conserving the diversity of the Australian biota. This issue highlights the importance of biological collections held in herbaria, botanical gardens, museums and zoos that are the basis of scientific research. That research involves discovery of new forms (taxa), documenting their characteristic features, geographic distribution, genetic variation and ecological importance, and understanding their relationships and evolutionary history.

This information is then summarised efficiently in a formal classification that other biologists can use, for example, knowing that there is only one living species in a family or genus may be justification for giving that species a high conservation priority because it represents rare genetic material. Research is thus fundamental to making wise choices in the management and conservation of our flora and fauna.

The subdiscipline of science termed *Systematics* is an integral part of research in herbaria. Systematics involves comparative study of organisms to discover their relationships. Data can be acquired by many means: field collecting, preparation of herbarium specimens (which represent data base and reference for the future), growing material for a living collection, and comparative study of the form of the plants.

Modern biological technology allows the researcher to study not only the general form of leaves, flowers, fruits and so on, but fine anatomical detail (Figure 1). The modern

plant systematist routinely uses computers to analyse and record data, and in recent years has had a new and vast potential source of data made available through the development of molecular technology. The study of molecules, particularly the sequence of bases in DNA that codes the genes of organisms, is being used increasingly to discover phylogeny and evolutionary relationships (Figure 2). The application of such modern technologies, however, does not come cheap, and systematic research is becoming more of a team effort, with collaboration between colleagues and institutions being virtually mandatory – and of course rewarding and exciting.

I would like to illustrate this view with the case of the eucalypts, described by Professor I.D. Pryor and Dr L.A.S. Johnson (1981) as 'the universal Australian'. There are

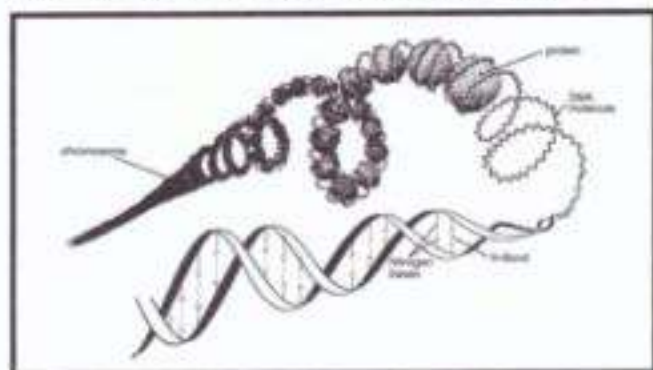


Figure 2. Chromosomes are composed of DNA; the sequence of the bases T C A G forms the genetic code.



Figure 3. The gene that encodes ribosomal RNA occurs on chromosomes as multiple copies separated by non-coding regions of DNA (spacer region), rather like beads on a string.

PACIFIC DUNLOP

by Heather Ironmonger



Pacific Dunlop's Howard McDonald (left) and RBG Director Philip Moors.

The Hand that rocks the Cradle...

The magnificent Pacific Dunlop sponsorship of the Royal Botanic Gardens has been well publicised and acclaimed, but the story behind the gift is little known.

With the centenary of the company approaching, executives began discussing how they could mark this achievement in a way that would be of real benefit to the people of Victoria. Until that time, their policy had been to make many donations of \$5,000 or \$10,000, to assist a wide range of causes. But the centenary in 1993

Pacific Dunlop Sponsorship

Pacific Dunlop Limited began manufacturing Australia's first pneumatic bicycle tyres in Melbourne in 1893. The Chairman, Mr John Gough, told the annual meeting in November that only 11 Australian companies had achieved their centenary.

Pacific Dunlop will be donating a total of \$2.2 million and, additionally, company products, for special projects in the Royal Botanic Gardens over the next 10 years. This is the largest single benefaction ever received by the Gardens, and the largest donation ever made by Pacific Dunlop. The nature of the funding allows for long-term planning.

The projects selected to receive total support of \$500,000 in 1993-94 are:

- Development of a new Visitor Centre incorporating F Gate Lodge
- Repairs and renovations to Gardens House
- A three-year Research Fellowship to initiate new botanical research in the Herbarium.

The articles on pages 15 and 16 provide information about these projects.

called for a grand gesture.

Managing Director Philip Brass tentatively suggested the Royal Botanic Gardens, which the head office overlooks from Collins Street. The response was, "That's a great idea, but there must be limitations about donating money to a government property". Various business people who had been involved in corporate sponsorship deals were consulted, and all the answers were negative: "too hard"; "too unwieldy"; "you can't tackle them"; "you can't get through the bureaucracy". Who would have thought it was so hard to give money away! Perhaps that was the case a few years ago. Anyway, as the story is told

by Howard McDonald, Executive General Manager, Corporate Affairs, of Pacific Dunlop, the company was put off the idea.

He continues: "At home, my wife inquired 'How are you going with the sponsorship idea for the Gardens?' and I replied 'We're dropping the idea. It's too hard.'"

"That's pathetic" she retorted. "I've read in the papers about the great need for more resources at the Gardens, how gardeners could be used more productively if they didn't have to shift hoses and so on. That's not a satisfactory response. You should put the same effort into this project that you do into analysing company acquisitions. Why don't you ring the Gardens and see what the real situation is?"

Fortunately Howard McDonald appreciated the common-sense behind this feminine advice, and he made a telephone call. Director Philip Moors answered his own phone. That was a good, down-to-earth start. "Why don't you come over today and we'll talk about it?" he said.

"I did, and found there were no obstacles whatever", Howard continued. "Certainly we were lucky in our timing, as the Gardens had not long moved to management by a board and had a new director. But the ultimate credit for this sponsorship must go to my wife for her persistence."

So, thanks a million, Sally McDonald – or should we say \$2.2 million!



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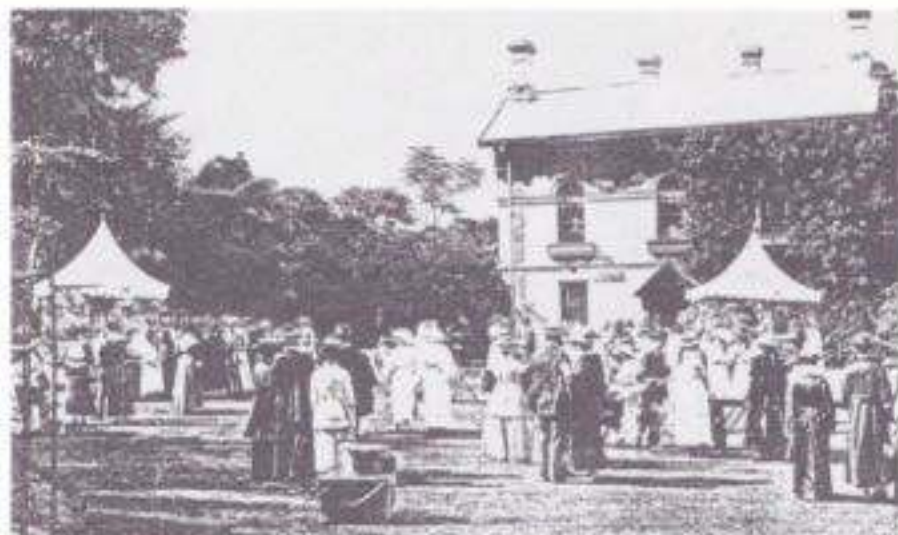
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A 1917 photograph, believed to record a Red Cross garden party at the Director's Residence.

Gardens House, the former Director's Residence at the Gardens, is to become home to the Friends in 1994.

Renovation began in October, and is expected to be completed by mid-1994. At this stage, attention will be focused on securing the fabric of the building – damp-courses, roofing and flooring, for instance, rather than on decoration. Paul Abel, who has extensive experience as a craftsman restoring historic buildings in Britain, has come to the South Yarra site from the Cranbourne Botanic Garden to undertake some aspects of the repairs.

Gardens House should provide the Friends with office accommodation, a meeting room for the Council and space for the burgeoning Botanical Illustrators group. After the Friends have vacated the Astronomer's residence, it will become part of the lease arrangement for the Observatory site.

Gardens House is on the Historic Buildings Register and is classified by the National Trust. A close neighbour of Government House, it is reached via a driveway just past the western side of the Herbarium building.

The building is surrounded by a somewhat derelict garden containing many beautiful and unusual shrubs and trees. It used to encompass what is now known as the Western Lawn of the Gardens. When William Guilfoyle occupied the Director's Residence, he planted a special camellia collection there. And it is recorded that during the 1940s, the gardener Tommy Kish used to present a large bunch of cut flowers

to the Director's wife, Dorothy Jessop, every Monday morning. Robyn Tymms, of the Friends' Activities Sub-Committee, knows the garden well; it is the source for her floral arrangements at many functions.

Perhaps with the Friends in residence, Gardens House will revive its role as a setting for social entertainment. It was the scene of many garden parties; new arrivals at the various neighbouring diplomatic missions were welcomed there at dinners, and Queen Elizabeth took tea at the residence after planting a tree in the Gardens in 1953. The first annual meeting of the Friends in February 1984 was preceded by a chicken and champagne dinner in the grounds of Gardens House.

Mueller, ever at odds with the bureaucracy, wrote to Euphemia Henderson, to whom he was betrothed for a time:

The extension of my dwelling is fairly advancing, but will not render my building a tasteful one. I had furnished myself a handsome sketch of the desired extension; but the Office of Public Works regarded my plan too expensive and adopted an extremely plain one, which, I fully believe, will cost after all quite as much as that I suggested. Under any circumstances, however, the house will in future offer some airy cool rooms and a fine view over the Gardens, and I have asked for the addition of a spacious balcony, whereby much to the convenience and appearance of the building will be added.

GARDENS HOUSE

by Heather Ironmonger

Built in 1856

The Director's Residence was built in 1856 on the recommendation of Ferdinand Mueller, to a design by the Victorian Public Works Department. A combined residence and office, it was a single-storey stone building with separate quarters for a male servant, and cost £426. Curator John Dallachy is believed to have been the first occupant, followed by Mueller after his appointment as Director in 1857.

Substantial additions were designed in 1862, comprising a new single storey wing, an extra storey on the existing cottage and a detached kitchen wing.

With the work completed by mid-1863, Mueller's sister Clara Wehl wrote: "When are you getting married? Now that your house is ready, there is no longer anything in the way!" Despite this incentive, Mueller remained a bachelor.

When a double-storey wing was added to the south-west of the existing building in 1872-73, the orientation of the house was altered, with the new wing designated as the main entrance.

William Guilfoyle moved into the residence in mid-1873. Following Guilfoyle's retirement as Director in 1909, John Cronin lived there until 1923. Subsequent Directors who occupied Gardens House were William Laidlaw (1923-25), during which period some further alterations were undertaken, Frederick Rae (1926-41), Alexander Jessop (1941-57), Richard Prescott (1957-70) and David Churchill (1974-91). Gardeners have lived there as caretakers until recently.

Information for this article was obtained from *The old Observatory site and Director's Residence: a strategy for the future: a conservation and development plan*. Allen Lovell & Associates, Melbourne, 1993.

The Wheels of History - a Visitor Centre at F Gate

by Roslyn Andrew, executive officer for the planning of the new Visitor Centre.

The new Visitor Centre planned for the F Gate Lodge site completes a circle in history. As early as the 1890s this was the site for the Museum of Economic Botany and the Gardens' first office.

The Garden Gazette (1902) describes William Guilfoyle's role in creating the museum:

(the Museum of Economic Botany contains)...the crystallised labour of Mr W.R. Guilfoyle, the Director of the Gardens. For nearly 30 years that gentleman has, as a branch of his work, unceasingly pursued the collection of specimens of the vegetable world in dried form, and gathered them into the finest museum of Botany to be found in the southern hemisphere.

The Governor of Victoria, Lord Hopetoun, opened the Museum of Economic Botany and Plant Products in November 1892. Sited at the rear of the newly built Director's office, it displayed a variety of plant-related products: seeds and fruits arranged according to their botanical groupings; plant-based food products; medicinal plants; useful Australasian timbers; paper manufactured from plants in the Gardens; fibres from Australian plants; and even a relic of the Burke and Wills expedition - the stones they used to grind nardoo to make a bread on which they survived for some time.

The same article from *The Garden Gazette* expounds the value of the Museum:

It is not too much to say that a day's object lesson in that building would teach school children more useful botany than a year's study of text books...The enormous advantage to the student of being able to study the vegetable kingdom as living plants in the pavilion (the Gardens), and then pass to their contemplation in dried form in the museum, is too obvious to be enlarged on.

Although different in style and content, the displays and exhibitions in the new Visitor Centre will, like the Museum of Economic Botany and Plant Products, complement the living plant collection outside. A short time spent in the Visitor Centre or a session with the Gardens' Education Officer (housed in the new education facilities) will enthuse our visitors, and enhance their visit to the Gardens in ways that Guilfoyle could never have imagined.

The Gardens' Office, now referred to as F Gate Lodge, was completed in September 1887. It consisted of two rooms, a public and a private office. During the 1940s the office was extended and converted into a residence. At this time the contents of the Museum were relocated to the newly constructed Herbarium.



F Gate Lodge in 1905. It is to be incorporated in the new Pacific Dunlop Visitor Centre.

After five years, the present Visitor Centre in the Herbarium is more than ready for renewal, and has become stretched for space as the bookshop has expanded to meet demand. The Gardens' Education Service has never had adequate facilities for classes and at present the Education Officer lives a gipsy existence, moving equipment and classes between the Herbarium Hall and various Gardens' lawns. Juggling venues, especially in bad weather, stretches the flexibility of the Education Service to its limit.

The new complex will provide for both Visitor and Education needs. The Lodge will be restored and incorporated into the design of the Centre, with minor alterations to the interior of the 1940s addition.

The new Visitor Centre will include an orientation area, a temporary exhibition space, a quiet area where visitors can use the census to locate plants in the Gardens on a user-friendly computer, a 'discovery centre', an information desk, and a retail section with an expanded range.

An office for the Voluntary Guides will enable them to be on the spot for their walkers.

The Education Centre will consist of both indoor and outdoor classrooms, possibly incorporating shadehouse and glasshouse facilities for horticultural and art and craft activities.

Philip Cox Sanderson and Partners have been appointed as architects for the building, which is expected to be in operation late in 1994.

Pacific Dunlop Post-doctoral Fellow

In December Andrew Douglas from the Botany Department of Louisiana State University was appointed as Pacific Dunlop Fellow. It is expected he'll take up the three-year Research Fellowship in April 1994, after completing his PhD. An American, Mr Douglas will mainly be looking at phylogenetic relationships within the Proteaceae, using advanced molecular techniques. It is envisaged that he will also engage in collaborative studies with the Botany Department of The University of Melbourne, and with the New South Wales Herbarium.

Friends of the Royal Botanic Gardens



This article traces the history of the Friends, particularly for the interest of our many new Members. Its author, BETH HIGGS, was asked, as a committee member of the Plant Craft Cottage Group, to undertake the task of setting up the Friends of the Royal Botanic Gardens in 1981. She served as chairman of the steering committee for two years, and then was the foundation president.

In laying the ground work for the establishment of the Friends of the Royal Botanic Gardens, I believed that the people of Melbourne, both private citizens and business houses, appreciated the unique and world-class Gardens that we have in the heart of our city and, given the opportunity, would show their interest and support. This has indeed been the case.

The Friends had its origins in the Plant Craft Cottage Group at the Gardens, which had been formed to practise the plant crafts, initiate the voluntary guides and launch a body of Friends.

With the support of the then Director of the Gardens, Dr David Churchill, and his wife Sylvia, we gathered together people from both business and the community to formulate a set of objectives for the proposed Friends group. They were:

- To develop a bond between the Gardens and Herbarium and the people of Victoria
- To conserve, protect and foster the Gardens and Herbarium
- To foster the interest of Members in the Gardens and Herbarium and in plants and flora generally
- To support the Gardens and Herbarium financially.

We held our inaugural meeting in February 1982, inviting Professor Carrick Chambers from The University of Melbourne to be our first speaker. He described in part what we then called the Cranbourne Annexe, but used the occasion mainly to inspire us and endorse our efforts to gain greater public support for the Gardens. I recall some of his words:

"Friends should act as guardians of the Gardens"

"Friends can be lobbyists to gain support for the Gardens".

Campaign for the Lake

We were soon to be immersed in the 'Save the Lake' campaign - a direct result of a little lobbying. It could be said that the newly-formed Friends were baptised in the Ornamental Lake. At the time, its surface was almost entirely covered by a tenacious water lily and was getting worse daily. The only solution was to drain it and remove the silt containing the lily root - an exercise estimated to cost \$250,000. The Friends, of course, had no funds at all, and the newly-elected Labor government was saying the same thing.

However, through a direct approach, we managed to gain the interest of a powerful segment of the media, the Herald and Weekly Times, which led to a series of articles, embarrassing to the government, in the *Herald* and *Sun* newspapers. It was our good fortune that the *Sun* was about to celebrate its 60th anniversary and saw an appeal to Save the Lake as a suitable project to mark the occasion. They could lean on the government where the newly-formed Friends could not. In September 1982 the *Sun* launched a public appeal. In all, the appeal raised \$204,000, leaving the government with little option but to see the project through. Just 12 months after our inaugural meeting, the work started. In 1983 the Friends became an independent body; we will always be grateful to Michael Black QC (one of our steering committee members) who undertook our early legal work. A constitution was drawn up and a Trust Fund set up for tax-deductible donations.



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1983 also saw the opening of our first sales outlet. A table was set up at weekends in the Gardens Kiosk, and initially sold Herbarium publications. We produced for sale post-cards of the Gardens and a member, Jenny Phillips, donated a painting she had done of a rare *Sophora* growing in the Gardens, from which letter cards were printed for sale.

In March 1984 the inaugural annual general meeting of the Friends of the Royal Botanic Gardens was held, at which Frank Phillips, a member of the steering committee, was elected President. We were incorporated in 1987.

Our membership is, by nature, wide and diverse, so we try to arrange a variety of activities. We are grateful to our sister organisation, the Voluntary Guides, who arrange walks for the public, and for our Members when requested. Lectures, tours and other activities are announced to Members in our quarterly *Botanic News*, and periodically we publish the *Botanic Magazine*.

Five art exhibitions

To date the Friends have held five exhibitions of botanical art:

- The work of Celia Rosser and Anita Barley, together with important historical material from the Royal Botanic Gardens library, to celebrate the publication of Vol. 1 of *The Banksias*.
- Paintings by Stan Kelly and Anita Barley
- Paintings by Jenny Phillips and Colin Woolcock
- The Banksia exhibition, when all 48 originals by Celia Rosser for Vols 1 and 2 of *The Banksias* were on show
- The Art of Botanical Illustration, featuring water-colours, drawings and prints by Anita Barley, Jenny Phillips, Celia Rosser and members of the Friends' Botanical Illustrators.

We were fortunate in gaining sponsorship for the last four of these exhibitions: for the second, from Jack Chia whose company was working in the area at the time; for the third from BP Australia through a personal introduction; for the fourth from State Bank Victoria (which sponsored the publication of Vol. 2 of *The Banksias*), and for the last, the Victorian Health Promotion Foundation.

The BP sponsorship stimulated the company's interest in the Gardens and led directly to its involvement in setting up the new Visitor Centre in the Herbarium building.

The Banksia exhibition proved an outstanding success not only in the large number of people who attended, but also

financially; sales of prints and books reached \$170,000, from which emerged a profit of \$50,000 for the funds of the Friends. Increasing popularity of art workshops led to the formation of the Botanical Illustrators, functioning as a separate group like the Growing Friends, at the end of 1992.

The exhibition 'Our Botanical Heritage' presented jointly by the Royal Botanic Gardens, the National Herbarium and the Friends, featured both historic and contemporary plant specimens, rare books, letters, botanical art and records of early exploration - all part of the renowned collections of the National Herbarium of Victoria. This exhibition in 1989 allowed the wider public an opportunity to see the importance of the work of the Herbarium. We most gratefully recognise the sponsorship of Alcoa of Australia Limited and APPM who made possible the very professional presentation of this collection.

Various tours are conducted, from one-day garden visits to longer trips in Victoria and interstate. Our first overseas trip was to Borneo, in 1990, followed by a three-week visit to Japan late in 1991. Some trips concentrate on garden viewing, while others emphasising botanical investigation have been led by Dr Jim Willis.

Raising money

Our sales activities grew from the humble table in the Kiosk, through what was labelled the 'hole in the wall', to the recently-extended shop adjoining the Kiosk. It displays a range of high-quality books, cards, prints, textiles and gifts with botanical and natural history themes.

Another highly successful venture is the Growing Friends. The task undertaken is to provide for sale a supply of rare and unusual plants, developed from seed or cuttings from the Gardens. The Friends' Council provided the initial funding to set up the nursery, which it has been possible to develop further with each successive sale. The enthusiastic workers have developed this into a most professional enterprise which is open to Friends weekly, with two public sales conducted annually.

Projects supported

To June 1993 the Friends has donated \$270,000 to the Gardens and Herbarium. Projects have included signboards, plant labels, restoration of the herb, cactus, bulb and bamboo gardens, a new pathway project, restoration of A Gate, a radio-equipped golf buggy, computers and computer equipment. There's been assistance for the *Flora of Victoria* project, and funding for staff on collecting trips.

The Friends Council works closely with the Gardens' management, and projects selected for funding are from their recommendations.

The work of the elected Council of the Friends is for the most part a 'back room' involvement of planning, organising and fund management in the interests of the Members. Members owe much to the time and skills contributed over the years by Council members and other volunteers. We have been particularly fortunate to have as successive Presidents Frank Phillips, David Wilkinson and currently, Sir Rupert Hamer, the father of the Garden State concept for Victoria.

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Association of Friends of Botanic Gardens (Victoria) Inc.

by Lawrence Cohn



Despite its rather long name, the new Association is so far a very small one, with a short history. It originated in a week-end seminar arranged by the Melbourne Friends in May 1991. At that seminar more than 30 people interested in the Albury Botanic Gardens and nine Victorian botanic gardens outside Melbourne exchanged ideas and discussed problems faced by those gardens. Some of those present came from Friends groups; others represented municipal authorities with responsibility for botanic gardens.

Among the subjects discussed were the funding of botanic gardens, the use of funds raised by support groups such as Friends, the structure of such groups and their finances. These subjects were not ones to call for a decision, but another one was - to establish an Association of Friends groups, which could continue the 'getting together' already begun and could also represent Friends groups when need arose. There was unanimous agreement that a second seminar should be held in 1992.

The 1992 Seminar

In May 1992 the Melbourne Friends hosted the second week-end seminar, attended by representatives of 14 botanic gardens, the Melbourne Voluntary Guides and the Melbourne Plant Craft Cottage Group. At this seminar those representing each garden spoke about their achievements, their problems and their plans. To name a few, Albury described its therapeutic garden; Colac mentioned that a conservation report was being prepared; Cranbourne told about the newly-opened Cranbourne Botanic Garden, an annexe to the Royal Botanic Gardens, Melbourne; Geelong spoke about its tea-house, its voluntary guides and its Growing Friends; Gisborne announced the creation of a new garden on Jacksons Creek; and Wilson Botanic Park at Berwick enthused about its new development. The Melbourne Gardens and its support groups also told about their activities.

There were several addresses by staff of the Melbourne Gardens and Herbarium and by outside speakers, one of whom was the chairman of the new Royal Botanic Gardens Board, Mr William Irvine.

By the time this seminar was held a draft constitution for the proposed association was ready for discussion, and it was accepted in principle. A small committee was appointed to settle the few points that had been raised and the final document was submitted to the Registrar of Incorporated Associations later in the year. The Association was incorporated on 20 January 1993.

The 1993 Seminar

Ballarat had volunteered to host a third seminar in April 1993, which was arranged by a Ballarat committee under the inaugural President of the newly-formed Association, Philip Clingin, the Director of Parks and Gardens for Ballarat. Nearly 60 people representing 20 groups (including the National Botanic Gardens, Canberra) heard addresses on topics ranging from 'The Value of Botanic Gardens to the Community' by John Wrigley, former director of the Canberra Botanic Gardens, to 'Who's got the Choque-book?', by Philip Mountain, a fund-raising consultant. There was also an opportunity for a wide-ranging discussion about topical questions.

Not surprisingly, the discussions were strenuously continued outside the meeting room, especially over dinner at Sovereign Hill, which was followed by a Sound and Light entertainment, 'Blood under the Southern Cross'. The seminar also gave the opportunity for the new Association to hold its first annual general meeting, at which Jayne Salmon, President of the Geelong Friends, was elected President. She and her committee are now preparing to host the fourth seminar, to be held in Geelong in May 1994.

The Association

The Members of the Association are not individuals but either organisations of Friends of botanic gardens or municipal authorities responsible for such gardens where no Friends organisation exists. The area covered by the Association is Victoria and the towns or cities just across its border. At the time of writing there are 18 Members, of which 13 are Friends and five are municipal authorities. The main objects of the Association are to further the kinds of co-operation that have already begun and borne fruit, to stimulate and sustain public interest in botanic gardens and to use the influence of the Association in questions affecting the gardens with which the Members are involved. As has already happened, it is intended that the annual seminars will be open to anyone from Australia or overseas who is interested to attend, and not just to representatives of the membership.

It has already been suggested that the scope of the Association be extended to embrace all the botanic gardens in Australia, but, for such a new-born baby, that possibility must be left for the future. The first edition of an Association newsletter *Campsis* was posted out to Members in October and this should ensure good communication between them.

Further information about the Association may be obtained by writing to the Secretary, Lawrence Cohn, at the office of the Melbourne Friends.

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Ferdinand von Mueller Objectified



A project to document the life and work of Australia's most famous scientist, Baron Ferdinand von Mueller, was established in 1988 by an international team of scholars. In the subsequent years, about 10,000 letters either to or from Mueller have been located around the world which considerably expand our understanding of this extraordinary man's achievements.

The project is currently putting together material for a first volume of letters which will cover the period of Mueller's boyhood in Germany up to his appointment as director of the Melbourne Botanic Gardens in 1857. This will be published on CD-ROM.

SARA MAROSKE, who wrote this article, is the project's full-time researcher based at the National Herbarium of Victoria. Her powers of patience and curiosity have been highly developed in response to the great task of research left behind by Baron von Mueller.

The call for information about Baron von Mueller put out by the Mueller project in recent years has not only brought to light many new letters, but also a few artefacts. These are not the usual staples for historians to use in their work, and yet, with a little consideration, they can be quite revealing. In the past year, four such objects have been brought to the attention of the Mueller project; their full significance is yet to be discovered.

Bronze Ornament



Mueller was born in Germany and German was his first language, but for a time as a boy he lived in a town that was part of the Kingdom of Denmark. Consequently, later in life he often referred to Denmark as his 'second fatherland' and maintained an active interest in Danish culture. In Melbourne he joined the Danish club and made friends among its members. One such was Nicolay Fahrenholtz Jensen, who worked as a nurseryman in Malvern. Mueller played cards on occasion with Jensen and regarded him as a good friend. As a testimony of that friendship Mueller gave Jensen a bronze ornament. The base is triangular in shape with a stag on each corner, and there is a removable bowl in the centre. On the lid stands a sculpture of the goddess Diana with her bow drawn. Mrs Val Lockie, a granddaughter of Jensen, brought the ornament to the attention of the Mueller project. It not only alerted us to a Mueller contact we did not know of before, but it also gave us an example of Mueller's taste in ornaments. We are not quite sure what the function of the ornament was meant to be; the removable cup suggests it may have been an inkwell.

Canteen



One of Mueller's crucial needs while exploring the Victorian bush in the 1850s was water. Even in lush country he could not always be sure of having a stream or creek handy when he was thirsty. In June 1993 Mr Don Parncutt of Melbourne contacted the Mueller project with information about a canteen that once belonged to Mueller. The Parncutt family were neighbours of Mueller's when he lived in Arnold Street, South Yarra. Two Parncutt boys worked for Mueller by private arrangement and Mrs Evangeline Parncutt nursed Mueller on his death bed. Apart from financial payment, Mueller at some time also gave one of the Parncutt boys his old canteen, possibly as a memento of their friendship; now it is a treasured possession of that Parncutt's descendant in Perth, Mr D.M. Edwards. The canteen is about 22 cm long and 9 cm in diameter. It is made of wood and looks to be bound around the ends with cane. Compared to canteens currently used by hikers it seems very cumbersome, but its role in the success of Mueller's early explorations of Victoria cannot be overestimated.



Vanity Box

As George Wood walked past an antique shop in South Yarra in about 1940, his eye was caught by a wooden vanity box. He found that the box bore a silver shield inscribed by Mueller to a Miss Edith Roberts, dated 15 July 1881. Extensive efforts by the Mueller project have so far failed to identify Miss Roberts. We do not know who she was or what she meant to Mueller, although given the personal and expensive nature of the vanity box she must have been dear to him. The box is 30.5 cm long, 22.5 cm deep and 15 cm high. It opens to reveal a mirror, several glass bottles with silver lids, and velvet-lined compartments. There is a 'secret' compartment behind the mirror and a 'secret' drawer at the bottom of the box; unfortunately both were empty.



Photograph Albums

Although Mueller remained single all his life, both his sisters Clara and Bertha married in Australia and had children. Clara and Edward Wehl had 15 children, one of whom, Mathilde, married Henry Overheu and settled in Western Australia. Recently Mathilde and Henry's grand-daughter, Mrs Felicity Texton, discovered two photograph albums that probably once belonged to Clara. They were in a shed at the home of her father, Mr Bob Overheu. The albums contain dozens of photographs, but unfortunately not many of them are identified. If historians were law makers, we would all be required to label our photographs! Mueller appears in one of the albums; it is possible to identify some people by comparing them with photographs at the National Herbarium, and to make educated guesses about others. One photograph is possibly of Mueller's sister, Bertha. No photograph of Bertha had previously been known to the Mueller project.

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A Southbank Rainforest

by Heather Ironmonger

Imagine a lush sub-tropical rainforest with trees and palms, ferns and orchids, flourishing on Melbourne's Southbank. This vision has inspired the management of Esso Australia Ltd to include a glass-roofed atrium in the design of the company's new headquarters, expected to be completed by the end of 1995. Esso has engaged the Royal Botanic Gardens as consultants, and Christopher Dance Land Design as landscape architects, to make the vision grow to reality.

Stephen Forbes, the Gardens' Environmental Botanist, has been giving design advice and preparing documentation for Phase 1 of the rainforest project. The development, adjacent to the Sheraton Towers, will also feature external landscaping that extends from the atrium to the river bank. An effort will be made here to recreate the original ambience of the Yarra River environment by the use of indigenous vegetation.

The first stage of the collaborative rainforest program involves such matters as environmental control, species selection, development of short-term and long-term planting programs, and advice on soils, irrigation, drainage and 'hardscape'.

Micropropagation of rare and threatened Victorian epiphytic orchids for the rainforest is already under way. Provenance material of all five of Victoria's epiphytic orchids will be collected from rainforests in East Gippsland:

Dendrobium speciosum ssp. *speciosum* (Rock Orchid)

Dendrobium striolatum (Streaked Rock Orchid)

Plectorrhiza tridentata (Tangle Orchid)

Sarochilus australis (Butterfly Orchid)

Sarochilus falcatus (Orange-blossom Orchid).

These species were seen *in situ* during the Friends' Mallacoota excursion in October. After successful laboratory micropropagation, the material will be maintained in the RBG nursery until transfer to the atrium.

Both cool and warm temperate rainforest species are being sought in Victoria for the conservatory. As far as possible, known wild provenance material will be utilised.

Understorey species will be propagated from seed and

cuttings, but advanced overstorey material will be required to make an immediate impact in the atrium. To this end, discussions are taking place with the Department of Conservation and Natural Resources about the possibility of salvaging appropriate species from logging coupes during forestry operations. Early in November, Stephen visited East Gippsland to investigate sources of rainforest material.

Andrew Straker and Rebecca Knol, who worked at the Gardens under the Priority Victoria scheme, have been involved with Stephen in devising plans and preparing the documentation for the RBG's tender for Stage 2: the collection, acclimatisation and propagation of species. The Gardens also hope to be involved in the ongoing maintenance of the plant collections - Stage 3 of the tender process.

As RBG Director Dr Philip Moors points out, this collaborative project is of joint benefit to Esso and the Gardens. It will provide a distinctive, functional setting for Esso employees, while giving the RBG an opportunity to curate rare and threatened species in a secure environment and to develop expertise in conservatory management. It will also have a role in furthering conservation of these species.

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CRANBOURNE BOTANIC GARDEN



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Make a Date with Cranbourne's Heathland

The Cranbourne Botanic Garden is a particular responsibility for WENDY WILLIAMS, who works in Visitor Services Division.

Open your diary now and set aside a day to visit the Cranbourne Botanic Garden during the 1994 wildflower season. Choose a date between August and November to wander the paths and see the heathland in bloom.

The Cranbourne Botanic Garden aims to conserve, study and display the plants of Australia. The extensive Australian collections planned for the 350-hectare site will complement the largely non-Australian collections in the South Yarra Gardens. Combining areas of natural bush with landscaped plant collections, it is an exciting concept that will allow visitors to contrast the local flora with species collected from similar habitats throughout Australia.

At present, the Bushland Conservation Area is the Garden's main attraction. Its 200 hectares display the flora and fauna indigenous to the Cranbourne area and once common throughout much of coastal Melbourne, including Tea-tree Heathland, Wet Heathland and Sedge Swampland.

A collection of Australian trees is being planted in the Arboretum on pastures bordering Wylies Creek. The

Australian Garden will display Australian heathland, desert and swampland plants. A variety of fairly mature Banksias, Kunzeas, Eucalypts and many other Western Australian species can be seen on the Australian Garden's perimeter. The plantings in the rest of the Australian Garden are still small. Larger numbers of Proteaceae and species from Mallee areas have been planted during the last three years. The Garden has been a hive of activity during the year, thanks to a number of grants and the enthusiasm of the Maud Gibson Trust and Garden's staff. The Lookout at Trig Point, opened in September, is the year's big achievement. Besides looking good, it gives a bird's eye view over the Bushland Conservation Area and spectacular views across Western Port, Port Phillip Bay and the inland ranges.

The Parks and Waterways program of Melbourne Water partially funded the construction of the Trig Point Lookout and fully funded the new interpretative display in the Stringybark Picnic Area, the construction of the main path system in the Australian Garden and a nursery for the Friends of the Cranbourne Botanic Garden. Boardwalks in the Arboretum, Australian Garden and Bushland Conservation Area were funded by Priority Victoria and



Trig Point Lookout. Pink heath (*Epacris impressa*), Victoria's floral emblem (right).



Jobskills Programs. The Shire of Cranbourne assisted in upgrading sandy areas of the walking tracks in the Bushland Conservation Area, making the tracks suitable for infants' pushchairs. The R.E. Ross Trust and the Parks and Waterways program provided funds to seal the entrance road.

The Friends of the Cranbourne Botanic Garden are enthusiastic supporters of the Garden. They hold garden walks, educational activities, working bees and visits to other gardens. A Growing Friends group was established this year to propagate plants growing in the Garden for sale and revegetation.

The Cranbourne Botanic Garden is in Ballarto Road, south of the township of Cranbourne, off the South Gippsland Highway. (Melways: 133 K10)

The Garden is open daily, between 10.00 am and 5.00 pm, giving visitors access to the Bushland Conservation Area, the Arboretum and the Stringybark Picnic Area.

The Australian Garden is open on weekends only, between noon and 3.00 pm to allow visitors to follow its progress. (Note: The Garden is closed on Christmas Day and Good Friday.)

For more information, contact the Ranger on: (059) 963 782

The Friends of the Cranbourne Botanic Garden Inc. can be contacted C/- P.O. Box 434, Cranbourne 3977.



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A woodblock illustrating Spider-worts from a 1629 Herbal, Paradisi in Sole, by John Parkinson.



Night-blowing Cereus, painted on vellum by Georg Dionysius Ehret. A spectacular native of the West Indies, its white and gold vanilla-scented flowers unfold at sunset.

THE HISTORY OF BOT

Mary Gregory is a founding member of the Friends' Botanical Illustrators.

She is involved as a class member, teacher and exhibitor.

This article is based on an address Mary gave to the Botanical Illustrators earlier this year.

I think I should begin with some attempt to define botanical illustration. Obviously, there is a large body of flower painting which cannot be seen or interpreted as botanical illustration, e.g. Van Gogh's *Irises*. I see it as the drawing or painting of plants which is both botanically detailed and accurate, and aesthetically pleasing – a balance of the artistic and the scientific.

There is a long tradition of the accurate representation of plants. Botany became a recognised science in the 4th century BC, mainly in Greece, Rome and

Egypt, when the focus of study was on the medicinal properties of plants. This focus continued until the Renaissance, though in China the painting of flowers for themselves alone began as early as the 7th century AD. Very early illustrations have been found on coins and in mosaics and frescos. Herbals were produced from the 1st century AD. These consisted of drawings of plants, usually with their roots, and often with a text describing them to help in the collection of correct plants for medicinal purposes. These plants were often grown in monastery gardens. Early herbals were hand-drawn and coloured; later ones used woodcuts but frequent reproduction resulted in these often becoming somewhat stylised.

Accurate depiction of nature

In the 15th century there was increased interest in the study and accurate

depiction of the natural world. Leonardo da Vinci did some beautiful drawings of, as he said, 'flowers drawn from life', for their beauty and as living organisms. He also drew the human body faithfully from nature though not always from life – his dissections of the deceased! He produced paintings and drawings that were both accurate in their details – of vegetation, rocks, the human form, etc. – and great works of art.

Albrecht Dürer was another artist who combined close observation and accurate depiction. Perhaps his most famous botanical study is the much published *The Large Piece of Turf*.

Dürer advised artists to 'study nature diligently. Be guided by nature and do not depart from it, thinking that you can do better yourself. You will be misguided, for truly art is hidden in nature and he who can draw it out possesses it.' Good advice to us all!

New world, new plants

The late 15th and early 16th centuries – the time of Leonardo da Vinci and Dürer – also saw the discovery of the new world of America and of the sea route to Asia around Africa, i.e. the beginning of European expansion. Many plants new to Europe began to be introduced from these countries. Clusius, a Frenchman born in 1526 who became Professor of Botany at Leiden, not only collected and named many new plants but also collected illustrations of them.

Woodcuts of plants at this time were often so accurate that they can be seen as the beginning of our present knowledge of genera or plant groupings.

The great Dutch paintings of the 17th century included the well-known collections of flowers in vases, and many of these flower portraits were gathered together in books called *florilegia*, concerned to show the plants' decorative rather than medicinal properties. These were now published as engravings or etchings rather than woodcuts. The exotic, rare, introduced plants in the gardens of the wealthy were often the subjects of these paintings, gardening having

be classified according to genus and species, e.g. the scientific name of the dog rose would be *Rosa canina*.

The 18th and early 19th century was the golden age of plant illustration. One of the most important botanical artists was Georg Ehret, born in 1708 in Germany. He began work as a gardener but turned to painting, encouraged by patrons. He travelled to London and also visited Linnaeus, showing great interest in his system of classification and broadening his own work to include plant parts and dissections. He is thought to have painted more than 3,000 plants; he often engraved his own plates and hand coloured them – a man of many skills. He remained in London, much honoured and the only foreigner to be made a Fellow of the Royal Society, a fine example of artist and scientist combined.

Voyages to Australia

During the 18th and 19th centuries, many artists joined scientists in voyages of botanical exploration. One of these, Sydney Parkinson, went as a botanical draughtsman on James Cook's voyage with Joseph Banks in 1768, and produced drawings of plants

a 3-volume set published by the British Museum in 1900-1905¹, were published again as *Captain Cook's Florilegium* in 1973² when the Royal College of Art printed a volume of illustrations from the original copper plates. Banks' *Florilegium*³ was subsequently published in the 1980s.

Another indefatigable painter and particularly fine artist was Ferdinand Bauer, an Austrian who travelled to Australia in 1801 with Matthew Flinders in *Investigator*. He and a botanist, Robert Brown, remained in Australia for four years, where Bauer made more than 1,500 detailed drawings of plants and some animals. Some of his work was published, with Bauer doing the engravings himself, but over 200 paintings remained in the National History Museum in London, unpublished, until the mid 1970s. Then 25 paintings⁴ were reproduced, using modern colour-printing techniques which showed them to be some of the finest botanical illustrations ever made. In 1989 some of Bauer's Australian work was reproduced in a book⁵ with text by Marlene Norst. Ferdinand Bauer had a brother, Franz, also a superb artist but not a traveller. He settled in

ANICAL ILLUSTRATION

become a popular interest. In France there was already a strong tradition of royal patronage of both gardening and flower painting.

The collection of plants through exploration continued – in England notably by the Tradescants, father and son, who travelled to many parts of the world in the 17th century. They started a nursery in Lambeth, now represented there by a garden planted wholly with plants introduced at that time. The development of the Royal Society in England in the later 17th century both reflected and encouraged interest in the close and precise study of the natural world. Both there and elsewhere in Europe, botany developed further and painters, like the scientists, became interested in the hidden anatomical parts of flowers. The Swedish botanist Carl von Linné, known as Linnaeus, born in 1707, developed a binomial system of the naming of plants and now the new plants being discovered could

indigenous to Australia, as well as some of animals. During the voyage of several years, which also encompassed South America, Tahiti, New Zealand and Java, Parkinson drew indefatigably; in addition to plants, he depicted people, landscapes, canoes, fish and many other things new to him. In spite of highly uncomfortable conditions on land and cramped quarters on board ship, he made 955 drawings, 675 sketches, and 280 finished plant drawings, in colour and with botanical notes. Sadly, he died at the age of 26 of malaria and dysentery, caught in Java. Banks aimed to publish the drawings. He had artists complete some of the unfinished work, and had copper plates engraved from them, but he seemed to lose interest and costs increased, so they were not published then. In fact, Banks' copper plates were lost for many years. However, the Australian drawings were published in 1900, and 29 of them, which had been included in

England and became the first official artist at Kew Gardens, appointed by Banks.

Artist by appointment

Pierre Redouté, born in Belgium in 1759, is possibly the best known botanical illustrator, perhaps because he had royal patronage and a very good team of engravers and printers who produced excellent illustrated books. He went to France and became a draughtsman to Marie Antoinette. Later the Empress Josephine employed him to paint the often rare plants in her garden at Malmaison. He illustrated many books – particularly well known are his paintings of roses and lilies – and he used the newly-invented stipple engraving which produced a delicate gradation of tone, rather than hatched lines.

The late 18th century saw the production of many illustrated *florilegia*. In England William Curtis, a plantsman,

started to publish the *Botanical Magazine* in 1787 to illustrate and describe foreign plants, a work as Curtis said, "where botany and gardening and the labour of Linnaeus might happily be combined". It became closely allied to The Royal Botanic Gardens, Kew when its Editor, William Hooker, became Director at Kew in 1841. Walter Hood Fitch, who had already published work in Curtis's magazine, accompanied Hooker in the move from Glasgow to Kew, and worked there as the sole artist for 30 years. In the mid 1950s the magazine was renamed *Curtis's Botanical Magazine*. In 1984 it was renamed the *Kew Magazine* with the intention of paying special attention to plant ecology and conservation. Many fine artists have been associated with Kew Gardens and its magazine, which for more than two centuries has followed the tradition of using original coloured paintings as illustrations. Many of the artists have been women. Augusta Withers contributed to the *Botanical Magazine* and also taught painting. Perhaps the most outstanding in the 18th century was botanical illustrator Margaret Meen. She came to London in the 1770s to teach flower

and insect painting, exhibited at the Royal Academy and published some work on the exotic plants of Kew Gardens. Painting, of course, was thought of as a suitable accomplishment for young ladies, but little is known about these two women.

Intrepid travellers

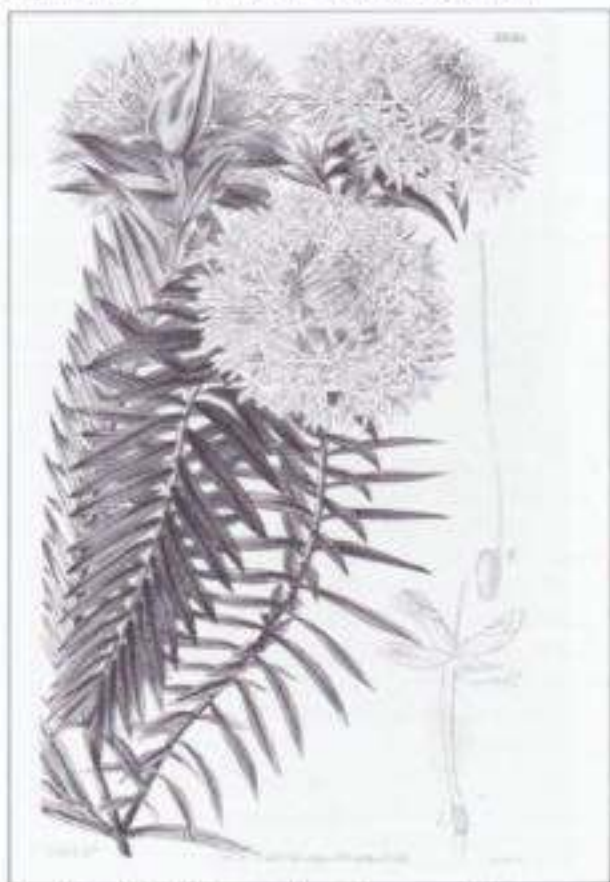
A great deal more is known about Marianne North, who was born in England in 1830 and studied painting in her twenties. It was not until her forties, as a woman of independent means and then freed of domestic responsibilities, that she began travelling to South America, Asia, Australia and Africa, painting indigenous plants as she went. She often worked under extremely difficult conditions but was always curious and enthusiastic. The results of 14 years' work can be seen in the Kew Gardens Gallery she endowed. Paintings, hung country by country, literally cover the walls; Marianne North even painted the doorways! One writer says of this packed gallery that "the power of her paintings springs more from open mindedness and unquenchable sense of wonder than from any great painterly

skills". It is a fascinating collection, hung by the artist herself.

A similarly enthusiastic and intrepid traveller was the Australian, Ellis Rowan, daughter of a wealthy Victorian pastoralist. In her early twenties she won medals for her paintings of native flora at Melbourne international exhibitions. She met Marianne North in Australia and became her "devoted admirer". Like her idol, she travelled widely, painting many plants, animals and birds and also wrote lucid accounts of her travels. She forsook her role of wife, mother and society hostess to travel in India, Europe and especially Queensland, which she visited many times. In New Guinea she concentrated on bird and butterfly paintings. Ellis Rowan always dressed as a lady of fashion, and we can picture with admiration her tiny figure in long skirts crossing crocodile-infested rivers, climbing down cliffs, putting up with much hardship in isolated areas in order to find the plant she was determined to paint. She did not aim to be a strictly botanical illustrator, rejecting the scientific demands of that work; she sought to make artistic compositions. I think she succeeded very well.



A 1788 copper-plate engraving of *Eucalyptus obliqua* (Messmate Stringybark) by Pierre-Joseph Redouté. Not a typical subject for this artist, it was the type description of the genus *Eucalyptus*.



Walter Hood Fitch's handcoloured copper-plate engraving of *Pinelca spectabilis*, published in *Curtis's Botanical Magazine* in 1842.

Mueller's heritage

The year of Ellis Rowan's birth, 1848, was also marked by the arrival in Australia of Ferdinand Mueller, a German botanist who was vital to the development of botany in this country, and whom, in later years, Ellis Rowan was to consult about her work. He was made first Government Botanist in Victoria in 1853, an appointment which gave him scope for many trips of botanical exploration throughout Australia. He collected thousands of plants, also encouraging others, including the Tasmanian botanical artist, Louisa Anne Meredith, to collect for him. He built up the National Herbarium in Melbourne to have an international reputation, and himself published over 1,000 books and papers, sometimes illustrating the plants with woodcuts. The Herbarium's 1989 exhibition, *Our Botanical Heritage*, demonstrated so well the integration of exploration, botanical study and the illustration of plants.

Dedicated conservationist

A remarkable English botanical artist and traveller was Margaret Mee, who died in 1988 at the age of 79. In her forties she moved to Brazil with her husband and, already trained as an artist, began painting many plants in various regions. But her great love was the Amazon and its forests. Until her late seventies she travelled in the area, seemingly undaunted by danger and hardship, doing paintings of many plants in their natural habitats that will probably be the only record of their past existence. She became well known for her opposition to the destructive exploitation of the forests and her name has been given to some new species she discovered. The Margaret Mee Amazonian Trust has been set up to preserve and disseminate her work and to foster Amazonian plant study. There is a fascinating account of a journey up the Amazon when she was 78 to paint the moonflower, *Sisyrinchium wilii*, which opens for just one night a year. Eventually it opened quickly and by the light of the moon and a battery light she captured her painting. But she was concerned that the pollinator, perhaps a moth or a bat, might have been deterred by her presence and that she, too, in a small way, had upset the balance of nature already so seriously affected by the burning and logging around her.

Margaret Stones, born in Melbourne in 1921, is one of the foremost living botanical illustrators. She studied art at our National Gallery, trained as a nurse during the war, and while ill in bed with TB started drawing plants. When well, she determined to paint; she accompanied botanists on botanical expeditions and in 1951 moved to London where she has lived since, very near to Kew Gardens. She has painted many of the illustrations for the *Kew Magazine* since that time and also did 250 watercolour drawings for the publication, *The Endemic Flora of Tasmania*. She has also painted 200 specimens of the native flora of Louisiana in USA. There, in England and in Australia, she has been awarded many high honours. She feels fortunate that when she started painting there were fewer botanical artists and feels sorry for young ones who face much competition in getting work these days.

FROM TRANSLATIONS OF THE PROCEEDINGS OF THE ROYAL SOCIETY OF VICTORIA, VOL. 1, 1855.



Ludwig Becker's 1859 lithograph of the newly discovered Australian plant *Macadamia*, which Mueller named after John Macadam, Secretary of the Royal Society of Victoria.

Famed for Banksias

Modern botanical illustrators need not always travel as much or be as adventurous as their predecessors, since plants can now be sent by plane and arrive in good order. However, someone like Melbourne's Celia Rosser, who is recording all the Banksias of Australia, studies the plants in their natural habitats before bringing

representative specimens home to paint. I know she has endured much discomfort and had many adventures on journeys with botanists, often to wild areas in Australia. This year her magnificent paintings have been shown at the gallery in Kew Gardens and later in Edinburgh and in Lincolnshire, where Banks spent his formative years. I feel sure that these exhibitions will enhance her international reputation.

Melbourne artists

Other outstanding local artists are Jenny Phillips and Anita Barley, whose work you will have admired in our 1992 exhibition. Anita was this Herbarium's botanical illustrator until her recent retirement and she, amongst others, has contributed botanical illustrations to the publications, the *Flora of Australia*, and the *Flora of Victoria*. Our original group of botanical illustrators was taught by Anita. We continued painting together, linking ourselves with the Friends of the Royal Botanic Gardens, and presenting last year's exhibition – that's a touch of our history.

On the future of botanical illustration, it has been thought by some that the photography of plants might supersede illustration in paint but this does not seem to be happening, witness the growing interest by would-be botanical illustrators, the books being published, paintings being hung on walls and so on. The illustrator notes the essential elements of the plant and can choose a specimen which is representative of the species. Its particular characteristics can be depicted very clearly, with a totality and depth that the camera seems less able to achieve. And we can be sure that the individual interpretation of each illustrator adds the artistic to the scientific, keeping alive the great tradition of botanical illustration.

1. *Illustrations of Australian plants collected in 1770 during Captain Cook's voyage around the world in H.M.S. Endeavour*, 3 vols. British Museum (Natural History), London, 1900-1905.

2. *Captain Cook's florilegium: a selection of engravings from the drawings of plants collected by Joseph Banks and Daniel Solander*. Lion and Unicorn Press, London 1973.

3. *Banks' florilegium*. Aleo Historical Editions, London, 1980-1986.

4. *The Australian flower paintings of Ferdinand Bauer*. Basilisk Press, London, 1974.

5. *Ferdinand Bauer: the Australian natural history drawings*. Lothian, Melbourne, 1989.

Oral History

by Heather Ironmonger

Recollections of people associated with the Botanic Gardens in earlier times are to be captured on tape for the 1996 celebrations.

The Oral History project will cover three topics: life in the Gardens for those who worked and lived there; changes in work practices and technology, such as the employment of women and the introduction of mechanical equipment; and dramatic incidents. A valuable link has been formed with the Department of History at Monash University, whereby MA students from the Public History course will, as assessment projects, record interviews in 1994 with former staff and family members.

Eve Almond, Interpretations Officer at the Gardens, has a growing file of contacts, many arising out of Janet Walsh's work on researching families who lived in H Gate Lodge (now the Plant Craft Cottage). A recent excitement was a visit by Mrs Dorothy Jessep, who at the age of 99 inspected Gardens House where she lived as the

Director's wife between 1941 and 1957. She described the dining room with its splendid antique table and chairs, green carpet, velvet curtains and chintz furnishings. Mrs Jessep gave information to help the building's restoration. Eve plans to record conversations with Mrs Jessep and with Katie Sandford whose late husband worked at the Gardens as a carpenter in the 1920s. "At one stage there were five residences as well as Gardens House, and it was very much along the English lines of a squire in the grand house and the workers in small cottages. But it was a close community; while the director would be invited to dine at Government House, there was also much socialising and inter-marriage between the domestic servants at Government House and the gardeners", Eve said.

As to unusual events, Eve believes this to be an aspect of Gardens life that is little known or acknowledged. For instance, in 1923 the Eastern Lawn was the scene of indiscriminate gunfire which killed three picnickers and seriously injured two others. During the 1930s unemployed people on

'susso' had to clean out the Ornamental Lake. Between 1942 and 1945, the whole of the library and museum space was requisitioned by Defence authorities. Staff were given the weekend to move about 12,000 books and the museum exhibits, the former being stacked between specimen cupboards and the latter stored in a Nursery shed. Merton Hall students used to take part in air raid drill at the shelters dug in the Gardens. Details of these and many more incidents will come to light through the Oral History project.

The cut-off point has been set at the 1960s. A database will be established, and ultimately tapes and indexed transcripts will be available. The information will form the basis of an audio-visual presentation at an historic exhibition in 1996.

Eve Almond is appealing for anyone with stories about the Gardens to contact her on tel. (03) 655 2322. She would also appreciate offers of photographs for copying, and items of memorabilia. Already the pruning shears presented to Guilfoyle upon his retirement have come to light.

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TEMPLE OF THE WINDS*

(Words by John Sands. Tune, 'Mandalay', by permission Mr. Hermann Darewski, London.)



"By the last reach of the river, there's a temple 'mid the trees,
And its rounded roof of stone is all the eager concourse sees;
But the inner eye a figure in that habitation finds,
'Tis the spirit of Australia, in the Temple of the Winds.
Green the branches that sway softly, whisp'ring o'er the rain-washed ground,
Palm and wattle, fern and flower weave their witcheries around;
And the spirit of Australia, posted in that antique fane,
Calls the Winds, and gives a message, and they waft it clear and plain.

"You, my people, gathered yonder, clustering thickly rank on rank,
'Neath the lines of plane and elm that stand at guard on either bank,
Nothing see but boyish figures straining at the flashing oars,
Nothing hear but human voices where the mighty concourse roars.
But I pierce the veils of seeming, as the racing boats go by,
And I see bright Oarsmen gleaming: eight a-row their blades they ply:
Youth and Joy, and Price and Honour, Faith and Courage, Power and Grace.
Hope is Steersman - and, behold, a smile is on the Steersman's face.

"Then I see my Oarsmen straining nerve and sinew, heart and brain,
And when Courage sets the stroke I know that glory they shall gain.
Matters nothing which crew crosses first the line and wins the praise,
'Tis the soul, and not the body, that shall wear the Victor's bays.
For immortal and invincible the Nation's soul in truth
Shall receive its fair embodiment within the Nation's youth;
And in every gallant heart-beat yonder I can truly share -
For the Spirit of Australia lives in every oarsman there."

Did any readers of *Botanic Magazine* ever sing this song while rowing on the Yarra? Believed to have been written in the early 1900s, it is from the Wesley College Song Book. As one cannot imagine modern youth enunciating its effusive sentiments, it is not surprising that the song has been omitted from the latest edition.

The Temple of the Winds is once again visible from the river, after some landscaping changes. It has also been floodlit, with assistance from Pacific Dunlop, ensuring even greater prominence. Funding by Melbourne Parks and Waterways has allowed the Temple to be restored and repainted, including an intense sky blue for the inside of its dome.

The Temple was designed by William Guilfoyle to the memory of Governor La Trobe, who founded the Gardens. The use of Staghorn Fern rather than the classic Acanthus leaves decorating the Corinthian capitals is an unusual antipodean feature.

*Reproduced with permission, from *Wesley College Songs*, 10th edition 1959.

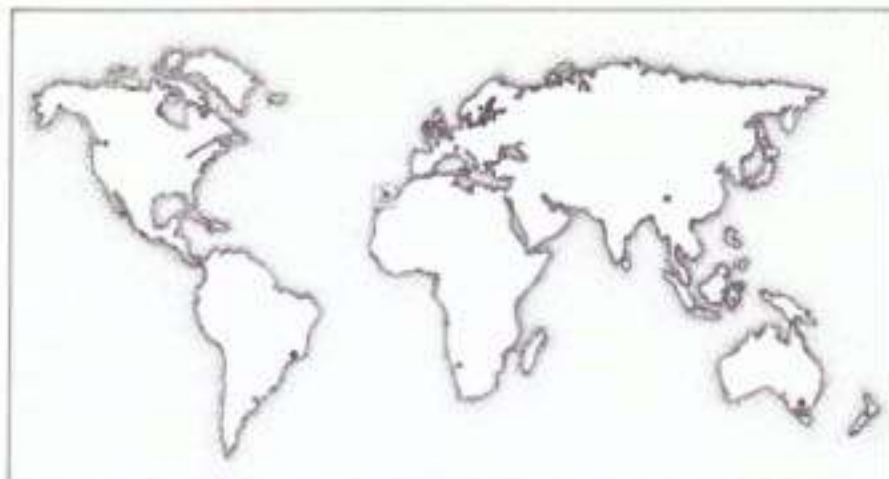
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not forsaken freshwater red algae, describing in 1989 a distinctive new genus so far known only from south-west Tasmania and the Barron Grounds Bird Reserve in New South Wales. I had also collected further afield and maybe even grown a little wiser.

In my wiser, more receptive, state I was troubled by information from two sources. Firstly, I was now based in a world-class herbarium with easy access to plant material from around the world (through a loans system), and I quickly accumulated material from herbaria in Australia, New Zealand and, where

BOTANISTS ABROAD

FRANCE

Algae only hit the headlines when they poison reservoirs or shellfish beds, but they are as much a part of our natural flora as the eucalypt or wattle. They grow just about anywhere, from the snowfields to the desert and from mountain springs to the ocean. Seaweeds, whether leathery kelps or dainty red tufts, are algae. So too are pond scums and some lichen-like growths on tree trunks.

In addition to the notorious blue-green algae, there are red algae, green algae and brown algae (plus a few groups of mainly microscopic forms). Although some are weeds, Australia has a rich and diverse native algal flora, much of it as yet undiscovered.

possible, Europe. I was surprised at the variety and extent of collections available, particularly from Queensland and New Zealand. I was soon able (with the assistance of the Maud Gibson Trust) to extend my own collecting into New South Wales, and on various herbarium field trips to collect more thoroughly in Victoria.

Secondly, I uncovered a rich lode of notes and letters between the Latvian/Swedish phycologist Heinrichs Skuja and correspondents in New Zealand and Australia. Between 1930 and 1970 Skuja examined much of the material collected from these two countries and recognised 17 new species of the genus *Batrachospermum*. The names he adopted in his letters and on herbarium specimens were in most cases never formally published. My first publication in the Herbarium journal *Muelleria* legitimised one of his species names.

I had now to decide whether my Eurocentric views of 1984 were correct or whether Skuja had displayed far greater insight into the Australian and New Zealand flora. So I embarked upon a complete study of the genus in the two countries, taking into account all available herbarium material and hoping to collect from unrepresented areas of Australia. It was also necessary for me to reassess the identity and circumscription of the European species described by Sirodot in 1884.

The elaborate illustrations of Sirodot, although beautifully executed, are somewhat stylised and often lack essential features. The essence of his species can only be discovered by

Les Algues Rouges d'Eau Douce

by Tim Entwisle

Tim Entwisle, a botanist at the National Herbarium since 1990, is co-editor of Volumes 2, 3 and 4 of the Flora of Victoria.

In 1884 Simon Sirodot, a school teacher and later professor from Rennes in north-west France, published an exquisitely illustrated and scholarly book entitled *Les Batrachospermum organization, fonctions, développement, classification*. In over 200 pages and with 50 plates, Sirodot was able to paint a detailed portrait of the genus *Batrachospermum*, tufty red algae mostly of pristine rivers and rivulets. Apart from a few collections from the tropical French colonies of Guiana and Réunion, the canvas was Europe - with France as its focus - and the palette, over 90 years of study.

A century later, I co-authored with Dr Gerry Kraft (my Honours supervisor at The University of Melbourne) a more

circumspect publication entitled *Survey of freshwater red algae of south-eastern Australia*. The five species of *Batrachospermum* discovered during my Honours year were conferred with names taken from Sirodot's mighty monograph (sometimes with updated nomenclature). Following in the sturdy footsteps of nineteenth century phycologists (i.e. botanists with a leaning towards algae), we had managed to squeeze the freshwater red algae of the antipodes into well-established European species. Between 1983 and 1989 I strayed into other algal studies: the discovery and classification of species in the moss-like, and almost ubiquitous, alga called *Vaucheria* for my PhD, and the ecology of filamentous algae in the Yarra River catchment (for post-doctoral study). Upon my return to the Royal Botanic Gardens, Melbourne in 1990 (I had worked here in 1982 as a horticultural assistant), it was time to revisit *Batrachospermum*. In the interim, I had

examining his 'type' material. Every name has a type, and this type must be used to settle any taxonomic disputes. All other specimens included in the species are incidental and depend on the whim of a botanist (including Sirodot in this case!). If, for example, I can recognise 10 different species of *Batrachospermum* amongst the European collections, I must search through all specimens referable to my 10 species for any types. In general (and depending on a code of rules), the type bearing the earliest published name determines the name of the species in which it is included. If there are no previous types (and therefore no existing names), I must choose a new type and devise a new name.

So I had to examine a wide range of European collections before I could decide whether my Australian and New Zealand algae were distinct, and then what to call them. As an added bonus, I could study European material identified by Skuja to assess his concept of what constituted a good species in *Batrachospermum*. The types of Simon Sirodot were reported to be either in Roscoff (in Brittany, about 150km from Rennes), at the Muséum National d'Histoire Naturelle in Paris, or perhaps at the university in Rennes. I was unable to trace them in a series of letters to France, but it seemed likely that many were in Paris. Most of the relevant collections in the Paris Muséum were unavailable for loan and their total holdings of *Batrachospermum* unknown, so I decided to seek support for a trip to Europe. In addition to my *Batrachospermum* work, I needed to look at other algae in relation to my more general studies on the freshwater algae of Australia.

Thanks to the generous support of the Maud Gibson Trust, Sydney-Illawarra-Blue Mountains Water Board and Melbourne Water, I was able to travel to France in September and October of 1992. Unlike my wife Lynda, I speak (and write) very poor French, and I was glad that my family accompanied me on the trip. In essence, I spent a week in London at the Natural History Museum, over two weeks in Paris at the Muséum National d'Histoire Naturelle and a week at the Station Biologique in Roscoff. Blended with and between these visits I collected freshwater algae from what are left of Europe's 'clean-water' streams.

An 1884 plate from Sirodot's *Les Batrachospermes*.

Bottles of preserved algae sent by Alfred Hardy from Melbourne to London early this century.



The Natural History Museum (London)

Here I examined the entire collection of the freshwater red algae - consisting mainly of the genus *Batrachospermum* - taking notes about historically and taxonomically important species and photographing specimens of interest to my Australian work. I put aside specimens to be sent on loan to Melbourne. Of particular interest were collections determined by Heinrichs Skuja. I spent



Tim Entwistle (left) with Professor Bourelly in Paris.



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some time searching for and examining an important type specimen in the Sloane Herbarium (a large collection, difficult of access, and bound together in a huge series of books).

Although I spent most of my time with the red algae, I managed to browse through the collections of freshwater green algae for records of relevance to Australia. Only a few were of interest, but I did find a batch of wet-preserved algal samples sent early this century from Melbourne to London. The collector, local naturalist Alfred Hardy, became a highly valued source of freshwater algal material for the distinguished English phycologist G.S. West. The bottles include some well-known samples of algae from the Yan Yean Reservoir collected in 1904.

An important aspect of travel (and conferences) is the chance to meet colleagues. I had productive discussions with Dr John Bolton from South Africa about work in that country on freshwater algae, and with Dr David John of the Natural History Museum on his research on algae extracted from lichens and on the culturing of freshwater algae. Mrs Jenny Moore, who assisted me with my herbarium work, also provided information on the taxonomy of charophytes (a group of algae which turn up repeatedly in material sent to the herbarium for identification).

I also had a guided tour of a few sites near London to collect freshwater algae. I preserved material for the National Herbarium of Victoria as well as for DNA and carbohydrate analysis at The University of Melbourne. These samples will be compared with material from Australia which have already been analysed. Dr Kraft's research team is finding that molecular and genetic characters provide an important tool in the classification of red algae.

Muséum National d'Histoire Naturelle (Paris)

The collections held in the Laboratoire de Cryptogamie are rich in taxonomically and historically important algal specimens. The freshwater red algae are unparalleled; they include most of the important type specimens and many representative collections by the leading workers in this field. Due to poor curation in the last century and an obscure system of storing specimens

(at least four separate herbaria may include duplicates of the same specimens) extracting material is difficult and time-consuming. Without visiting the herbarium, I would have been unaware of the existence of much of the material I examined; for this reason alone, the trip was indispensable for my research. I examined all material of *Batrachospermum* held in the herbarium and took copious notes. In something like 200 pages of information, I now have a priceless store of data. I was allowed to make microscope slide preparations from any specimens and I managed to do this for all types. This slide collection will be kept at the National Herbarium of Victoria until I finish my studies on this group, and will then be returned to Paris.

The most important collections were those of the French naturalist and explorer J.B.G.M. Bory de St-Vincent, in the early 1800s, and of Simon Sirodot in the 1870s. The extent of the Bory collections was a surprise to me. Collected in the early years of Napoleon's empire (a typical label bears a red 'N' followed by 'environs des Fougères en Bretagne, an VII'), the names (published in 1808) predate many of Sirodot's. Bory's types are thus extremely important in the naming of European species. With the advantage of other European collections, I can now decide whether we have endemics or cosmopolitan species in Australia and New Zealand.

Aside from *Batrachospermum*, I looked through all material of freshwater macroalgae (i.e. those algae macroscopically visible in the field) and took notes about types and other important specimens. This information will be invaluable when I come to work on such groups and need to locate herbarium material. These genera include both native and weed species, and some of the information will help towards the writing of a guide to the freshwater macroalgae of Australia.

I also had useful discussions with colleagues. I met Dr Pat Kociolek from the USA and talked briefly about diatom taxonomy, and Dr Bruno de Reviers from Paris who specialises in

the taxonomy of brown algae. With Dr Alain Couté, I discussed the freshwater algae of France and Australia and we hope to collaborate on some future work. Dr Couté is particularly interested in desmids (a group of very pretty, unicellular green algae) and I am currently co-supervising an Honours student at La Trobe University on *Alicasterias*, a particularly ornate member of this group. Dr Couté gave me many of his reprints on desmids and advised me on suitable collecting localities in France. Of great personal satisfaction was the chance to work alongside Professor P. Bourrelly, doyen of freshwater phycologists throughout the world, who is in his eighties but still attends each day the Laboratoire de Cryptogamie.

Station Biologique (Roscoff)

It was now clear that all the Sirodot types were held in Paris, and I used the historical and thriving marine station at Roscoff as a base for my collecting in Brittany. I visited sites suggested by Dr Couté as well as type localities of Sirodot species, collecting a range of freshwater macroalgae and examining them microscopically at the marine station (it is important to examine living material of some algae to observe the key taxonomic features). As expected, many of the localities visited by Sirodot in the 1870s are very much altered. Agriculture in particular is now far more intensive – cabbages as far as the eye can see! I also examined a small herbarium collection of freshwater algae at the marine station, but it included no important specimens. As a result of my success in Paris, I no longer needed to visit the city of Rennes, but rather spent a few days collecting around the Rennes area in the mostly-crased footsteps of Sirodot.

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Dr M. Guerlesquin, an expert on charophytes, is based at Angers. I spent a day with her, taking subsamples of the few samples of freshwater red algae held at the University and discussing various aspects of algal taxonomy. Undoubtedly, we will correspond about charophytes in the near future. I collected a few more samples of algae from streams between Roscoff and Angers and more after leaving Angers.

Melbourne

I brought home a box of 86 microscope slides, 8 rolls of film and 27 jars of 'pickled' algae, with 3 packages of notes from Paris arriving soon after. Examining and interpreting the material will take some time and my final verdict on the degree of *Batrachospermum*

endemism in our southern lands will have to wait a few years. From my superficial examination of the slides and collections, it appears that many Australian and New Zealand species of *Batrachospermum* are endemics, with important ramifications in terms of the conservation of non-vascular plants in these two countries.

With their predisposition to pristine waters (e.g. south-west Tasmanian lakes and streams, and the streams of the eastern highlands and Grampians), *Batrachospermum* species occupy an important but dwindling habitat in Australia. As with the plant communities of rainforests or native grasslands, we need a thorough stocktake of our aquatic resources, with additional research into their relationships, distribution and requirements. A world-wide perspective is an essential part of such studies.

crossing the Arctic Circle, driving through mile after mile (it sounds better than kilometres) of low spruce forest carpeted with thick layers of spongy moss and lichens, before arriving at Inuvik. Even by 2 am, the sun had failed to fall convincingly below the horizon, a fact made the most of by local road builders who worked steadily through the entire night.

From Inuvik we flew to the northern oil centre of Tukoyaktuk (or "Tuk"), flying low over myriad small waterways and lakes and the typical polygonised tundra landscape caused by the thermal expansion and contractions of frozen ground during the summer and winter.



Just prior to landing we also spotted volcano-like structures protruding from the otherwise near-flat land. These were not volcanoes but pingos – conical hills formed in areas with permafrost and usually rising to no

ENGLAND

An Official Botanist, a Botanic Traveller

by Philip Short *Botanist,
National Herbarium of Victoria*

On 7 July 1991, ignoring a warning from an Herbarium colleague about English girls, I departed from Melbourne, travelling via Hawaii, Canada and Alaska to Kew in England to take up the position of Australian Botanical Liaison Officer (ABLO) for 1991-92. I returned to Australia in November 1992. Much of the intervening period is the subject of this, not strictly botanical, note.

Yukon and Alaska

My sojourn in Canada and Alaska was the result of a long-felt desire to view the Arctic tundra, available accumulated annual leave and, because it was an excursion fare, a hefty discount on the price of a one-way ticket to Britain.

The day after my arrival in Vancouver I visited Butchart Gardens on Vancouver Island, which, although containing few plants of botanical interest, are beautifully landscaped and well worth a visit. Soon after, I boarded a cramped tour bus and headed north on a 30-day camping/cruising trip.

On the way to Whitehorse we stopped to canoe on the Dease River, paddling, drifting, then paddling again in an attempt to see more of the beavers which seemed to be playing hide-and-seek with us. From Whitehorse we motored up the Dempster Highway,

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Landing at Tuk we sloshed through the mud of the main street, passed houses with caribou antlers bleaching on the roofs, and the cemetery with its shallow graves festooned with plastic flowers. On to Denali National Park, we missed seeing Mt McKinley, as usual enshrouded in cloud, but saw moose, caribou, brown bears, beavers and other wildlife.

Next we travelled via Anchorage to Valdez and took a boat trip, well clear of the oil spill areas, to Columbia Tidal Glacier in Prince William Sound. We drifted amongst the blue bergs that had fallen from the head of the glacier. Within the Sound we spotted Steller sea lions, Dall porpoises and sea otters and observed majestic bald-eagles as our boat motored past wooded islands. From Valdez we travelled to Kluane National Park, observing Arctic squirrels and Dall sheep and taking a one-hour flight in a four-seater airplane over the majestic glaciers.

I have some fond memories of Canada and Alaska although I am hesitant to recommend my method of touring. Apart from the cramped bus, my companions were a varied crowd and few seemed to share any desire to look at plants. I was too late to see many plants at peak flowering, although one of my more vivid memories is of pink drifts of common fireweed (*Epitobium angustifolium*) filling the landscape, stretching away and seemingly merging with distant snow-capped mountains. *Dryas drummondii*, a low, yellow-flowered rosaceous shrub, had almost finished flowering although the fluffy seed heads were a prominent feature in the gravelly areas adjoining glacial streams. Other plants still in bloom included blue-flowered monkshoods and harebells (*Aconitum delphinifolium*

subsp. *delphinifolium*, *Campanula latiocarpa* and *C. rotundifolia*), columbines (*Aquilegia formosa*), dwarf dogwood (*Cornus canadensis*, a near prostrate shrub in which each cluster of flowers is surrounded by four, large, white bracts) and yellow monkey-flower (*Stimulus guttatus*).

I also saw assorted species of the wintergreen family, or Pyrolaceae, a family about which I have to admit total ignorance until this trip. Along the Dempster Highway I began to think that the Polygonaceae and Chenopodiaceae contain some attractive plants. The road was often lined with wild rhubarb (*Polygonum alaskanum*) and occasionally strawberry blight (*Chenopodium capitatum*), a decumbent annual species with edible, strawberry-like fruit. Of all the plants I saw, I was perhaps most taken with the twin-flower, *Linnaea borealis*, a trailing shrub of the honeysuckle family (Caprifoliaceae) which usually bears two pinkish bell-shaped flowers on each flowering stem.

Kew and ABLO duties

In mid-August I arrived at the Herbarium of the Royal Botanic Gardens, Kew and was greeted by Dr Greg Leach of the Darwin Herbarium, whom I was to succeed as ABLO. We visited the Linnean Society and the Natural History Museum, both being institutions that hold major botanical works and specimens of importance to plant taxonomists.

It is tempting as I write to proceed directly to describe some work trips and three one-week breaks I had in Orkney, the French Alps and northern England respectively. However, I want to give some information about the role of the ABLO position; the fact that it is funded by the federal government can

be seen as an endorsement of its value. Normally held for 12 months, the ABLO position was first filled by the West Australian botanist, C. A. Gardner between 1937 and 1939. He was followed by Queensland botanist C. T. White. The position was vacant between 1940 and 1948, but since 1949 there has been an almost uninterrupted flow of Australian botanists to Kew; I was the 35th. Past appointees from the National Herbarium of Victoria include Dr Jim Willis (1958-59), Helen Aston (1973-74) and Dr Rex Filson (1982-83). ABLO duties are varied but the appointee's major role is "to service botanical enquiries from Australian and New Zealand sources, in particular from botanists working in State and Commonwealth herbaria, by utilising the facilities at the Herbarium, Royal Botanic Gardens, Kew; the Natural History Museum, London; and, when necessary, other European herbaria". He or she also assists European botanists with botanical enquiries relating to Australia, but otherwise has time to pursue personal research interests.

I spent perhaps 50 per cent of my time answering enquiries and received 153 written requests for assistance. Over 40 of these requests were to examine, note details or photograph type specimens of plants housed at Kew, the Natural History Museum, or the Linnean Society. (To ensure that we know how to apply a name it is usually imperative that botanists view the original, i.e. type, specimen(s) used when a species was formally named and described for the first time.) I also received nearly 50 requests from botanists or librarians seeking photocopies of original descriptions in old or obscure journals and books that are usually not represented in Australian libraries.

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Philip Short, nearing the end of his botanical journey, photographed beside an unusual grass plant, *Welwitschia mirabilis*, in Namibia.

Remaining requests were extremely varied. I was once asked for information on the location of herbarium specimens and correspondence of Daniel Bunce who accompanied Leichhardt in 1846-47. This was one of several questions of an historical nature that necessitated a hunt in the archives at Kew. Other requests included the listing of early eucalypt collections from the Stirling Ranges held at Kew, identification of plants in a painting for sale by Sotheby's London office, information on Australian alpine plants, a listing of horticultural publications available in Australia, information on New Zealand plants suitable for flower arrangements, and arranging for the West Australian botanical artist Philippa Nikulinsky to view art work at Kew and the Natural History Museum. The latter request was a pleasure as it meant that I too had the opportunity to view original paintings by both Ferdinand and Franz Bauer at the Natural History Museum, and could see original paintings at Kew by contemporary botanical artists such as Christabel King and Mark Fothergill, both of whom regularly contribute to *Kew Magazine*.

Research

Much of my research time was devoted to taxonomic revisions of assorted genera of Australian daisies. Besides photocopying literature referring to the 70-odd species of *Brachyscome*, I examined type specimens of many Australian daisies housed at Kew and some other European herbaria. These included specimens in the Edinburgh herbarium, the de Candolle herbarium in Geneva, and the herbarium at Trinity

College, Dublin. Such studies are an essential ingredient in preparing accounts for the *Flora of Australia* and the *Flora of Victoria*.

As well as taxonomic research, I continued compiling extracts from letters (predominantly from the Kew archives) and journals that detailed the exploits of 19th and early 20th century plant collectors. First-hand accounts of cannibals, poisonous snakes and marauding lions can be particularly entertaining and I hope at some stage to combine such extracts, along with some information on plants, in a popular book that will be amusing and interesting, and will introduce the general reader to the trials and tribulations of some early collectors.

Miscellaneous visits

When visiting European herbaria other than those in London, I made sure that

I had some time available, by either scheduling visits to coincide with weekends or by taking several days of recreation leave, to explore the surrounding towns and countryside more thoroughly.

Belfast and Dublin

My first work-related trip was in November 1991 to Ireland, generously financed by the Irish Garden Plant Society and arranged by Dr Charles Nelson of Glasnevin Botanic Gardens. I was met at Dublin airport, downed a Guinness at a local pub and was then whisked off to the important herbarium at Trinity College. I spent most of the afternoon sorting through specimens and in the evening talked for about 90 minutes at the National Botanic Garden, Glasnevin, about Australian arid zone plants. I returned to Trinity College the next morning and that evening gave a talk in Belfast on the Royal Botanic Gardens, Melbourne. I stayed the night at Rowallane Gardens, a National Trust property on the outskirts of Belfast. Rowallane is a most interesting garden, one which I believe wasn't designed with a specific landscape in mind. Instead it has been developed on what was farm land by simply adding to the existing shelter belts. The rockery is a natural outcrop and it is this feature, plus the banks of rhododendrons, for which Rowallane is renowned. There is also a large walled garden and a number of good specimen trees, including a splendid specimen of the handkerchief or Chinese dove tree (*Davidia involucreata*).



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Edinburgh and Orkney

In May 1992 I visited the Royal Botanic Gardens, Edinburgh, spending most of my time working in the herbarium but also taking the opportunity to re-acquaint myself with the Gardens, particularly the magnificent rockery which I first visited in 1985. This is my favourite of all rock gardens. It was a mass of colour and a New Zealand bed was full of different species of snow-daisies (*Celmisia* spp.) in full bloom. The glasshouse complex, perhaps in parts not as good as I remember, houses a splendid plant,

Dimorphanthera kempferiana (a member of the Ericaceae from New Guinea), its pink tubular flowers falling in cascades up to a metre long.

From Edinburgh I caught the train to Inverness, and then to Kirkwall, my base for four days as I explored the surrounding countryside. Leaving it out of town on my first morning in a mist that reduced visibility to about 100 metres, I was delighted with the roadside verges where a wonderful mixture of flowering herbs, including *Primula vulgaris* with its large yellow flowers, assorted umbellifers and thistles were

growing. In the fields cattle grazed, and curlews, lapwings and oystercatchers were calling to one another through the mist. I can't say that it was an enchanting scene as cars occasionally whizzed by with seemingly scant regard for the pedestrian, but it was easy to see why so many people love the British countryside. Over the remaining days I saw a wonderful mixture of archaeological and natural treasures.

I searched for and found the tiny *Primula scotica* and then drove to a small bay below Marwick Head to visit the bird cliffs. Stepping from the car I watched eider ducks in the bay before walking up and along the cliffs – a pleasant walk even without the bird life. The rocks were covered in orange lichen and between them and in shallow hollows there were drifts of pink-flowered thrift (*Armeria maritima*), white-flowered sea campion (*Silene maritima*), yellow-flowered peas (*Lotus corniculatus*), blue-flowered squill (*Scilla verna*), plantain (*Plantago maritima*) and the so-called scurvy-grass (not a grass but a crucifer, *Cochlearia officinalis* agg.) to behold. As for the birds, I was not disappointed

with them; this was my first experience of a cliff-face that was regularly home to thousands of breeding birds. Kittiwakes, razorbills, guillemots and fulmar petrels were all busy nesting. A few puffins were also resting on the steep rock faces. It was a hard place to leave and I retraced my size eight footsteps on more than one occasion.

Stockholm, Geneva and the French Alps

In June I spent three days in Stockholm discussing with Dr Arne Anderberg of the Swedish Museum of Natural History some joint cladistic work on Australian Compositae and in July I travelled to Geneva, spending a day examining *Brachycome* types in both the de Candolle herbarium and general herbarium. Specimens contained in the de Candolle herbarium are not available for loan to other herbaria and it houses type specimens of several species of *Brachycome* that were originally gathered by botanist Allan Cunningham in New South Wales.

From Geneva I caught the train to a small village in the French Alps to rendezvous with members of the Thames Valley Climbing Club (TVCC).

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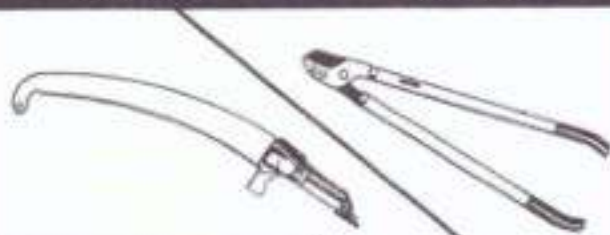
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most of whom were off to conquer Mont Blanc. One TVCC member was also a botanical editor from Kew and for a day or two we confined our activities to the lower slopes, walking in the forest, savouring the delights of edible native strawberries and bilberries and admiring the many orchids and Martagon lilies that pushed their way through the undergrowth. Then we left the village and, fully laden with camping gear, walked over hill and vale for three days. At one stage we trudged steeply upwards, often through snow, as it hailed for over two hours. But then the sun came out and lit up the valleys and glaciers on either side as we crossed the pass at 2700 metres. It made the hard work all worth while, as indeed did the flora. The alpine meadows were ablaze with gentians, ranunculi, primulas, etc. and on the edge of the retreating snow we spotted the splendid *Soldanella alpina*, a member of the Primulaceae, with nodding pink flowers with fringed petals. We also saw the occasional marmoset, a chubby alpine rodent. It

used to be hunted, the oil obtained from its body being used to anoint the inner workings of Swiss watches.

Equus fuscus australiensis

Arriving back from France I had little time to catch up with the backlog of ABLO enquiries before spending a week's leave in north-east England. A short time after this, in the weekly issue of the *Kew Herbarium and Library News*, dated 31 July 1992 the following note appeared: "Our heartiest congratulations to Philip Short, *Equus fuscus australiensis*, and our very best wishes to Emma Powell, on their announcement this week that they are engaged to be married before Philip's year at Kew runs out. So this is what a Liaison Officer does at Kew."

Emma was my companion in the French Alps, and after our marriage in early September we travelled in the deserts of Namibia and swam in the Okavango Delta in Botswana before arriving in Melbourne in November. But that is another story.

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BRAZIL

Order and Progress

by Stephen Forbes

*Environmental Botanist
Royal Botanic Gardens,
Melbourne*

The international perspective of botanic gardens' collections provides a rationale and opportunity to explore exotic floras *ex situ* and *in situ*. I was fortunate enough to represent the Royal Botanic Gardens, Melbourne at the Third International Botanic Gardens Conservation Congress in Rio de Janeiro in October 1992, thanks to support from the Maud Gibson Gardens Trust and the Potter Foundation. Needless to say, I had to suffer the jibes of my Melbourne colleagues whose impression of Rio is Mardi Gras, nightclubs, Ipanema and Copacabana beaches (which as it turned out was reasonably accurate!).

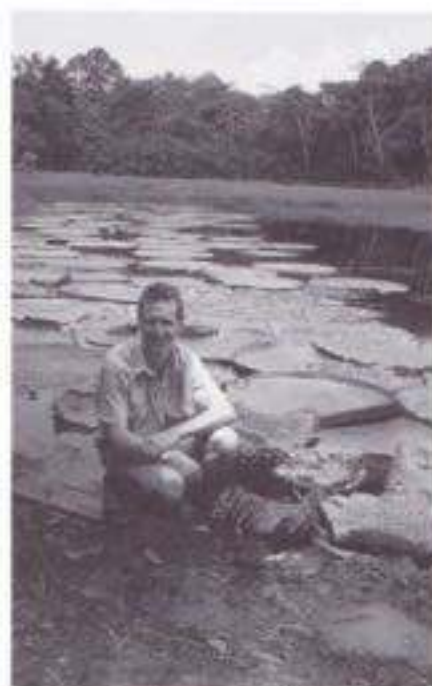
Computerised maintenance scheduling

I delivered a paper on computerised maintenance scheduling, which was well received by Congress delegates.

Computerised maintenance scheduling facilitates the planning and management of the diverse plant collections in botanic gardens by co-ordinating the use of labour and resources on a recurring basis. It also provides data on which to assess performance. The method was readily accepted by botanic gardens in developed countries; in developing countries the staff of many gardens have no access to computers, but maintenance scheduling may still be undertaken without them.

Strengths of botanic gardens seem to be closely related to their location in major population centres which assure high visitor numbers, and to facilities for, and expertise in, plant propagation. Gardens can play a central role in environmental education, and in plant propagation and cultivation for (integrated) plant conservation programs.

As with any conference, useful time was spent in breaks discussing common concerns, such as prospects for joint projects and sharing experience in such areas as funding, information systems and labelling, conservation programs,



Stephen Forbes inspected the giant water lily, *Victoria amazonica*, in Manaus, Brazil.

micropropagation and sources for plant material. The conference highlighted both the similarities and differences between botanic gardens in developed and in developing countries.

Astonishing biodiversity

I took a few weeks' leave following the Congress and visited different types of rainforest with Brazilian botanists. I spent some time in the Mata Atlantica near Rio de Janeiro, in Amazonas near Manaus and on the Isla do Cardoso near Sao Paulo. For a horticulturist who considered he had a reasonable grasp of the world's flora, this proved to be a humbling experience. Around Manaus

the rainforest is supposed to have 200 tree species per hectare, including families I had never heard of. The biodiversity of Amazonas is astonishing - even the local fish market commonly sells unclassified species of fish. Every meal includes fruits or fruit drinks previously unknown to me, and often newly-introduced from Indian cultivation. Even guarana, *Paulinia cupana* (Sapotaceae), the national drink - national soft drink, anyway - is unknown outside Brazil. Given the current concern on biodiversity, Brazil is anxious to control its vast genetic resources, including a vast range of medicinal plants, although the rain

forests of Amazonas are still inadequately protected and are disappearing rapidly (around 11,000 square km annually). The loss of an astonishingly lucrative rubber monopoly to Malaysia perhaps explains the concern to maintain ownership of Brazil's biodiversity. Environmental and recreational horticulture survives in most cities. Rio is the home of Roberto Burle Marx, and some of the major parks are his work. The network of greenspace in Rio is impressive and includes a large area of secondary rainforest extending into the city. The Jardim Botânico (best known for the remarkable avenue of

Royal Palms - *Roystonea oleracea*) is being revitalised through sponsorship obtained by the Friends, a very influential money-raising group. And what impressions of Brazil itself? Astonishingly friendly people, vast (bigger than Texas - even bigger than USA), beautiful and exciting. And as the locals regularly comment, it's a rich country with poor people, 25 per cent inflation per month and massive social problems. On the other hand, democracy has been robust enough to impeach the President for corruption. The flag bears the dictum *Ordem e Progresso* - which underscores Brazilian optimism.

CHINA

A Chinese Treasure House of Plants

by Terry Smyth

Terry Smyth, who has worked as a gardener at the Royal Botanic Gardens since March 1988, is Curator of the Chinese collection.

November 1992, when I represented the Royal Botanic Gardens on a collecting trip to China, was a wonderful month for me. The Friends of the Royal Botanic Gardens, Melbourne, very generously financed most of the expenses for this visit.

The Kunming Botanical Institute invited Mr Bob Cherry of Paradise Plants in New South Wales to make up a small party to collect seed and plant material in Yunnan Province in south-west China. Yunnan is the sixth largest of the 27 provinces, accommodating 15,000 species of higher plants. Many species of plants familiar to us - lilacs, maples, azaleas and camellias - are

endemic to Yunnan. The institute is renowned, amongst other things, for its work with medicinal plants. Seventy per cent of all new medicines commercially available in China have been studied there.

Bob Cherry, the leader of our group and well known by our Chinese hosts, organised seven people to accompany him. Besides myself, they were:

- Judi Forester, of Otway Herbs Victoria, specialising in medicinal herbs
- Ken Gillander, of Woodbank Nursery, Tasmania
- Jim Cane, Acting Director of the Royal Tasmanian Botanical Gardens
- Gary Clapperton, Curator of Eastwood Hill Arboretum, Hastings, New Zealand

- Ross Hayter, ex-President of the Dendrology Society of Victoria and a camellia expert from Yackandandah, Victoria
- Jane Hayter, a rhododendron expert from Yackandandah, Victoria

Bob Cherry was an excellent leader, very relaxed, yet efficient and organised. This was his twelfth visit to China.

We started the 24-day expedition in Kunming, known as the City of Eternal Spring and capital of Yunnan Province. Yunnan borders Tibet, the Himalayas, Laos and Vietnam and has been described as 'a treasure house of plants' and 'a world garden'. It is known for its high mountains, abundant water resources, sunshine, and unique plateau-type monsoon climate. Eighty-four per cent of the land space is



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mountainous and through it flow many hundreds of rivers including the renowned Yangtze, Mekong and the Salween. Special visas and permits enabled us to collect materials and enter restricted areas.

Our hosts from the Institute were Dr Guan Kaiyun, Deputy Director, and Dr Yang Zenghong, Professor of Botany. We also had an official interpreter who was lots of fun, and a good-humoured driver.

We spent the first day at the Institute, wandering and collecting in the garden of medicinal plants and touring the herbarium and research areas. The Institute's Camellia Garden, open to the public, displays camellias and begonias with other taxa. There is a grand avenue of *Liriodendron chinensis* and a spectacular grove of *Metasequoia*, known as 'the living fossil'.

Our trip covered about 3300 km. We travelled mostly by mini-bus, our expert driver negotiating the chaotic, rough, narrow roads, horn blaring constantly to warn the pedestrians, cyclists, tractors and other road users to clear the way. In China it is compulsory to use the horn when driving. There is no dividing line on the road so travel involves constant swerving from left to right to avoid collision.

Leaving Kunming, we drove 400 km north-west on the famed Burma Road to Xiaguan. This took about 12 hours, with three botanising stops en route. The roadside was lined with *Eucalyptus globulus* and *Calocedrus macrolepis* forming straight columns. At the second stop we scrambled up a dry slope occupied by the ever present *Pinus yunnanensis*, to find *Camellia saluensis* in flower, a Chinese *Gerbera* and dainty *Alliums*. All too quickly the time would fly by as we furiously collected, wrote, photographed, "oohed" and "aahed" on hands and knees. Then it was back on the bus, bumping along dirt and cobblestone roads. It was impossible to write whilst in transit, so many hours were worked late into the night cleaning, recording details of seed collected and changing papers in the plant press. The dictaphone I took with me was very useful. During the long hours of travelling, I could 'tell' it all the bits of information coming from my knowledgeable colleagues and hosts, and write this up later.



Terry Smyth beside a rhododendron at Ba Po Hai Mountain in Yunnan Province.

From Xiaguan we drove north-west past the famous city of Dali and up into the predominantly Tibetan area called Zhongdian, close to the borders of Sichuan Province and Tibet. It was a long journey on winding roads through spectacular countryside. The valleys and sheer cliffs were crowded with a multitude of plants dressed in brilliant autumn colour, making us sigh with delight. The Tong Jiang He ('He' means fast) river valley was especially beautiful with *Malus*, *Acer*, *Populus adenopoda*, *Hedychium*, *Clematis* and others creating a golden display. I collected an elegant *Arisaema* here with chocolate and white striped flowers.



Iris and *delphinium* are among plants in the Chinese Border (near H Gate) grown from seed Terry collected in China.

The Kunming Botanical Institute has just sent confirmation of the species name. It is *A. franchetianum*.

Zhongdian was very cold and I found it difficult to sleep at night, although the spicy food we ate (particularly the ground *Zanthoxylum bungeanum*), warmed our insides. From this area (usually closed to 'aliens') we visited several collecting sites. There was snow at the highest altitude we reached - Ba Po Hai Mountain, 4600m above sea level. The forests were logged - but had remnant *Picea*, *Betula* and *Larix*. They had been revegetated with young plants of the same species.

We collected seed of many interesting plants here - *Cimicifuga*, *Rhododendron*, *Iris*, *Acer*, *Rogersia* and others. At first I found the high altitude quite exhausting but the excitement of plant finds and the sheer beauty of the scenery were enough to revitalise us. Our stash of 'happy dreams' and 'white rabbits' (Chinese lollies) also helped! One memorable stop off the main road was Shibaoshan (which means 'precious rock mountain'). I'll never forget the pleasure of wandering in this quite exquisite but freezing valley. Here I collected plants and seed of *Nothopanax delavayi*, a handsome evergreen, tropical-looking shrub in the *Araliaceae* family; also a *Tilia* species, which in a few years could join the others growing in RBG's Northern Border.

Next we headed south-west to Caojian,



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my favourite collecting area, near the Myanmar border. This is also a closed area but the local people were wonderfully friendly and after three days we were sad to say goodbye. At a mountain called Zi Ben Shan, the dividing range between the Mekong and Salween rivers, we walked through an ancient forest with *Rhododendron sinogrande* and *Acer* species. Sadly, many had been cut down for fuel; sprouting stumps of *Magnolia rostrata* were frequent.

The Western Hills near Caojian were very exciting...no logging there: deep sub-tropical rainforest draped and dripping with lichens, mosses and ferns; long lianes, scarlet red fruits of *Smilax*, *Cardocrinum*, bamboo, *Hoya* and magnolias to name a few. The spiny arching shrub *Zanthoxylum alpinum* grows here, with *Quercus*, *Shima* and *Lithocarpus* towering above. I collected all sorts of goodies including rhizomes of *Disporopsis aspersa* - a delightful Liliaceae plant like Solomon's Seal.

In Jingdong Province we collected from two mountain ranges - Ailioshan and Wuliangshan - which are national parks. In order to protect precious and rare plants and their gene reserves, 34 'natural protection zones' totalling 1.5 million ha have been established in the province. We were guided through some of this area by the chief environmental officer from the Conservation department. Fantastic forests contained many Fagaceae species, huge *Alcimandra*,

Manglietia, *Corylus chinensis* and *Rhododendron rex*.

The forests of Yunnan are still greatly abundant and the wealth of the plant material that is not represented in Western cultivation is extensive. We have much to learn.

I brought back few live plants, mostly concentrating on seed because it has more chance of survival and is much easier to carry. Each person in our group had a slightly different interest, resulting in seven different collections. This means there is a potential pool of approximately 1000 wild-collected species to share and swap between us. I brought back more than 200 species from 56 families. The majority of these were sown after a 'pseudo winter' of four to six weeks in the nursery refrigerator. Two thirds have germinated and some have already gone out into the gardens. Many of them, particularly the evergreen shrubs, will be used in the Chinese Borders and others such as oaks, viburnums and ferns will go into our collections. The Growing Friends will take excess stock so there will be many interesting gems available at the next few plant sales. Look out for these! The Rhododendron Society took seedlings of 12 species for their collection and the Sydney Gardens also received a selection.

This trip was a wonderful opportunity to see plants in their natural habitat and expand my knowledge of plant association, soils, geography and the many uses by the Chinese of their native plants. I saw plants I knew and hundreds I'd never heard of before. I learned many things - including which seeds must be kept moist or dry, how to read maps, and how little sleep I can survive on and still have lots of energy! Judi Forester, my room-mate, was a great help and support to me. Writing up the Collecting Book (necessary for botanic gardens' accessions) took a lot of time, but I realise how important and useful this detail is, especially when planting out.

I feel the trip was a success. It was a valuable opportunity for our Gardens to make use of Bob Cherry's contacts at the Kunming Institute and his extensive knowledge and experience of collecting in China. These contacts can take years to build up, particularly in countries where some areas are closed to foreigners. The Kunming Institute is

interested in furthering the relationship and will swap its publication *Acta Botanica Yunnanica* for our *Mulleria*. Bob Cherry invited our Royal Botanic Gardens to be represented on a 1993 trip to the provinces of Guizhou and Hunan, but unfortunately we were unable to take advantage of this opportunity.

I would like to thank the Friends for their financial support and keen interest. It was a great privilege for me to represent the Gardens and I feel enthusiastic and excited to be working with these new introductions with a clearer understanding of their habitats and needs. There cannot be a better education for a horticulturalist than being 'out there' in the field. I'm inspired for a lifetime!

CANARY ISLANDS

Cultivating Green Awareness

by Eve Almond



It's quite a long journey from Melbourne to Las Palmas, capital of Gran Canaria, particularly as there is no direct flight from Australia to Spain. I had travelled via London where I had met Julia Foster, Senior Education Officer at the National Botanic Gardens in Canberra. We had then taken the two flights necessary to reach the Canary Islands, which are situated off the north-west coast of Africa.

We were both attending the second Botanic Gardens Conservation International (BGCI) Education Conference, held early in May 1993.

The Las Palmas airport is 20km out of the city, and we were beginning to think we would have to camp there overnight until the banks opened on Monday because, despite assurances, the

Bureau de Change was not open on Sunday evening. Fortunately, a young student came to our rescue by buying us local bus tickets to take us into town. Her generosity set the tone for a wonderful week in the Canary Islands, where nothing quite happened the way we expected and hoped, but the hospitality and friendliness of the people more than made up for the minor discomforts of intermittent supplies of electricity and water and surprisingly little fresh fruit and vegetables.

Eighty-eight delegates representing 58 different botanical institutions attended the Conference, which had as its theme 'Cultivating Green Awareness'. The workshops on evaluating education and interpretation programs, on public relations in botanic gardens and on managing temporary exhibitions, were particularly interesting.

Spectacular venue

The venue, the Jardín Botánico Canario 'Viera y Clavijo', was most spectacular, being situated in a rocky gorge with

terraced cliff faces. The Canary Islands flora is extremely diverse with a large number of endemic species, many of which are rare and endangered as a result of clearing the islands for timber, agriculture and, more recently, tourism. The Botanic Gardens has an extensive conservation program with the ultimate aim of restoring wild populations of threatened plants. All primary school children on the islands come to the Gardens at least once during their schooling. In contrast, there is no general interpretation in the Gardens; all the effort is poured into the school-based programs.

The post-conference tour included a visit to a remnant Laurel forest, a pine plantation (*Pinus canariensis* of course) and a day in the mountains, which were carpeted in spring wild flowers.

London talks

I returned home via London where I spent a most useful three days talking with colleagues and looking at

exhibitions in the Royal Botanic Gardens, Kew, the Chelsea Physic Garden, the Museum of Garden History and the British Museum (Natural History). I came back with a wealth of publications and innovative ideas. My trip was generously sponsored by the Maud Gibson Trust. As well as being a delegate to the conference I also carried an invitation to the BGCI executive in London to hold the next international conference here in Melbourne in 1996 as part of our sesquicentenary celebrations. Disappointingly, the conference has been awarded to the Brooklyn Botanic Gardens, New York. One cannot help but reflect that we were defeated by the 'tyranny of distance', for I came home convinced that, given our budget, the Education and Interpretation Services we provide here at Melbourne are equal to any found in other gardens.

Eve Almond has worked in Visitor Services Division at the Royal Botanic Gardens since 1979.

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A Melbourne Showcase for Californian Flora

by Stephen Forbes and Warren Penna

The Elisabeth Murdoch Californian Garden 'christened' on 4 March made good growth during our wet spring; some shrubs have already doubled in size. Glowing orange Californian poppies and purple iris are the main sources of colour, providing a photo opportunity which Japanese tourists find irresistible. As less well-known plants flower for the first time, they are sent to the Herbarium for a confirmation of their identification before being labelled.

Being the first major re-development in the Gardens since 1986, the Elisabeth Murdoch Californian Garden has aroused considerable interest. The initial impression is likely to be one of small plants dwarfed by large boulders, but patience is called for. Giant redwoods take time to grow! The idea for a Californian Garden was initially developed by the then senior horticultural scientist Peter Lumley to promote the use of the Californian flora in Melbourne. Melbourne's cultivated flora is largely derived from the English garden tradition, and even Californian plants have come to us through English nurseries. As a result, the potential offered by Melbourne's climate to grow a wider range of plants has barely been exploited.

California has a rich flora with more than 5,000 native species, of which 30 per cent occur only in California. The flora includes many attractive and hardy plants ranging in habitat from deserts such as the Mojave to the alpine meadows of the Sierra Nevada, and the coastal redwood forests of Northern California. As California shares a similar

latitude range to southern Australia, its flora is well suited to cultivation in Melbourne.

The development of a garden to display and promote the use of appropriate Californian plants was agreed by the Gardens' planting committee in 1991. The Maud Gibson Trust and the Friends of the RBG financed a staff exchange between Senior Gardener Warren Penna and Kathy Mosial, the Curator of Living Collections at The Huntington Botanical Gardens. As President of the Californian Australian Plant Network, Kathy was anxious to extend her experience in Australia. Whilst at The Huntington, Warren studied the maintenance and management of Californian flora in cultivation, and collected propagating material of Californian plants. He was greatly assisted by Rob Ferber Jr, the Honorary Seed Curator at The Huntington. In addition, Warren and Stephen Forbes, then the Royal Botanic Gardens' Acting Superintendent, were able to join a collecting expedition to the south-west of the United States and Mexico, again with support from the Maud Gibson Trust and the Friends. Meanwhile, back in Melbourne, the site adjacent to C Gate on Anderson Street was chosen for the Californian Garden. It included the William Guilfoyle 'Rock Lawn' between B Gate and C Gate, and the redevelopment of this historic rockery provided an ideal environment for displaying small plants. In addition, the site is complemented by the nearby Arid Garden and was, in any case, in desperate need of renovation. Rob Cross prepared the initial plans.



Mrs Janet Calvert-Jones (Chairman of Herald and Weekly Times Ltd), Mr William Irvine, Dame Elisabeth Murdoch and Sir Rupert Hamer at the opening of the Californian Garden.

Before commencing the development, suitable Californian plants from other areas in the Gardens were stockpiled in a holding bed. The first step was the construction of the rockery – a four-day job for an excavator, placing basalt boulders selected to match the existing Guilfoyle rock work. Path construction followed, and the installation of an irrigation system including different control stations for each of the vegetation types.

As with any project in the Gardens, consideration has to be given to protecting existing landscape values. The difficulty with maintaining a plant collection under mature trees within a garden bed is apparent to any gardener. Balancing the requirements of new plantings with the protection of existing mature trees is something of a tightrope act.

In developing a garden a long-term view is required, and accordingly plans were prepared for the initial planting in 1992 and for the established garden in 1997. A complete review after 15 years is also intended.

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Dame Elisabeth Murdoch's generous support of the project through the Herald-Sun Gardens Appeal enabled the plans to be carried out. Rob Ferber visited Melbourne to finalise the planting plans, his knowledge of, and enthusiasm for, the Californian flora providing an exciting lift to the project. Those who attended Rob's talk to the Friends were impressed by his outstanding knowledge and articulate delivery - and perhaps by his youth - he was then 22. Rob worked closely with Rob Cross, Rebecca Knol and Andrew Straker to build on existing plans and existing plant material from the exchange and collecting expeditions.

So far, 120 wild provenance species have been planted. The final plan includes six vegetation types: Desert, Chaparral, Oak Woodland, Pine Woodland, Redwood Forest and Channel Islands.

The use of stone mulch for the desert areas was a first for the Gardens. Obviously, rocks from the Mojave Desert were out of the question; we found Castlemaine slate to be the



Stone mulch is a feature of the desert area of the Californian Garden.

nearest equivalent. A chain gang, using Priority Victoria staff, hand-sorted the rocks!

The donation of two supposed Californian palms created some excitement and landscaping opportunities. Whilst texts disagreed over whether *Washingtonia robusta* occurred in California, our Californian botanist Rob Ferber was able to provide a definitive (but negative) answer. The palms found a home on the Central Lawn!

This project integrated the skills of botanists, horticulturists, landscape designers and landscape contractors. It marked a milestone in planning and development at the Gardens and the experience has proved invaluable for other new projects.

Just as the Californian Garden has generated considerable interest in Melbourne, so there has been a great deal of excitement among botanists and horticulturists in California. Progress has been closely monitored, and photographs have been sent back to Santa Cruz and The Huntington Botanical Gardens.

PROTECTION FOR OUR NATURAL GARDENS

by Rod Safstrom

Director of the Victorian Conservation Trust

So much of our natural heritage is already lost. Remaining natural areas on private land are disappearing and degrading rapidly; re-planting damaged areas, establishing arboreta and plant collections is important, but we need to act quickly to save natural communities and valuable habitats for native animals. Can we afford to lose seed sources for future planting, the biodiversity of this beautiful country, a treasure of immense but little-understood value?

It is summer, a time of maturing, a time for helping nature, the right time to protect conservation land. Conservation land can be protected forever.

Conservation covenants

A covenant gives special status to a parcel of land; it is a voluntary

agreement designed to suit the conservation aims of a land owner, which is registered on title and binds future owners to care for the conservation values. The Victorian Conservation Trust, with its permanent Stewardship Fund, is able to assist with covenants and ensure that their spirit and intent are observed.

Conservation land protected by covenant can be bushland, forest, native grasslands, rock formations, wetlands, a corridor for wildlife, or a buffer to a national park or nature reserve. It should be reasonably free of weeds and generally be greater than two hectares (five acres) in size. The Victorian Conservation Trust is urgently seeking funds to purchase threatened ecosystems on private land. Current appeals relate to a rich wetland for wading birds near Natimuk in the Wimmera, over 2000 hectares of mallee and black box flats with mallee fowl near Boundary Bend, and coastal heathland near Anglesea.

Protecting threatened areas

The Trust is establishing a Revolving Fund so that threatened areas can be purchased and re-sold subject to a conservation covenant. Funds can go around and around, working for nature. The Trust has recently purchased land which is habitat for some of our disappearing bushland birds in box forest near Chines, and an almost pristine yellow gum woodland and heathy forest near Mt Arapiles; these properties are now for sale to keen conservationists. More funds are needed so the Trust can purchase other properties threatened with development, and find appropriate new owners.



Further information about our activities and Friends' group may be obtained from the Victorian Conservation Trust, 8th floor, 49 Spring Street, Melbourne, 3000. Tel: (03) 651 4040.

INSECTS AND INVADING ALIENS

Progress in the use of insects for the biological control of the
Australian acacias

by Di Donnelly

Plant Protection Research Institute, Stellenbosch, South Africa

Since their import during the last century, a number of Australian acacias have become significant invaders in almost every biome type in southern Africa. In the Fynbos biome alone, six of the top twelve invasive plant species are Australian acacias, with *Acacia saligna* (Port Jackson willow), *A. longifolia* (long-leaved wattle) and *A. cyclops* (rooikrans) being the first, second and third most important, respectively (Macdonald & Jarman 1984). On a national scale, *A. mearnsii* (black wattle) has been implicated as the most problematic weed. Other problematic species include *A. dealbata* (silver wattle), *A. decurrens* (green wattle), *A. melanoxylon* (blackwood), *A. implexa*, *A. pycnantha* (golden wattle), *A. elata*, and the closely related *Paraserianthes lophantha* (formerly known as *Acacia lophantha* or *Albizia lophantha*, or stinkbean). The presence of these weeds reflects past human agricultural activities. For example, Port Jackson (*A. saligna*) and rooikrans (*A. cyclops*) were widely propagated on the Cape Flats to stabilize the driftsands caused by oxwagon traffic in the nineteenth century, while *A. mearnsii* (black wattle) and *A. melanoxylon* (blackwood) were grown for tannins and timber, respectively. However, for other widespread species such as *A. longifolia* (long-leaved wattle), there is little evidence of deliberate spread by humans. Some of the species that have "escaped" from gardens, e.g. *A. elata* and *P. lophantha* (stinkbean), are still in a relatively early stage of invasion.

In addition to human influence in the spread of the Australian acacias, the suitability of the new environment and the large numbers of long-lived seeds produced in the absence of natural enemies enabled these plants to spread even further. The high rate at which the Australian acacias displace the natural vegetation and their powers of regeneration after fire make chemical and mechanical control both short-lived and expensive. If funding for alien weed control is to be decreased, as seems likely, these weeds would rapidly reinvade and dominate landscapes, causing a decrease in water yields and an increase in fire hazard. It is not surprising that public expectation of the role to be played by biological control agents is increasing.

Biological control of the Australian acacias began in the 1970s, as a result of petitioning by the Department of Forestry, conservation bodies and farmers. From 1981,

the search for biological control agents for these weeds intensified, and in the last decade, eight insect species have been imported from Australia. To date, four of these have been released. They include a bud-galling wasp, *Trichilogaster acaciaelongifoliae* on *Acacia longifolia* (long-leaved wattle), and three seed-feeding weevils (*Melanterius* spp.) on *A. longifolia*, *A. melanoxylon* (blackwood) and *P. lophantha* (stinkbean). A leaf-sucking bug, *Rayiera* sp., was dismissed as a biocontrol candidate for *A. longifolia* when it was found to have the ability to feed on black wattle and blackwood as well. (Stringent host specificity tests to make sure that the insect will not attack indigenous plants are routinely carried out before a biocontrol agent is released.) A fungus that attacks *Acacia saligna* (Port Jackson) has also been released.

Conflicts of interest

The biocontrol programme has strongly been influenced by the fact that some of the introduced Australian acacias are still economically important crops, as are *Acacia mearnsii* (black wattle) and *A. melanoxylon* (blackwood). Biological control began with *A. longifolia* (long-leaved wattle), as it was generally felt that it was not being utilised at all. The choice of insects as biocontrol agents has largely been restricted to those that attack only the reproductive parts of the acacias. The reasons for this are twofold: insects attacking the reproductive parts of plants are often highly host specific, and insects feeding on flowers or seeds of those Australian acacias that are weeds as well as crop plants would limit the rate of spread of these plants without harming the crops themselves.

The proposal to use seed insects against the still commercially grown *Acacia mearnsii* (black wattle) was initially acceptable to members of the wattle industry, but later strongly opposed for fear that seed-feeding insects would hamper the natural re-establishment of wattle plantations after felling. This development was met with public concern. During 1988-1989 negotiations were held between those with commercial interests in wattles and employees of the Plant Protection Research Institute (representing the interests of conservation bodies and farmers fighting a losing battle in the clearing of wattles). These negotiations eventually led to the release of the

seed-feeding weevil, *Melanterius servulus*, on *Paraserianthes lophantha* (stinkbean), which in stringent tests had fed on the developing seeds of black wattle, as well as the seeds of all the other introduced Australian acacias. These tests were starvation tests, however, where no choice of plants is given, and it was not guaranteed that *M. servulus* would attack the other Australian acacias in the field. None of the indigenous acacias were attacked during tests.

Permission for the release of the seed-feeding weevil, *M. servulus*, was subject to the condition that insecticide tests be done to show that the seed orchards needed to supply the wattle industry could be protected from *M. servulus* if this became necessary. These tests were completed in 1989 and *M. servulus* has now been released. In March 1992 the wattle industry finally consented to the release of a seed-eating weevil specifically for *A. mearnsii* (black wattle).

Success of the biocontrol agents

A 99% reduction in the seed production of *A. longifolia* (long-leaved wattle) has already been achieved. The first agent to be released was the wasp *T. acaciaelongifoliae*, which causes galling of the reproductive and vegetative buds. The developing reddish green galls can easily be recognised on *A. longifolia* trees from June to December. The wasp, *T. acaciaelongifoliae*, was quick to establish itself, and studies have shown this insect to be highly efficient at reducing the pod production of *A. longifolia*. In addition, the wasp also causes a reduction in the growth of *A. longifolia*, and in some cases where plants are severely stressed, the trees may die. Occasionally, however, in areas where water is available during summer, *A. longifolia* is able to cope with the stress of galling by *T. acaciaelongifoliae*, and numerous seeds may still be produced.

In order to effectively reduce the seed production of *A. longifolia* (long-leaved wattle) in all areas, a second biocontrol agent was released. This agent was the seed-feeding weevil, *Melanterius ventralis*, which feeds on green seeds in pods that develop from buds that have been missed by the wasp, *T. acaciaelongifoliae*. Field and laboratory studies have shown *M. ventralis* to be an excellent supplementary agent to *T. acaciaelongifoliae*, with weevils finding and destroying developing *A. longifolia* pods where they occur in high as well as low numbers (i.e. in wet and dry areas).

As the biocontrol programme began with *Acacia longifolia*, more research effort has been invested in this acacia than in any of the other acacia species. It is not yet known how effective seed weevils will be on *A. melanoxylon* (blackwood) and *P. lophantha* (stinkbean) as they were released fairly recently. Work is also continuing on *A. pycnantha* (golden wattle). A bud-galling wasp, *Trichilogaster* sp., is being tested for host specificity. At present, strains of the wasp are being collected in Australia from *A. pycnantha* trees that are compatible with the *A. pycnantha* variety found in South Africa.

As biocontrol of the Australian acacias is largely restricted to insects attacking reproductive plant parts, the biocontrol programmes will contribute most to the reduction in the rate of spread of these weeds into new areas. Clearing river

banks and lands smothered under existing acacia thickets will remain the task of mechanical and chemical control practitioners. In time, however, if the production of viable seeds is significantly reduced, the regeneration of acacias will diminish.

Acknowledgements

Mr J.A. Gordon and Dr S. Lamprecht, P.P.R.I. Stellenbosch are thanked for comments to the article.

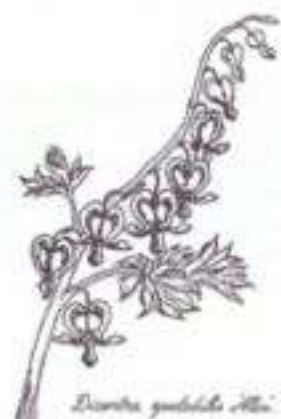
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We are grateful to the Botanical Society of South Africa and the author for permission to reproduce this article from the Society's journal *Veld and Flora*, June 1992.

POSTSCRIPT

It is ironic that while South African scientists are surveying Australia for natural enemies of Australian wattles, Australian scientists are currently in South Africa searching for natural enemies of South African plants such as Boneseed (*Chrysanthemoides monilifera monilifera*) and Bitou Bush (*C. m. rotundata*) which are serious environmental weeds in Australia. Although each country carries out its individual research program, biological control researchers around the world are a close-knit community and there is close co-operation between South African and Australian biological control researchers.



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The Australian Garden

by Heather Ironmonger

JANE EDMANSON (left), who once taught gardening at the Victorian Schools Nursery, is well-known as a writer, broadcaster and television presenter. She is a partner in a Melbourne garden centre and leads parties on guided tours of gardens overseas. Jane has previously published three books, and admits to having another 'in my head'.

The relationship between two Friends of the Royal Botanic Gardens developed from professional acquaintanceship to firm friendship when they co-authored a gardening book. What's their story?

Initially, the publishers commissioned Jane Edmanson to write the book, and



LORRIE LAWRENCE was a medical social worker for 20 years before her love of gardens took over. She worked as a gardener, then undertook a diploma course and became a landscape designer and freelance gardening writer. Her second book will deal with plants for picking as cut flowers. She has just opened a shop in Hawthorn selling pots and posies, as an extension of her design and consultancy work.

had been written long ago, and needed to be updated."

"We felt there was a place for a book written by Australians about practical aspects of gardening, garden making and garden care", added Lorrie. "We have so many beautiful gardens in Australia. We were very keen to have

on, or have known and admired.

The Australian Garden won an award from the Australian Book Publishers Association as the Best-designed Popular Reference Book, and was selected for the Doubleday Book Club. Its print-run of 31,000 was almost sold out within a year of its appearance in October 1992, and a modified edition for New Zealand was published in October 1993.

The book has a touching dedication that reveals something the authors had in common: 'To our mothers - both great gardeners'. Lorrie, who lived in Geelong, absorbed from an early age her mother's familiarity with botanical names, and loved arranging vases of mixed flowers. She recalls being allowed to pick everything except roses and daphne. Jane grew up in Mildura, and developed her love of native flora as a teenager visiting the Little Desert. "Melbourne's Botanic Gardens were another influence in my appreciation of garden design", she says. The book was launched in the Tecoma Shelter at the Gardens, and the authors acknowledge the assistance of Herbarium staff with identification and nomenclature.

Editors comment that collaborating authors frequently fall out with each other. In the case of Jane and Lorrie, they displayed different although complementary skills, but clearly their

IN PRINT

when they decided to broaden its scope to include landscape and garden design, they invited Lorrie Lawrence to be a collaborator.

The pair outlined a structure, gained editorial approval, and set to work - for two years. "We would allocate two or three nights a week, and choose a subject to discuss, or more likely, enthuse about", Jane said. Neither used a personal computer, so hand-written notes would result from these long, happy sessions.

"From the outset, we envisioned a book that was practical but not just a manual; it had to be inspirational, and very good looking", Jane said. "We tried to cover all the general gardening topics, because many books of this kind

the combination of function with beauty as a consistent theme. The book was written in a very personal way, and readers have said they like the style because it speaks directly to them."

Although given a national scope by its title, the text is slanted towards the soft, green south-east corner of Australia. But Lorrie believes this is not seen as a drawback, because the instructive tables and gardener's calendar are relevant all over the country. "We put an enormous amount of work into the tables. They're a great strength of the book."

Another outstanding feature is the generous number of full-colour illustrations. Most photographs are of gardens Jane and Lorrie have worked

philosophies were close. "We found as we went along that we felt very much the same about the way we viewed gardens. We're both practical gardeners who like to solve problems and share our experience. To our delight, we discovered our differences were very few", Lorrie said.



THE AUSTRALIAN GARDEN, published by Viking O'Neil, is a large-format book of 326 pages. Designed by Laonic Stott. Illustrated by Cathy Larsen. rrp \$49.95.



The Cottage in the late 1970s; a great renovation task ahead.

The Plant Craft Cottage, its History Revealed

The History of the Plant Craft Cottage, formerly H Gate Lodge, was published in a limited edition in September 1993. Copies are in the Herbarium Library and the Library of the Plant Craft Cottage, one is on display at the Visitor Centre and a few are still available for sale at 'Counterpart' in the Cottage.

In this article JANET WALSH describes her task in compiling the publication. She took on the History project "for love of the place and its people, and because I have always been interested in history, and in the history of buildings". Five years in Architecture School fostered her skills in historical research.

When I found that somehow I had taken on the job of writing a history of the Plant Craft Cottage, the biggest question was "where to begin?"

It seemed to me that the history of the Cottage fell into four areas: the actual building of the Under Gardener's Cottage; the story of the families who lived there; the threat of demolition and the ultimate restoration, and the formation and growth of the Plant Craft Cottage Group which is now fortunate to have the use of this building and its garden.

Tracking down the history of the building itself was straightforward, although information was scarce. I worked my way through every publication on early Melbourne I could lay my hands on. There were plenty of references to the Botanic Gardens, but the Under Gardener's Cottage barely rated a mention. In particular, Board of Works maps were helpful, being so carefully drawn, with different building materials indicated by hatching. It was possible to follow the growth in size of the Cottage from three rooms to at least six, with a separate kitchen block at the south.

Naturally I turned to Pescott's history of the Gardens*, but simply repeating him would have served no purpose. The illustrations were helpful, however, as it was possible to put a large panorama of the Gardens onto the photocopier and gradually enlarge until a tiny speck became a recognisable cottage.

Primary resources, I decided, were what was needed. I was grateful to be allowed to browse through the Gardens' photographic collection, and through archival material in the Library. At the Public Record Office at Laverton I spent a

wonderful day with the Colonial Architect's letterbook - a massive leatherbound volume half the size of the desk. This contains all of Henry Ginn's letters from 1850-1852 carefully transcribed, in longhand of course, often with marginal notes and comments. It was a real thrill to come upon his letter to the successful tenderer for the building of the Cottage, and even more so to read his stiffly-worded memo two months later when the builder hadn't got around to starting the job. Nothing changes, I said to myself. I could feel the place beginning to come to life.

We are fortunate to have copies of the original working drawing of the Cottage dated 15 May 1850, carrying Henry Ginn's signature.

How could I track down the early Cottage families with so little remaining of the early Botanic Gardens' records? The Age newspaper runs a weekly column headed HELP NEEDED, and I did! Eight people, whose families had had connections with one or other of the Lodges years ago, responded to my appeal.

I visited all of these callers. Several lent me photographs for copying. I was shown garden tools and text books from the old days, birth certificates and death notices, a presentation clock from 1928 and items of furniture still in use which once were in the living room of the Cottage. I sensed that for these people - some in their eighties - these memories were happy ones and that it gave them pleasure to reminisce.

In addition, people visiting the Cottage were - and still are - encouraged to leave a name and contact number if they had information for us. It was surprising to discover how many

visitors to the Cottage have had connections with the Gardens.

At first, trying to match families to Lodges was like doing a jigsaw puzzle with too few pieces and no picture on the lid, but gradually it began to come together. We still have a few gaps and would welcome any further information.

Eventually I was able to track down 12 families who, I believe, lived in the Cottage between 1851 and the mid-1970s; there may well have been others. Lodges seem to have been allocated for those holding particular jobs on the Gardens' staff. For instance, in the 1920s Eastern Lodge was specifically referred to as the Clerk's Residence. Those who occupied H Gate Lodge were predominantly Head Gardener or Watchman. The Watchman was responsible for checking that all gates were locked at night.

According to Ambrose Neate, who made notes on the Gardens history for William Guilfoyle, the first occupant of the 'brick lodge nearest to Government House on the north west end of the gardens' was a gardener named Young. Neate describes Ferdinand Mueller as having been at this time a 'lodger' in this house.

I believe that the next residents were the Schneider family. Christian Gottlieb Schneider was in charge of the Propagating House, Pine Nursery, and was a member of the Gardens' staff from some time after his arrival from Bremen in 1850 until his death at the Gardens in 1883.

The Slattery family of Richmond came to the Cottage in about 1887 and stayed there until the turn of the century. The Slatterys had 11 children of whom 9 survived, and the younger children grew up in the Cottage. When the girls

went out in the evenings, the boys would meet them at Princes Bridge and see them safely home along the river bank.

For all of this time the original three-roomed brick cottage stood comparatively unchanged, although weatherboard rooms and a separate kitchen block were added at various times.

Maurice Cronin was Head Gardener and a brother of the Director of the Gardens, John Cronin. Maurice and his family lived in 'the cottage off the temple steps' from around 1901 to 1916. It is likely that substantial alterations were made to the building during this time, after which H Gate Lodge looked much as it does today.



Framed by a pretty garden, the Cottage is an inviting sight today.

The Cronin family would have also been the first to see the river in its altered course, and the changed form of the lake. No longer was the Cottage perched half way up the river bank, but over a bluff well into the Gardens. H Gate itself had a new position where once the river would have flowed. The Cronins would have witnessed the building of Alexandra Avenue, and the planting of hundreds of trees along the new river bank.

John White the Watchman was based at the Cottage from around 1917 to 1920. His grand-daughter, now an elderly lady, remembers fishing in the lake in the evenings after the gates were locked.

Alexander Shaw was employed at Government House in charge of indoor plants. Later he and his wife, his married son with wife and baby, and two other sons all lived in the Cottage. A family photograph shows the front of the building as it is today. The garden was beautifully tended, and the path to the front gate was lined with roses. The Shaws left the Gardens in 1928.

Later families to live in the Cottage were the Williams, the Perkins, the Greigs, Tom Ralston and the Honeys. In the Gardens' Camellia Bed is the Camellia 'William Honey', named by Alex Jessep. In Mrs Honey's day the Cottage was well maintained, with a vegetable garden on the western slope behind, although the family found it rather dark and cold in the shadow of the huge pines. After the Honeys left the Cottage in 1969 it became steadily more run down, and it took the combined efforts of many dedicated people in the following years to save it from demolition.

The story of the three years of intensive lobbying and sheer hard work from 1977 to 1980 came to me directly from the



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people involved - though it's hard to do justice to their vision and determination.

The final section of this history, by far the largest, spans the years from 1980 to the present day. This period has seen the Cottage develop to a membership of around 350. It comprises a roster group of dally hostesses; a group responsible for the care of the garden; another for the maintenance of the house; 'Counterpart', the group which stocks and runs the small shop in the front room; the Voluntary Guides, and six craft groups, each involved with craft work which in some way explores the potential of plants - their flowers, their perfumes, their dye properties,

fibres and papermaking qualities. In this way we keep alive the spirits of Mueller and Guilfoyle in whose time the Museum of Economic Botany was a storehouse of this kind of knowledge.

Please visit the Plant Craft Cottage while you are in the Botanic Gardens. We welcome thousands of visitors a year from all over the world and, from the comments in our visitors' book, they seem to enjoy it.

* *The Royal Botanic Gardens Melbourne 1845 - 1970*
R.T.M. Prescott, Oxford University Press, 1981



This historic photograph by Charles Nettleton came into the Gardens' collection in 1993. It depicts the footbridge over the lagoon, c.1875. Gardens House, which William Guilfoyle had then occupied for about two years as Director, is in the background.

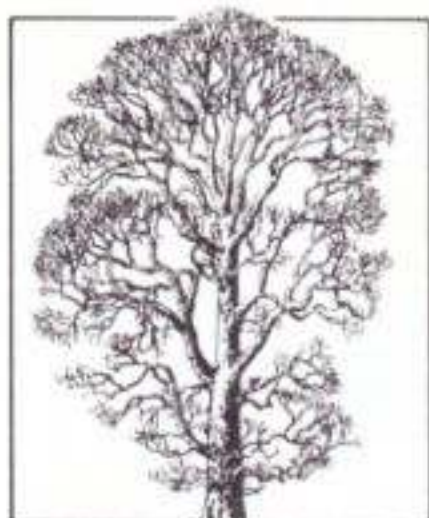
1996

1996 might seem a long way off, but plans are already formed to celebrate in that year the 150th birthday of the Gardens and commemorate the death 100 years previously of Baron Ferdinand von Mueller. A committee has been set up, a number of projects approved and a consultant appointed.

Mrs Marian Brookes, deputy chairman of the RBG Board, heads the committee, whose members are: Eve Almond from Visitor Services Division, who serves as Project Officer; Richard Barley, Manager of the Botanic Gardens Division; Helen Cohn, Librarian; Sally Hirst, Manager of the Visitor Services Division; Anne Latreille, Board member; Sara Maroske, Researcher of the Mueller Correspondence project; Dr Philip Moors, RBG Director and Dr Jim Ross,

Manager of the Research and Herbarium Division. Mary Stewart, the consultant, was involved with Victoria's 150th anniversary celebrations, so knows from experience that long-term planning is vital for a successful outcome. Among ideas on the drawing board are a new book about the Gardens, an international conference dealing with both historical and scientific topics, a collecting expedition to Central Australia in association with other Australian herbaria, an oral history project, an historic exhibition, an exhibition of botanical art and a ball organised by the Friends, at Government House. Of course there will be a 'birthday party' on the actual Foundation Day, 16 March. Sponsorship will be sought for the various events.

Heather Ironmonger



ELM ALERT

Elm leaf beetles have hatched again in the trees in Victoria Parade, East Melbourne, where they were first discovered last summer. So far, it is the only known outbreak in the City of Melbourne this season. The 200 trees have been sprayed with malathion in an effort to combat the infestation.

Dr Peter Yau, arboriculturist with Melbourne City Council, hopes to carry out spray trials with a bacterial insecticide which targets the beetle in its larval state but has no effect on birds or people. In the long term, an insect parasite will probably be introduced to reduce the numbers of beetles.

The beetle (*Pyrrhalta luteola*) is not to be confused with the elm bark beetle (*Scolytus multistriatus*) which is the carrier of Dutch Elm Disease in overseas countries. Fortunately this scourge does not exist in Australia – yet.

Heavy infestations by elm leaf beetles may totally defoliate elms, English and golden specimens being the most susceptible. Caterpillars that have been devouring the leaves, giving a 'shot hole' appearance, migrate down the tree trunk in late December and pupate in the leaf litter. A second generation may occur, with another migration down the trunk during early autumn. The beetle is a hitch-hiker and so can spread rapidly. Vigilance is imperative!

If you suspect or have evidence of infestation in elms, please contact Dr Yau in the City of Melbourne Parks Division, tel. 419 4677, and also your local council. You can support the cause by sending \$15 to join the Friends of the Elms, c/- the National Herbarium, Birdwood Avenue, South Yarra, Vic 3141.

The Banksias – Celia Rosser



Prof. Prince (Director, Royal Botanic Gardens, Kew), Celia Rosser, Peter Wade (General Manager, Monash University), and Sir Michael Atiyah (President, The Royal Society), who opened the Banksia exhibition at Kew Gardens Gallery.

Monash University's magnificent *Banksias* Project has recently published a 64-page full-colour handbook which reproduces 48 of Celia Rosser's watercolours. It makes the artist's exquisite work accessible to a wide audience. Even the privileged few possessing the published *Banksia* monographs (Volumes I and II cost more than \$2500 each) are said to appreciate the availability of this new soft-cover A4 edition for easy reference.

The book was published to accompany the exhibition of Celia Rosser's watercolours at Kew Gardens Gallery in London late in 1993, and subsequent exhibitions. The exhibition is currently in Edinburgh, and then will be shown in Lincoln, the home of Joseph Banks, until April. Further exhibitions are planned for the New South Wales Herbarium in 1995 and for a United States tour in 1996.

Interpretive material about Joseph Banks, *Banksias*, the Monash Project and the artist are supplementing the display of paintings in England. Qantas, a sponsor, flew fresh *Banksias* in fortnightly from the Flower Export Council of Australia to decorate the Kew Gallery. It was the first time Kew had honoured an Australian artist with a large exhibition in its gallery.

Celia Rosser went to London for the opening, at which another world-famous Australian botanical artist, Margaret Stones, was also present. The published Volumes were on display, and several copies were sold, together with hundreds of the handbooks and prints.

Celia led an informed and appreciative audience of Friends of Kew Gardens around her exhibition the following evening, giving an informal commentary which included details of her often rugged trips collecting specimens. Her work on the genus began in 1974, and should be completed with the publication of Volume III in 1996. Each life-size plant portrait, scientifically accurate but aesthetically pleasing, takes from 10 to 12 weeks. Banks found five species; now more than 75 are known – and few people will know them as well as Celia Rosser does!

The Banksias is available for \$43 from the Friends' Shop, and from the Visitor Centre at the National Herbarium, with a 10 per cent discount for Friends. Some *Banksia* prints are also available.

Heather Ironmonger

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During a torrential late-afternoon storm on 14 December 1993, water drained through the ceiling of the Herbarium Library onto some of the bookshelves. About 20 people quickly removed books and periodicals from the affected areas, and mopped up water 5cm deep from the floor. Director Philip Moors raised a weary smile after six hours of salvage work. Several hundred books which suffered light and moderate water damage are being dealt with by an expert book conservator.



The William Tell Rest House was meticulously restored by the Gas and Fuel Corporation through the Herald-Sun Gardens Appeal. Reopened on 22 June 1993, it was destroyed by an overnight fire less than three weeks later. The building was insured, and rebuilding will commence in January 1994.

The installation of an automatic watering system is causing considerable disruption to Gardens visitors but will result in economical use of water and of gardeners' time.



Roses bloomed luxuriantly in spring on arches donated by the Friends.



*The Friends of the Royal Botanic Gardens, Melbourne Inc.,
has been formed to stimulate further interest in the Gardens
and National Herbarium of Victoria, and to support and assist
them wherever possible.*