

ANNUAL REPORT 1990/91



**australian
museum**

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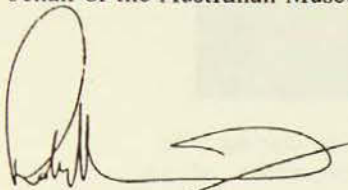
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To the Hon. Peter Collins, MP
Minister for the Arts in NSW

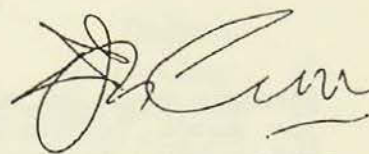
Sir

In accordance with the provisions of the Annual Reports (Statutory Bodies) Act 1984, and the Public Finance and Audit Act 1983, we have pleasure in submitting this report on the activities of the Australian Museum Trust for the financial year ended June 30, 1991, for presentation to Parliament.

On behalf of the Australian Museum Trust,



Dr Robyn Williams AM



Dr Des Griffin AM

ANNUAL REPORT 1990/91

**australian
museum**

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Open 7 days, 10am - 5pm.

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Director Des Griffin AM, MSc, PhD
Deputy Director Hal Cogger MSc, PhD

NEW SOUTH WALES



Minister for the Arts



Museums across the world have undergone a major evolution during the past decade. Traditionally perceived as static and serious receptacles of art and artefacts, they are now viewed as exciting collections of our culture and civilisation.

For the Australian Museum, the change has been part of a determined effort to develop broader community-based interest and support for their activities whilst maintaining their international profile in scientific research.

The Museum performs a vital educational and social role and continues to provide the people of New South Wales with a high quality museum experience. In preserving and interpreting our natural environment and diverse cultural heritage, the Museum is engaged in a wide range of public, educational and scientific programs.

The trustees and staff are to be congratulated on the continued development and implementation of the Museum's Corporate Plan which clarifies its role and priorities over the next five years.

The level of interest and enthusiasm generated through the public programs of the Museum is especially encouraging and this has been achieved largely through the highly successful travelling exhibitions, including "Monsters of the Deep" and the conclusion of "Dinosaurs Alive" - which jointly attracted around 350,000 people. Popular events such as "International Museums Day" and the annual "Dinosaur Picnic" have also contributed significantly to the demystification of the Museum.

Other exciting developments include the discovery of the rare Night Parrot and the establishment of a "Person in Residence" program. At the same time, the Australian Museum is exploring commercial and marketing opportunities to supplement their income in a period of necessary budgetary restraint.

I congratulate the Trustees and the staff of the Australian Museum on their contribution and achievement during the past year and look forward to the continuing success of the Museum as it responds to the challenges of the 1990's.

A handwritten signature in dark ink, appearing to read "Peter Collins".

The Hon. Peter Collins, MP

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STATEMENT OF PHILOSOPHY

We intend to grow and develop in Sydney as one of the world's leading museums specialising in natural history and human studies. We want visitors and the wider community to have easy access to our accumulated knowledge and opportunities for enjoyable learning experiences.

We will use exhibitions, education programs, publications and other effective media to communicate with people throughout New South Wales, other parts of Australia and tourists. We want the Museum's public environment to be pleasant in all ways, our staff to be friendly and reliable and to show respect for the interests and needs of those who visit, those with whom we do business and our wider audience.

We want the information we gather and communicate to be accurate and our activities and services to be, and be seen to be, of high quality, supportive of our mission and relevant to the community.

Our research activities will concentrate on Australia and nearby regions. Collections and associated information will be managed for the purposes of research and communication to the public and will be preserved for the benefit of future generations.

The future of our natural environment and cultural heritage is of central concern: we intend to join in public debate and give advice to government, the community and business where we have special knowledge. We will respect the rights and wishes of the peoples whose knowledge and material culture form the basis of our human studies programs. We will consciously abide by legislation and conventions protecting the natural environment, wildlife and cultural heritage.

We believe support for the Museum to be the responsibility of the community, the private sector and government: the Trust and Staff will be active in gaining that support. We will seek increased financial support from the community, especially from those visiting the Museum, mainly by effective merchandising and donations.

We will provide opportunities for staff to contribute to the development of the Museum, realise their own potential and co-operate with others to achieve those ends. It is intended that staff contribute to a range of Museum programs beyond the discipline in which they work. We will seek new ways to advance the Museum's goals, rather than emphasise traditional roles and procedures. Equality of opportunity in employment, health and safety and staff development will be emphasised.

Resources are focused on specific programs and projects, especially those which we are in a unique position to undertake and in which we can achieve results of superior quality. Authority to manage resources is delegated to those in charge of programs. Evaluation of the success of programs, and of staff conducting them, will be a central feature of management.

We will account for the way in which we use the support gained from the community to achieve our objectives. We will be effective financial managers. We will introduce new technology where there is good evidence that it will help to achieve the Museum's goals.

We want the Museum to be an exciting and rewarding place to visit and work in.

OUR MISSION

Our mission is to
increase understanding of our
natural environment
and cultural heritage
and to be a catalyst in
changing public
attitudes and actions.

Research and the
maintenance and improvement
of collections
are central to the
achievement of
the mission.

PRESIDENT'S REPORT

I have had the privilege in the past year of visiting museums in Scandinavia, Britain, Canada, USA and South East Asia. None, I'm delighted to find, surpasses the Australian Museum in its balanced excellence of exhibitions, scientific research, education, public profile and service to the community.

Three of the major exhibitions for 1990/91 illustrate this balance very well. The Dinosaurs Alive (like, later, Monsters of the Deep) had all the dramatic flair of modern robotics. Children were first hesitant, then thrilled by the spectacle - but we made sure there was plenty of solid scientific material to augment the show. Then Skeletons - a permanent display, demonstrated all the flair and fun our exhibition staff are famous for. Finally, The Woven Image, contemporary art from Arnhem Land, showed the subtlety and exquisite colours of traditional work unique to our region.

I was personally delighted by the success of our inaugural Eureka Awards. The Awards are for environmental research, for the promotion of science, for industry (and now also for a science book of the year). When I discussed what we had done with the staff at the Royal Society of London they were impressed that we had become, like them, a centre for such recognition of national effort. Our 1990 winners were Professor Michael Archer (for the promotion of science), CSIRO Division of Entomology (for environmental research), and Fauldings of Adelaide (for Industry). I am very grateful indeed to the ABC, POL Publishing and (in 1991) NSW University Press for sponsoring the Eureka Prizes, and to the Governor General, Bill Hayden, for presenting them.

Another initiative well established has been our Science Super Series of lectures. They have been so successful that we now find difficulty in obtaining a venue big enough. Sir David Attenborough filled the State Theatre with hundreds being unable to get tickets. He has now agreed to return twice more to satisfy the demand. The same response shown for Professor Stephen Jay Gould of Harvard and our other speakers: Dr Richard Dawkins (Oxford), Rupert Sheldrake (London) and Jonathon Porritt. Their lectures were broadcast on Radio National and made available on cassette. Susan Bridie's magnificent work in coordinating this program deserves our congratulations. The speakers for next year are just as compelling.

Several of our scientists gained rare prizes. The Edgeworth David medal went to our intrepid explorer, mammalogist and outspoken conservationist Dr Tim Flannery. The Royal Society medal went to past president of the NSW Society: geologist Dr Lin Sutherland. A financial award of \$50,000 was gained for the Museum by Walter Boles whose discovery of a night parrot (deceased) was recognised by my dear friend Dick Smith, (whose own Australian Geographic Society goes from strength to strength).

Our scientists are the intellectual backbone of the Museum. From their work all else flows: the credibility of our statements on environmental matters, the impact of the displays and the excitement of our educational programs. This year the research

achievements have been extraordinarily varied and impressive. In mammalogy they identified a unique fruit bat (Bulmer's), found five new species of rodents, a new flying fox and a new cuscus. In fishes they studied the reproduction of whalefishes and the distribution of gobies. In herpetology Ross Sadlier worked on reptile conservation, found 200 new specimens in the north and discovered a rare lizard in a new habitat.

Our invertebrate zoologists are engaged in convincing the public that small creatures in wetlands can be every bit as important as more visible ones as part of the web of life and so vital to the health of a region. They are also finding countless species new to science all over the South Pacific.

The extraordinary extent to which this nation is dominated by arthropods is shown by the figures for insects and arachnids: 25,000 and 7000 specimens respectively were added to our collection last year alone!

In Anthropology our activities concentrate in two main areas: building on our already excellent relations with indigenous people here in Australia and indeed in the Pacific and beyond. Secondly we are upgrading our collections in the most careful and sensitive way.

The ornithologists are studying bird ecology and working on the great Australian Bird Count (I was delighted to officiate at the ceremony when BP Australia, in the presence of Federal Minister Ros Kelly, presented the RAOU with a cheque for \$200,000 to assist this study).

At the beginning of 1991 I was pleased to welcome four new Trustees to the boardroom. All are proven friends of this great Museum. Ex-senator Chris Puplick has deep knowledge of environmental and ethnic affairs and a commitment to their proper place in Australian society. Professor Brian Low, pro-Vice Chancellor of UTS, is a leading authority in education. Jim Layt, head of Blue Circle Southern Cement, has supported our activities for several years and Nigel Milan, a colleague in broadcasting, has been a regular visitor. They join our other trustees in what is, I think, one of the most harmonious and active teams in recent memory. Mal Eutick, I'm delighted to say, became our deputy president this year.

All those I've managed to mention in this brief report, as well as the director, deputy director, the prize-winning team who produce our magazine ANH, security staff, brilliant financial people led by Geoff McKenzie, and many more, do their work with extraordinary dedication and scant regard for the monetary reward they deserve. Now that money matters dominate Australia's preoccupations I hope that the coming year will not see the sacrifice of anything we have achieved to the cause of what our celebrated director (Dr Des Griffin AM) so contemptuously calls 'economic irrationalism'. Money is a useful way to measure efficiency. It isn't the only one.

Robyn Williams

DIRECTOR'S MESSAGE

This year our Report focuses on people within the Museum and people without. We are just as much concerned with the quality of the services and information we provide to our visitors and all those with whom we do business as we are with the quality of our collection management and scholarship. We are emphasising our philosophy: making the Museum an exciting place to visit and work in.

Increasingly we are attending to issues such as staff training and development and structural efficiency - breaking down distinctions between job classifications, emphasising 'multiskilling' and eliminating unnecessary administrative procedures. This year senior and middle management met to clarify our objectives five years on, the actions necessary to achieve them and to identify the skills we will need in the Museum in the future. A new staff development program is being produced from these discussions.

We not only know that we have made substantial changes in the Museum in the last three years but we know that the public recognises and acknowledges that we have. The opening of the new building in 1988 in conjunction with the marking of 200 years of European settlement in Australia brought new spaces, three major new semi-permanent exhibitions and a temporary exhibition. Since then we have had major travelling exhibitions including 'Treasures of Ancient Macedonia' and 'Taonga Maori, Treasures of the New Zealand Maori People'.

The recent 'Dinosaurs Alive' (1990) and 'Monsters of the Deep' (1991) were major travelling exhibitions featuring giant animatronic (or robotic) models, roaring, moving and shaking! With the developing 'Discovery Space' and the opening of the renewed 'Skeletons - Frameworks for Survival' in our oldest gallery, the Museum has taken on a vital new appearance.

There has been much greater attention to our 'front-of-house' staff and activities and a vigorous program of visitor services including musical events, story-telling... and much more.

The 'Director for a Day' program, managed by Education Division's Visitor Services Section, brings Museum staff from 'behind the scenes' onto the 'floor', into the public galleries and spaces. Regular evaluations of our performance involve our operations staff and the 'Director for a Day'. Signage throughout the Museum is being rapidly upgraded.

A qualitative survey of visitors' reactions to the Museum completed towards the end of the year has shown that these changes have paid off. The survey report observed, "The perception of the Museum is no longer based upon the negatives of past school visits... In contrast ... children love their school visits to the Museum ... Once people are brought back into the Museum either through television advertising or advertising for special exhibitions they are likely to become more regular users ... The weaknesses highlighted in

previous studies such as the static nature of the displays, the rarefied serious atmosphere, the dark and depressing building and the awesome nature of the building itself are no longer accepted by the majority."

Like good education, good marketing starts with concentration on the visitor's experience, not on large advertising campaigns: people respond to advertising if it reinforces their experiences. The Australian Museum is amongst the leading museums taking this new approach to visitors. Progress has been made because front-of-house staff including security, guiding and cleaning people are committed to improvement and because of a commitment by education and all other front of house staff to work co-operatively. It is essential!

Two events this year were particularly popular. An 'open day' to mark International Museum Day (May 18) brought almost 10,000 visitors to look behind the scenes and see and hear scientists, educators, designers, conservators and administrators talk about what they do. The Dinosaur Picnic, now an annual event, which was held on April 7 had brought thousands to the Museum.

Education programs achieved more successes this year bringing the largest number of school children in groups to the Museum ever - 20% more than last year. In addition, over 160,000 visitors had direct contact with the Museum through holiday programs, special children's activities, tours, films, talks and demonstrations. Volunteers again made a substantial contribution to all programs and activities.

As in all previous years in the last 20, the emphasis on the public programs and on generating new money has been achieved alongside the ongoing commitment to scholarship.

Discovery of the extremely rare Night Parrot, thought to be extinct, in South West Queensland, by Walter Boles and colleagues achieved substantial attention in the media (as did many other scientific research activities of the Museum) and a reward from conservationist and publisher Mr Dick Smith.

Public recognition of our commitment to scholarship and the increase of understanding was demonstrated by two activities. His Excellency the Governor General of Australia, Mr Bill Hayden, announced the first Eureka Awards for achievement in the conduct of environmental research, in the promotion of the understanding of science, and in the conduct of research by commercial enterprise. And the Science Super Series, run in conjunction with the Australian Museum Society (TAMS) brought hundreds and sometimes thousands, of people to hear of the latest discoveries and ideas.

The Anthropology Division completed movement of its vast collections to properly air-conditioned and furnished new storage. Our ability to care for collections of secret and sacred Aboriginal material and human remains was improved with the construction of a special 'Keeping Place' assisted by a special grant from the Minister. Provision of

access to this material for, and discussions with, Aboriginal people receives greater emphasis. Returning material when appropriately requested is being given much greater attention: remains were returned to people at La Perouse and work on other returns was advanced.

The Materials Conservation Division continued studies on new ways to conserve collections using oxygen free atmospheres and safer object fumigation procedures using low oxygen environments.

A review of collection management for Anthropology, Vertebrate and Invertebrate Zoology collections was completed. Plans of action to strengthen our procedures were formulated and comprehensive manuals of procedure were prepared covering all aspects of operation. A review of priorities to be used in guiding the direction of future scientific activities was commenced and is expected to be completed early next year. These actions are essential to provide a focus for the Museum's entire scientific endeavour.

And everyone continued to achieve other successes, to plan strategically, appraise their performance, participate in professional development and community activities, attend conferences and communicate. Several major new programs focusing on Aboriginal people, on Australia's emerging culturally diverse society and our natural world are taking shape.

A 'Person-in-Residence' program started using funds from the Australian Museum Foundation. Modelled on other 'Artist-in-Residence' programs we called for applications from sociologists, economists, politicians even, as well as artists. The program seeks to stimulate recognition and understanding by Museum staff of various points of view about how the world works and of why others perceive it the way they do, provide opportunities for other "professionals" to advance their career and make a contribution to the development of both the Museum and Australian society. The first artist appointed under the program, Lisa Anderson, will take up her residency early in the new year. Under a separate arrangement, holographer Paula Dawson who has won international acclaim for her giant holograms, will receive administrative and facilities support for her project to create holograms showing changes in Australia's natural environment over time.

Major progress can be reported in management of our buildings. A completely new computer software package has been developed in the Museum's Corporate Services Division in co-operation with the NSW Department of Public Works and will assist significantly in the management of this component of our assets. A plan for maintenance over the next five years has also been prepared: substantial parts of the Museum buildings are over 120 years old and have been neglected in previous years with consequent problems such as leaking roofs and breakdown of stonework. Now that full accrual accounting has been adopted, the liability for maintenance can be more easily identified. However, if funds are not forthcoming then one might ask if the new approach to reporting the financial situation serves any useful purpose.

Every year I report further funding difficulties. Despite the fact that museums are collectively among the most visited attractions and generate substantial economic benefit through the spin-off effect of their expenditure and that of visitors, many of whom come from out of town, a shortage of money is a world-wide problem facing museums everywhere. This year is no exception.

We have to develop new ways of raising funds and diversifying our revenue base. The last two years have seen upgrading of our fundraising from individuals and the corporate sector and, more recently, exploration of commercialising appropriate parts of our activities. A feasibility study of commercialisation was conducted this year and will form the basis of an expansion of this activity. Funds for the employment of a business manager are being borrowed from the NSW Treasury; the Trust's own funds are used to employ fundraising staff. Some \$4 million was raised by the Museum this year from non-State Government sources by its own efforts: without that the Museum would achieve little indeed!

I travelled overseas to conferences in Denver, Colorado (American Association of Museums) and Paris, France (International Council of Museums Committee on Management meeting on performance indicators). I also visited museums and similar attractions in the USA, in Paris and in London, England. I can say without reservation that the Australian Museum's achievements are, in many cases, as good as those of the best museums and that our approach to the agenda facing museums world-wide lacks nothing in determination and innovation.

At the Australian Museum we emphasise efficiency in what we do and effectiveness in the programs and services we conduct. Rather than simply cutting costs we try to concentrate on examining what we should invest in. If we continue to do that we will still be an exciting place to visit and to work in ten years hence.

As in previous years I thank Trust President Robyn Williams and his colleagues for their support, my colleagues who head all of the Museum's divisions and form the management team and all the Museum's staff, volunteers and friends.

Des Griffin

CORPORATE STRATEGIC PLAN 1990-1992

All actions taken to achieve objectives in each of the key result areas are reported at each Trust meeting. These have included:

Key Result Area: Effective and efficient management

Senior and Middle Management undertook a planning meeting in April, to consider likely developments over the next 5 years, and skill requirements necessary to meet those developments.

The Museum has identified the following areas to be subject to program evaluation during 1991/92:

Formative Exhibition Evaluation, Gallery Maintenance, Development of Product Costing Process, Use of Product Cost Process to evaluate the four Major Education Programs, Australian Natural History magazine, Human Resource Services, Museum Security Processes, Collection Management, Earth Science.

A restructure of the Exhibition Division under the Structural Efficiency Program was submitted and approved in principle by the Ministry for the Arts Joint Consultative Committee - the review process is continuing in the divisions of Corporate Services, Community Relations, and Education.

Great Attractions of Sydney - a co-operative marketing group to market 14 of Sydney's cultural institutions to tourists has been formed. The Australian Museum is a founding member and is represented on the executive committee.

Key Result Area: Public Programs

An exhibition of traditional Chinese paintings depicting the life of a celebrated Australian, William Liu, was displayed in the Museum with the enthusiastic help and support of the Sydney Chinese community. The Museum also joined with another community group in celebrating the Sydney Maori Festival.

A grant of \$25,000 has been received from TAMS to provide video projection and an upgraded sound delivery system and controls for the theatre.

Upgrading of activity rooms for K-10 school programs (Aboriginal Studies, Animal Characteristics) was undertaken in response to evaluation of last year's program, as part of existing and planned programs for schools.

Dinosaur Picnic, Open Day and training for 32 new volunteers (including the first intake of ethnic guides) was undertaken, as part of existing and planned programs for visitors and targeted groups.

The Science Super Series of public lectures which included talks by Johnathon Porritt and by Sir David Attenborough were a sell out success.

Key Result Area: Financial Viability

The move of off site storage from Rushcutters Bay to Marrickville was completed and on an annual basis, a saving of \$77,000 will accrue.

Building Maintenance is now controlled from within the Museum and the need for catch-up funding for building works is being conveyed to Treasury; the annual maintenance allocation must be lifted to a realistic level (presently less than 0.7% of the value of the building complex).

A commercial feasibility study in the area of scientific research and intellectual property rights was undertaken by Dr Paul Hudson.

Following an initiative of the Museum seeking additional funding for various projects in October, advice was received of supplementary funding of \$200,000 for two Aboriginal projects.

Key Result Area: Research and Collections

Drs Paxton and Colgan were awarded a grant of \$69,800 to identify breeding stocks of two commercial fishes in southern Australia over the next two years from the Fishing Industry Research and Development Council.

Reorganisation of the five Scientific Divisions (from six) was completed with the long term appointment of Drs M. Gray (Division of Invertebrate Zoology), D. Hoese (Division of Vertebrate Zoology, including the Evolutionary Biology Unit), A. Jones (Division of Earth and Environmental Sciences) and J. Specht (Division of Anthropology).

Collection Management restructuring has resulted in the appointment of Collection Managers as Scientific Officers. Action Plans, resulting from the Collection Management Review, have been finalised to improve collection management in various areas.

TRUSTEES

Trustees are appointed under the Australian Museum Trust Act: No 95, 1975, as amended, which also sets out procedures for meetings of the Trust, quorum of Trustees etc. Appointments are for a term of three years and the Director of the Australian Museum is Secretary to the Trust.

Dr Robyn Williams AM has been producer/presenter of the ABC Science Show since 1975. His television experience includes 'The Uncertainty Principle' and 'The Nature of Australia'. He has had several books published including 'Here Come the Philistines' and 'The Best of the Science Show' and is a regular contributor to 'Australian Natural History' magazine. He is currently Chairman of the Commission for the Future and has been awarded honorary doctorates from the University of Sydney, Macquarie University and Deakin University. He joined the Museum Trust in 1984 and was elected President in 1986.

Dr Telford Conlon holds degrees in Chemistry from Sydney University and University College, London and a PhD in Biophysics from the University of NSW. A former lecturer at the NSW Institute of Technology, he was on the staff of the Minister for Science in 1973 and was a consultant on science policy to the Royal Commission on Australian Government Administration and the Department of Foreign Affairs. He was a director of the Australian Institute of Political Science for fifteen years and was Chairman in 1979-80. Until recently he was a Research Associate of the Neurobiology Unit at the NSW Institute of Technology and is now a company director.

Dr Malvin L Eutick is Chairman of the Australian biotechnology company Bioquest Ltd and Marketing Director of the environmental services group G.M. Laboratories. Prior experience has included Senior Executive and Board positions in the biomedical field with the venture capital manager, Technology Investment Management and General Manager of the pharmaceutical company, Pharmacia-LKB. He holds degrees in biochemistry and museum studies. His interest in museums and their administration has resulted in his publishing several books including the 'NSW Museum Yellow Pages' and a guide to the legal problems surrounding the acquisition of museum objects.

Dr Jonathon King graduated in Political Science at both the London School of Economics and University of Melbourne and worked as a print and electronic journalist with mainstream newspapers and television stations in Britain and Australia. He lectured in Political Science in Britain, USA and Australia before producing the \$14 million First Fleet Re-enactment Expedition for Australia's Bicentennial celebrations. The author of fifteen books on Australian and American history and politics, he now teaches Politics of the Environment at Macquarie University (External Studies) and is Australian Director of the Rainforest Foundation which was founded by British musician Sting, in 1989. He also gives talks to corporate and community groups on history, heritage and the environment. He joined the Museum Trust in 1988.

Mr Jim Layt AM has been Managing Director of Blue Circle Southern Cement Limited for over ten years, and is also responsible for the domestic and overseas energy businesses of Boral Limited. He has a Bachelor of Science degree and a Master of Business Administration degree, and has undertaken Advanced Management Programs at Harvard University. He is currently a Member of the Business Council of Australia, President of the Cement & Concrete Association of Australia, a member of the Council of the University of New South Wales, Member of the Trade Development Council established by the Department of Foreign Affairs and Trade, Honorary Trustee of the Committee for Economic Development (CEDA), Director of the Australian Institute of Management Limited (AIM), Past President of the Employers' Federation of NSW, and Chairman of the Technical Aid to the Disabled Foundation. He joined the Museum Trust in 1990.

Professor Brian Low is Pro-Vice-Chancellor (Academic Support) at the University of Technology, Sydney. He was born and educated in Queensland and has worked as a secondary school teacher in Queensland, and as an academic staff member in universities in New South Wales. His teaching and research interests are in the areas mathematical reasoning and the education of mathematics teachers. Professor Low joined the Museum Trust in 1990.

Mr Nigel Milan is one of Australia's leading executives in radio broadcasting. He was Chief Executive at Radio 2UE from 1987 to 1991, taking the Station from tenth to second position. Previously he was Sales Director of the Macquarie Network, and then Deputy General Manager of that network. He has served as a member of the Board of Management of Bond Media (National Nine Network, Bond Radio & Sky Channel), was Vice President, and later President, of the Federation of Australian Radio Broadcasters, and was appointed Acting Chief Executive of the "Story of Sydney" tourist venue. He joined the Museum Trust in 1990.

Mr Chris Puplick graduated from Sydney University with a Master of Arts degree in Government having made a particular study of the operations of federal systems in Australia and overseas. He subsequently worked on the personal staff of the first federal minister for Aboriginal Affairs and for several members of the Federal Parliament. He entered Federal Parliament as a Liberal Senator for New South Wales in 1978 and served until 1981, and later from 1984 to 1990. He was at various times federal Shadow Minister for the Environment, Heritage, the Arts (including museums) and Sport, as well as being Manager of Opposition Business in the Senate. He has several published works and was an active broadcaster and book reviewer for the ABC Science Unit. He currently serves on the Board of the National Institute for Dramatic Art, the Griffin Theatre Company and the Zoological Parks Board of NSW; and on the Executive of the Australian Council for the Care of Animals in Research and Teaching (ACCART). He is an active member of Amnesty International and the International Commission of Jurists. He is the Chief Executive Officer of the Packaging Environment Foundation of Australia - a private sector organisation working to promote solutions to the management of municipal solid wastes with particular emphasis on environmental issues in the packaging industry.

Dr Richard Walsh is a graduate in arts and medicine from the University of Sydney. He was founding editor of *Oz* and *Pol* magazines and the weekly *Nation Review*. He was Chief Executive at Angus & Robertson Publishers for fourteen years and is currently Chief Executive and Publisher at Australian Consolidated Press. He is Chairman of the Australian National Commission for UNESCO, a former Director of the Australasian Medical Publishing Company - producers of the *Medical Journal of Australia*, and is currently on the publishing committee of the Royal Flying Doctor Service. He joined the Museum Trust in 1988.

The Trust met on 5 occasions during the year. Attendance at meetings was as follows:

Dr Robyn Williams [President] 4 (of 5); apology received for 1 meeting

Mr Colin Bull [appointment ceased 31 December 1990] 3 (of 3)

Dr Telford Conlon 5 (of 5)

Mr Richard Clark [appointment ceased 31 December 1990] 2 (of 3); apology received for 1 meeting

Dr Malvin Eutick 4 (of 5); apology received for 1 meeting

Mr John G Fink [appointment ceased 31 December 1990] 2 (of 3); apology received for 1 meeting

Prof Alistair Gilmour [appointment ceased 31 December 1990] 2 (of 3); apology received for 1 meeting

Dr Jonathon King 5 (of 5)

Mr Jim Layt [appointed 1 January 1991] 1 (of 2); apology received for 1 meeting

Prof Brian Low [appointed 1 January 1991] 2 (of 2)

Dr Judy Messer [appointment ceased 31 December 1990] 3 (of 3)

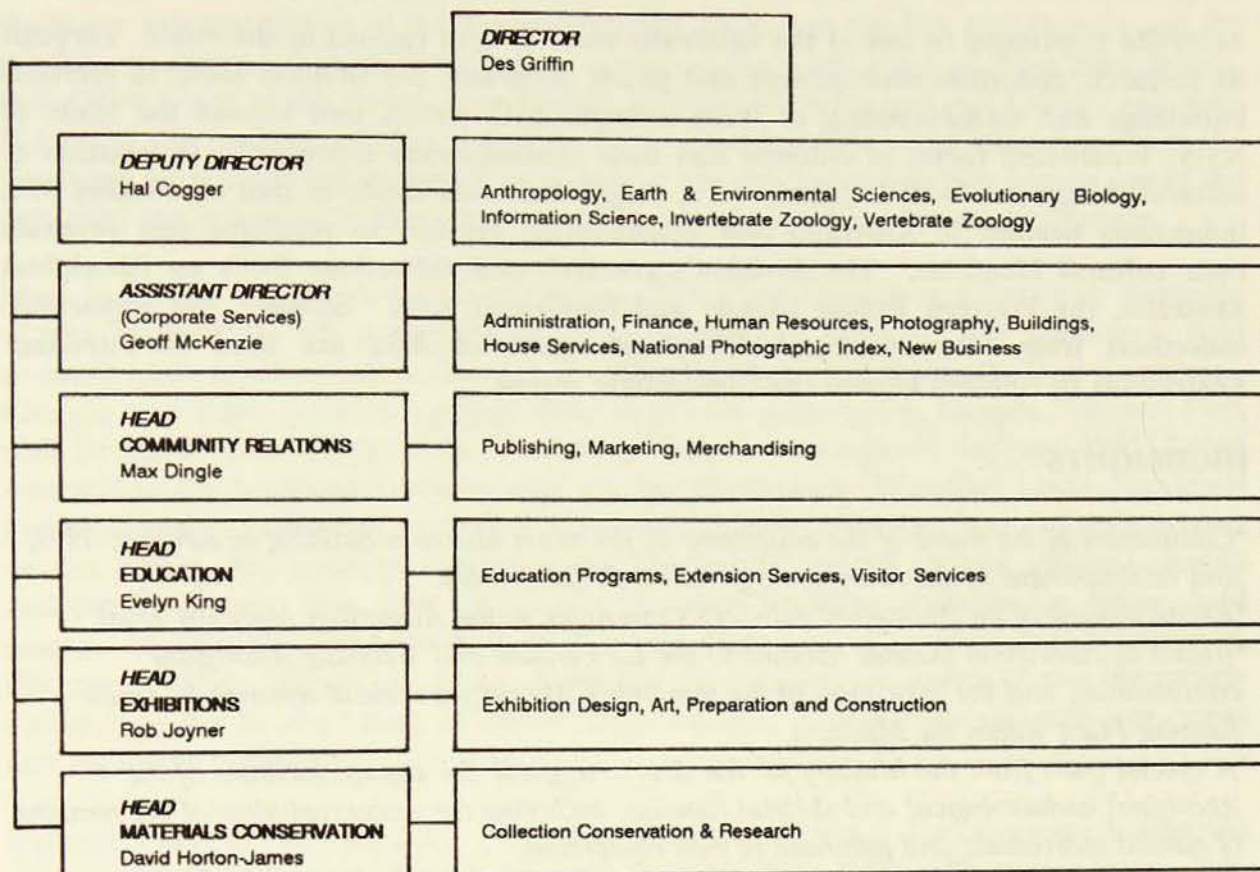
Mr Nigel Milan [appointed 1 January 1991] 2 (of 2)

Mr Chris Puplick [appointed 1 January 1991] 2 (of 2)

Dr Richard Walsh 4 (of 5); apology received for 1 meeting

"Biologists are the canaries in the mine of the future. When they smell something funny, they call out."

Museum Trustee, Dr Telford Conlon



DIVISION OF ANTHROPOLOGY

Australia is situated in one of the culturally most diverse regions of the world. Through its research, collection management and public programs the Division seeks to increase knowledge and understanding of these cultures both within and beyond the State of NSW. Traditional forms of cultures and their contemporary expressions in contexts of cultural change are both emphasised. A major divisional theme is that of working with indigenous peoples in Australia and neighbouring regions to reinforce and promote their cultural identities. The Division's research and collections focus on Aboriginal Australia, the Western Pacific islands and South-east Asia. Smaller, but important, collections from the Americas, Africa and mainland Asia are used to introduce Australians to cultures beyond their immediate region.

HIGHLIGHTS

- *Completion of the move of the collections to the main Museum building in January, 1991, and establishment of the Anthropology Research Laboratory.*
- *Establishment of an Aboriginal Advisory Committee to the Australian Museum Trust.*
- *Return of Aboriginal skeletal remains to the La Perouse and Windang Aboriginal communities, and the relocation of the remaining Aboriginal skeletal remains to a new Keeping Place within the Museum.*
- *A special grant from the Ministry for the Arts to upgrade the storage facilities of the Aboriginal archaeological and skeletal remains, including the documentation of the remains of named individuals and purchase of new equipment.*

RESEARCH

Research was greatly assisted by the Division moving into part of the Mammals laboratory. For the first time ever, the Division now has quality conditions and reasonable equipment for its research activities.

Val Attenbrow spent two one-month periods excavating two archaeological sites in the Vacluse and Northmead areas of the Sydney region as part of her Port Jackson Archaeological Project. She found stone tools, shells and fish bones at the Vacluse site, and stone tools at the Northmead site which will allow a better understanding of the Aboriginal use of natural resources in the Port Jackson region. At both excavations she was assisted by people from the local Aboriginal communities, some of whom subsequently participated in the analysis of the materials excavated.

Jim Specht visited West New Britain Province, Papua New Guinea, twice. On the first visit, in January 1991, he discussed future research plans with government officials, and accompanied Dr C. Gosden (La Trobe University, Melbourne) and Ms C. Pavlides (doctoral student, La Trobe University) to one of his former research areas where Pavlides will undertake further work. In April he spent two weeks on the north coast of the province with Robin Torrence (Australian Research Council Fellow), Professor

Hiroshi Machida (Tokyo Metropolitan University and Australian Museum Visiting Fellow), and David Lolok (Rabaul Volcanological Observatory, Papua New Guinea) to study the volcanic history of the Talasea-Hoskins areas over the last 10,000 years and the resulting landscape changes. Specht then moved to the south coast of West New Britain, with Baiva Ivuyo of the Papua New Guinea National Museum and Art Gallery and John Normu of the provincial Cultural Centre. They excavated four archaeological sites in the Kandrian area, obtaining important new data to test the hypothesis that human use of the area over the last 5,000 years was greatly influenced by localised landscape changes.

Prior to joining the Museum staff in January, 1991, Paul Taçon was a Research Associate of the Department of Anthropology, Trent University, Canada, and undertook field research photographing adaptations to the arctic winter in Inuvik, North West Territories, Canada, and three weeks recording Aboriginal rock paintings in Kakadu National Park with Dr Christopher Chippindale (Cambridge University, England). In June, 1991, Taçon returned to the Northern Territory with Ms Sue McPherson (Wiradjuri Local Aboriginal Land Council) to continue work with Chippindale, and to begin a new research project on the relationship between contemporary Aboriginal material culture, cultural identity and the landscape. This pilot phase was designed to allow planning for future field seasons on Melville Island, in Kakadu National Park, and at Oenpelli and Maningrida. His paper 'The Power of Stone' published in the journal *Antiquity* was favourably reviewed in the 16 June issue of *Nature* as an example of important research that opens new directions for study.

Richard Fullagar continued his Australian Research Council Post-doctoral Fellowship project on obsidian sources and artefacts in West New Britain Province, Papua New Guinea. Fieldwork at the Mopir obsidian sources was successfully completed with G. Summerhayes (doctoral student, La Trobe University) and Baiva Ivuyo (PNG National Museum and Art Gallery). In addition to obtaining important new data on the Mopir sources, Fullagar's analyses of the use-wear and microscopic residues on obsidian tools have provided direct evidence for plant processing. Fullagar also participated in fieldwork in the East Kimberley region with L. Head (University of Wollongong).

In February, 1991 Robin Torrence began a five-year Australian Research Council Fellowship in the Division which will provide detailed information on the history of obsidian use and trade in West New Britain Province, Papua New Guinea.

Torrence analysed obsidian artefacts from two archaeological sites in the Talasea area in order to compare the efficiency of production of tools before, during and after the Lapita pottery period. Preliminary findings suggest that the change from the production of stemmed tools to that of casual, expedient flake tools was linked to differences in the use of space at the quarry sites. Her ongoing research is testing the hypothesis that these differences were related to changes in subsistence and settlement patterns caused by the effects of a major volcanic eruption about 3000-3500 years ago. In April she joined Specht, Machida and Lolok in the Talasea-Hoskins area (see above), and made

arrangements with government officials and the landowner of Garua Island for future fieldwork.

Kate Khan completed the preliminary project on the W.E. Roth collection of Aboriginal artefacts from North-east Queensland. Catalogues and other publications on this project are underway, and the first will be published in 1991-92.

Beth Hise completed the documentation of the Museum's Arctic collection and commenced a catalogue for publication in 1991-92. She also undertook archival research into the North-west Coast American Indian collection from Cape Mudge with financial support from the Canadian Museum of Civilisation.

Stan Florek completed the *I4C* and thermoluminescence dating of materials from the Mound Springs sites in South Australia, and began a quantitative study of the Museum's collections of Kimberley points.

Lissant Bolton began fieldwork in Vanuatu, where she will be based for the next 14 months as part of her doctoral program at the University of Manchester, England.

David Moore, former Curator of Anthropology at the Museum, began a documentation project of the Museum's Torres Strait materials.

COLLECTION MANAGEMENT

Thanks to the efforts of Zoe Wakelin-King, Lissant Bolton, Elizabeth Bonshek and Kate Khan, with the assistance of more than a dozen temporary staff members, the relocation of all of the Division's collections into new or upgraded storage areas was completed during the year. About 90% of the Pacific Islands collection is now inventoried and accessible in geographic and category order. The Asian and African collections have been inventoried and sorted by region; the Asian catalogue has been improved and a baseline catalogue for the African material has been started. The South-east Australian section of the Aboriginal ethnographic collection is now fully catalogued and accessible, and a catalogue and inventory of the remainder of the collection is underway.

The Aboriginal collection was further sorted by Paul Taçon, Craig Sadlier and Judith Graham to identify secret/sacred material that should be transferred to the special Keeping Place. This area has been reorganised, following advice from several Aboriginal communities, to provide appropriate access for staff and visitors. The special NSW government grant for the Aboriginal skeletal remains and archaeological collections allowed extensive renovations and improvements in both areas, including provision of respectful conditions for the human remains. Following requests for information from several Aboriginal organisations, the entire collection is under review, with the assistance of Denise Donlon, Colin Pardoe and Sheila van Holst-Pellekaan, to identify and document named or known individuals and those of post-contact origin. The program of

documentation is a preliminary to negotiations with communities about the future of these remains.

In the midst of the collection reorganisation, inventorying and documentation, considerable progress was made with registration of backlogs in all areas. Nan Goodsell completed registration of the most recent J. Moriarty donation from Papua New Guinea and the collection of Pacific items received from the Museum's Education Division. Registration of the several thousand Pacific Islands artefacts from the University of Sydney collection received in 1988 continues, but will probably require more than another year for completion. For the first time since 1948, there is no backlog of ethnographic and contemporary Aboriginal items, and a guide to the archaeological collections is well-advanced.

PUBLIC PROGRAMS

Divisional members participated in ten exhibition projects. Attenbrow's work on her Port Jackson Archaeological Project is featured in the new Science exhibition in the 'Museum On The Road' series. Between August and December, 1990, Florek worked on the Museum's component of the 'Story of Sydney' exhibition at The Rocks which opened in January, 1991. Specht served on the project team for the contemporary Papua New Guinea art exhibition 'Luk Luk Gen!' which will open in September, 1991. Taçon joined the steering committee for a major travelling exhibition of rock art that will open in 1993.

Beth Hise used the Division's collections to organise an exhibition 'Africa - Traditional Arts of the Sub-Saharan Region' shown in the Macleay Museum, University of Sydney. Opened by Mr George Zulu, First Secretary of the Zambian High Commission, this exhibition provided the first opportunity in many years to display the Museum's African collection.

Kate Khan was the anthropologist on the project team for the exhibition 'The Woven Image: Contemporary Art from Arnhem Land' which showed hundreds of woven items from Maningrida. Diane Moon, arts adviser to Maningrida Arts and Crafts, assisted the project team, and Mrs Mabel Mayangul, Mrs Laurice Gurglayla and Mrs Lena Yaringura travelled from Maningrida for the opening on 15 December, 1990.

Thirteen Aboriginal bark paintings and eight acrylic paintings were loaned to the S.H. Ervin Gallery, National Trust Centre, Sydney, to complement the Rover Thomas and Trevor Nicholls exhibition. Sue Thomsett, Elizabeth Bonshek and Jim Specht assisted in the presentation of a small display of Maori artefact as part of the 1991 Maori festival in Sydney, and in the loan of Fijian artefacts for display at the University of New England, Armidale. Gordon participated in the design and planning of a new 'walkabout' sheet for the Education Division, and advised on the updating of the 'Aboriginal Australia' gallery. Bonshek visited New Caledonia to bring back artefacts loaned for an exhibition in Noumea and Paris titled 'de Jade et de Nacre'.

Zoe Wakelin-King consulted with members of Sydney's Indonesian community concerning a funding appeal to purchase a Balinese Gamelan orchestra. The appeal was launched in March, 1991, and it is hoped to have the orchestra commissioned and ready for performances at the Museum in the next financial year. The University of Sydney Gamelan Group provided two-hour informal performances of Javanese music in the public galleries, on a voluntary basis, on the first Sunday of each month. Slamet Riyadi, a visiting Javanese Gamelan teacher, organised a small Museum staff Gamelan group during 1990.

At the Museum Open Day in May, 1991, Beth Hise and Paul Taçon gave public lectures on Arctic cultures and Northern Territory rock art and bark paintings respectively. Val Attenbrow, Richard Fullagar and Robin Torrence presented displays and short talks about their various research projects.

Members of the Division also made substantial contributions to the TAMS 'morning coffee' series of talks. Hise gave a talk on North-west Coast American Indian art, and Taçon spoke about 'The last rock painters of Kakadu'. Warren McCowage, a student volunteer in the Division, gave an address on Precolumbian Peruvian pottery. Wakelin-King presented highlights of the Museum's small Tibetan collection to a TAMS seminar on Bhutan and Tibetan art and culture.

Taçon and Torrence presented papers about their research in the Museum's Seminar series, and Graham, Wakelin-King and Attenbrow addressed Museum guides' training sessions on their special areas.

EXTERNAL ACTIVITIES

Editorial work

Attenbrow and Fullagar served as joint Editor and joint Book Review Editor respectively of *Australian Archaeology*, the journal of the Australian Archaeological Association. Specht served as Associate Editor of the Australian Museum Records. Florek continued as an external reviewer for *Current Anthropology*.

Lectures and conferences

Members of the Division presented more than 50 lectures, seminars and talks during the year to a wide range of organisations and groups.

Attenbrow, Fullagar and Specht each presented research papers at the annual conference of the Australian Archaeological Association in Townsville. Specht and Taçon gave papers at the Indo-Pacific Prehistory Association conference in Yogyakarta, Indonesia, that by Specht jointly authored with Fullagar and Torrence. Fullagar also presented two jointly-authored papers at the Australian Archaeometry conference in Canberra, and had

a paper read *in absentia* at an international conference at Liège University, Belgium. He also attended the Australian Quaternary Association Conference at Mallacoota. Attenbrow and Taçon attended workshops and meetings of the Australian Association of Consulting Archaeologists, and Attenbrow participated in a Quaternary Dating workshop at the Australian National University, Canberra. Bonshek, Hise and Gordon gave papers to the Conference of Museum Anthropologists in Brisbane, where Bonshek presented a paper on behalf of Lissant Bolton. Torrence attended the First Tidal River (Victoria) conference on Pleistocene archaeology, where she acted as a session discussant. She also attended the first Australian Women in Archaeology conference in Albury. Goodsell and Florek attended the inaugural conference of museum registrars organised by the Museums Association of Australia in Canberra. Also in Canberra, Gordon spoke about the interaction between museums and Aboriginal people at the Multicultural Heritage Management Symposium at the University of Canberra.

Graham and Gordon attended the 'New Partnerships' Forum organised by the Museums Association on Australia at Campbelltown City Art Gallery. Graham also participated in the 'Cross-Cultural Strategies for Action' seminar organised by the NSW Community Arts Association. Gordon gave a paper on the interaction between museums and Aboriginal people, and Khan chaired the session 'The politics of painting', both in the 'Aboriginal Art in Society' series at the Art Gallery of NSW and the Powerhouse Museum respectively. Hise gave an eight week lecture course for the Workers Educational Association on 'Arctic Cultures: Peoples of the Far North'. Gordon presented a talk on Aboriginal culture at the Festival of Sydney, as well as addressing Indonesian management studies students, Aboriginal students from Kempsey, and a discussion group on contemporary Aboriginal cultural and youth issues organised by the Hills District Youth Service. Graham addressed students from the Lewis and Clarke College, USA, and to students from Pemulwuy School, the first Aboriginal school in NSW. Attenbrow spoke to the Aboriginal Education Unit of the Liverpool College of Advanced Education, and gave a talk on the Aboriginal occupation of the Sydney area to the Mosman Historical Society.

The Division's interaction with the University of Sydney was once again intensive. Graham, Gordon and Bonshek gave talks to students of the Museum Studies Course, and three students spent time in the Division on work experience. Specht, Gordon, Fullagar and Torrence all gave lectures/tutorials to prehistory students in the Department of Anthropology. Attenbrow, Torrence and Taçon gave seminars to the Anthropology Department, University of Sydney, and Taçon a seminar at the Australian Institute of Aboriginal and Torres Strait Islander Studies in Canberra. Torrence presented a seminar at La Trobe University, Melbourne, and at the University of Utah, Salt Lake City.

Other activities

Attenbrow and Khan are acting as co-supervisors for post-graduate students at the University of Sydney and the University of New England. Fullagar and Specht served as external advisers for several students at the University of Sydney and La Trobe

University, and Fullagar acted as external examiner for several student theses. Khan was re-appointed as a member of the Australian Institute of Aboriginal and Islander Studies, and serves as a grant assessor for that body. Attenbrow, Torrence, Fullagar and Specht were re-appointed Research Associates of the Department of Anthropology, University of Sydney.

During the year, the Division commented on several NPWS (NSW) Plans of Management concerning Aboriginal archaeological and sacred sites, as well as on the Resource Assessment Commission report on the controversial Coronation Hill, Northern Territory, mining proposals. The Division also submitted comments to the Inquiry Concerning the Future of Prehistory, Historical Archaeology and Museum Studies at the University of Sydney, and to the review of the Protection of Movable Cultural Heritage Act 1986. Specht and Wakelin-King acted as expert examiners under the federal Protection of Moveable Cultural Heritage Act.

COMMUNITY LIAISON ACTIVITIES

The Division's contacts with Aboriginal people and organisations increased enormously throughout the year, but two actions in particular stand out. In the first, Phillip Gordon led a group of divisional members in a complete review and revision of policies covering all aspects of the Museum's interactions with Aboriginal people and their heritage. This document, completed to discussion stage in 1990-91, will be completed in 1991-92. The second action was the formal establishment of the Aboriginal Advisory Committee to the Australian Museum Trust. This committee consists of Evelyn Crawford (NSW Police Headquarters), Jenny Crew (NSW Aboriginal Land Council Claims Unit), Peter McKenzie (Gooribal Consultancy), Aden Ridgeway (Department of F.E.T.E.), and an Aboriginal representative of the NSW National Parks and Wildlife Service, with Phillip Gordon as secretary to the committee. The committee is appointed for one year in the first instance, to advise the Museum on all matters relating to the Museum's involvement and interaction with Aboriginal people, particularly to maximise the opportunities for Aboriginal people to participate in the management and presentation of their cultural heritage. As a result of the policy review and the formation of the advisory committee, it is hoped to establish an Aboriginal Heritage Resource Unit within the Division in 1991-92.

Gordon and Graham received visits from numerous Aboriginal people and organisations: Naamoro Aboriginal Employment Unit, Redfern; Tranby College; The Eora Centre; the Aboriginal and Islander Dance Theatre; Boomalli Aboriginal Artist Co-operative; La Perouse Aboriginal Land Council and Museum; the Gosford Aboriginal TAFE Unit's 'Dreamtime Designs'; the Murri Arts Steering Committee, Queensland; and the Crossroads Aboriginal Corporation. Gordon and Graham also travelled widely within NSW to promote the Museum among Aboriginal communities and to discuss issues relating to Aboriginal heritage, visiting the Central Land Council, Dubbo; the Brewarrina Cultural Museum; the Barwon Aboriginal Centre, Walgett; the Lightning Ridge Aboriginal Land Council; the Moree Plains Gallery and the Yurundiali Artists' Co-

operative, Moree; the Armidale Aboriginal Keeping Place; the Minjungbal Aboriginal Cultural Centre, Tweed Heads; the Koombumerii Aboriginal Corporation, Burleigh Heads; and the Wollongong University Aboriginal Education Unit. Gordon also visited the Hunter Valley region to begin intensive consultation with Aboriginal people on a wide range of issues.

Following a request from the La Perouse Aboriginal Land Council, the human remains from the Council's area held by the Museum were reviewed to identify any of named/known individuals or those of post-contact origin. Denise Donlon prepared reports for the Museum Trust and the Land Council on the condition of the remains and their possible scientific research significance. As a result of this report, the remains of 29 individuals were returned to the Land Council for reburial in accordance with Museum policy. A similar review is currently underway of remains from other parts of NSW and North Queensland.

In connection with her archaeological research project in the Port Jackson area, Attenbrow continued close liaison with the Aboriginal Land Councils covering the Metropolitan, La Perouse and Daruk areas. Several Aboriginal people from these areas participated in her archaeological fieldwork and the subsequent analysis of finds.

Prior to joining the Museum staff, Paul Tagon visited Arnhem Land to present a copy of his doctoral thesis to the Gagadju Aboriginal Association. For his 1991 fieldwork he was able to obtain special funds for Ms Sue McPherson of the Wiradjuri Aboriginal Land Council, NSW, to join him for eight weeks of field experience in the Northern Territory. Gordon, Graham and Sadler also provided training in museum practises to John Barker, Brewarrina Cultural Museum; Shirley Foster, Wallaga Lake Aboriginal community; and Mark Leslie, Moree Aboriginal community.

Through Sue Thomsett and Elizabeth Bonshek, members of the Sydney Maori community made several visits to the Division's Maori collection, following on from the 'Taonga Maori' exhibition. Beth Hise liaised with African musicologist Dr Drid Williams concerning a set of Ghanaian Bedu masks, and associated performance documentation, which Dr Williams has loaned to the Museum for inclusion in the 'Rituals of the Human Life Cycle' exhibition later in 1991. These materials were collected by Dr Williams in the late 1960s.

STAFF MATTERS

Lissant Bolton took leave-of-absence for three years in August 1990 to undertake PhD studies at Manchester University, England, on weaving in Vanuatu. Bonshek and Goodsell took over Bolton's duties until Sue Thomsett's return from maternity leave in January, 1991. Thomsett is now Acting Senior Technical Officer replacing Bolton, and Bonshek replaces Thomsett as Pacific Project Officer.

Judith Graham was appointed Aboriginal Collection Manager and took up the position in January, 1991. Besides her collection management responsibilities, Graham works closely with Gordon on liaison with Aboriginal communities and organisations. Until Graham's appointment, Khan was Acting Aboriginal Collection Manager. Craig Sadlier was employed as a temporary Technical Officer (Scientific) to assist with the management of the Aboriginal collections.

Sascha Hardaker was appointed Divisional secretary, and Jim Specht was appointed 'semi-permanent' Head of Division under the new Division Heads arrangement.

Paul Taçon joined the Division in January, 1991, to replace Betty Meehan as Scientific Officer in Aboriginal Anthropology. Taçon has archaeological and ethnographic experience in both northern Canada and Arnhem Land, and has particular interests in rock art and material culture.

As part of their training for work in the Division, Taçon and Graham visited the National Museum of Australia, Canberra; the Museum of Victoria, Melbourne; and the South Australian Museum, Adelaide.

After a short spell as a Senior Lecturer in Anthropology at the University of Sydney, Robin Torrence joined the Division in February, 1991, for five years as an Australian Research Council Fellow to conduct archaeological research in West New Britain Province, Papua New Guinea.

The Division has had a large number of temporary staff working on the move of the collections, and offers special thanks to those who survived the ordeal: Neville Baker, Don Fraser, Yvonne Kaiser-Glass, Chris Glass, Alex Mattea, Cathy Greenwood, Alex Szalay, Jonathon Simons and Peter Egglar. The special grant to assist the upgrading and documentation of the Aboriginal skeletal and archaeological collections allowed the short-term employment of Colin Pardoe, Denise Donlon and Sheila van Holst-Pellekaan to document selected human remains.

FUTURE PLANS

- *Preparation for computerisation of collection management within the Division.*
- *Further discussions with Aboriginal communities in NSW and Queensland on the possible return of the remains of named or known individuals for reburial.*
- *Completion of several collection management projects to improve the quality of catalogue information and access to all areas of the collections.*
- *Establishment of an Aboriginal Heritage Resource Unit.*
- *Complete and bring into operation the revised policies for Aboriginal heritage matters.*
- *Review of collection policies in the Pacific, Asia, Africa and Americas areas.*
- *Involvement in the planning and development of several temporary and semi-permanent exhibitions.*

VISITORS

On 29 April, 1991, His Holiness Drukchen Rinpoche visited the Division. His Holiness is head of the Drurpa Kagyu lineage of Tibet and in this capacity is one of Buddhism's most spiritual leaders. His Holiness, who now lives in India, was accompanied by his parents and attendants.

Other visitors included:

Ms. Jenny Allenbi, Australian National Gallery, Canberra, ACT
Mr. John Barker, Brewarrina Aboriginal Community, Brewarrina, NSW
Mr. Brent Beale, Moree Plains Gallery, Moree, NSW
Dr. Kathy Berrin, M de Young Museum, San Francisco, USA
Ms. Mandy Bigelow, CCNT, Darwin, NT
Mr. Jean Bonnet, Angers, France
Ms. Virginia Bujia, Universidad Central de Venezuela, Caracas
Dr. Meg Conkey, U.C.L.A., Berkley, USA
Mr. Ben Cruse, Eden Aboriginal Land Council, Eden, NSW
Mr. Soroi Eoe, Director of the PNG National Museum, PNG
Ms. Julia Findlay, Australian War Memorial, Canberra, ACT
Ms. Shirley Foster, Wallaga Lake, NSW
Dr. Paul Fox, Museum of Victoria, Melbourne, Vic
Dr. Clive Gamble, Southampton University, UK
Ms. Kerry Giles, Tandanya Aboriginal Cultural Institute, Adelaide, SA
Mr. Roy Gray, Yarrabah Aboriginal Council, Cairns, Qld
Dr. Colin Groves, Australian National University, Canberra, ACT
Dr. Mike Gunn, N.T. Museum, Darwin, NT
Prof T.G. Harding, University of California, Santa Barbara, USA
Dr. I. Herrmann, Museum fur Volkerkunde, Frankfurt, Germany
Ms. E. Heinz, Early Settlers Museum, Dunedin, New Zealand
Prof. Norman Hammond, Boston University, Boston, USA
Dr. Les Hiatt, University of Sydney, Sydney NSW
Mr. Rob Hinxman, Yarrabah Aboriginal Council, Cairns, Qld
Dr. P. Hughes, University of Papua New Guinea, Waigani, PNG
Dr. T. Hunt, University of Hawaii, Honolulu, USA
Ms. D. Idiens, Royal Museums of Scotland, Edinburgh, Scotland
Mr. C. Isaac, J.K. McCarthy Museum, Goroka, PNG
Prof. Lyudmila Ivanova, Institute of Ethnography, Moscow, USSR
Dr. Rhys Jones, Australian National University, Canberra, ACT
Ms. Benita Johnstone, University of Canberra, Canberra, ACT
Prof. Vladimir Kabor, Institute of Ethnography, Moscow, USSR
Dr. Christian Kaufmann, Museum fur Volkerkunde, Basel, Switzerland
Dr. J. Kennedy, University of Papua New Guinea, Waigani, PNG
Ms. Anne Loxley, Director of the E.H. Ervin Gallery, Sydney NSW
Prof. Hiroshi Machida, Tokyo Metropolitan University, Japan
Dr. Peter Mathews, National Institute of Tea, Potato and other crops, Japan

Mr. Bob Mayer, President of Mayer, Poulton and Associates, London, Ontario, Canada
 Dr. Fred McCarthy, former Curator of Anthropology, Australian Museum, Sydney NSW
 Ms. Susan McPherson, Wiradjuri Land Council, Wagga Wagga, NSW
 Mr. Darren Miller, Yarrabah Aboriginal Council, Cairns Qld
 Dr. Elaine Morrison, Archaeology Unit, Southampton, UK
 Ms. Anne O'Gorman, National Museum of Australia, Canberra ACT
 Ms. Judith Ohlm, Wiradjuri Land Council, Wagga Wagga, NSW
 Dr. Marc Pachter, Smithsonian Institute, Washington, USA
 Ms. Christina Pavlides, La Trobe University, Melbourne Vic
 Ms. Elaine Price, Maxwell Museum of Anthropology, University of New Mexico, Albuquerque, USA
 Ms. Eva Raabe, Museum of Ethnography, Frankfurt, Germany
 Ms. Lori Richardson, Museum of Victoria, Melbourne Vic
 Prof. A. Schutz, University of Hawaii, Honolulu, USA
 Dr. Peter Stanbury, Director of the Macleay Museum, University of Sydney, NSW
 Mr D. Smidt, Rijksmuseum, Leiden, Netherlands
 Prof. C.G. Turner, University of Arizona, Phoenix, USA
 Mr. Andrew Wellings, CCNT, Kakadu National Park, NT
 Mr. Ian White, Northern Land Council, Darwin, NT
 Dr. Puspitasari Wibisono, Museum of Tekstil, Jakarta
 Mr. Dan Witter, NSW National Parks, Broken Hill, NSW

DONATIONS

Without generous donations many museum collections would be incomplete. We are fortunate at the Australian Museum to have received numerous important pieces as donations from interested members of the public. Last year was no exception. We gratefully acknowledge donations of artefacts from the late H.W.B. Bramell (via Dr. F.D. McCarthy), Coca Cola Pty. Ltd., Mrs. Alison Forbes, Mr. G.R. Hamilton, Prof. T.G. Harding, Ms. M. Hawkins, the late Mrs. Gwendoline Hayward (via Mr. T.R. Corbett), Mr. and Mrs. E. Jogiarto, Mr. P. Mathews, Mr. B. Quan, Dr. F.D. McCarthy, Mrs. J.M. Moriarty, Mr. C. Sadlier, Ms. J. Scharkie, Dr. E. Scheibner, the late Dr. H.R. Sear (via Miss R. Sear), Prof. D. Silence, and Ms. S. Thomsett.

"Particularly impressed with the personal approach - the chance to talk to a guide helps bring the exhibit to life"

Helen Giblin, Cheshire England
 From the Public Comments Book

DIVISION OF COMMUNITY RELATIONS

The Division of Community Relations encompasses a variety of fields of expertise and disciplines and is an important contributor to raising the profile of the Museum with the public as a whole. Strongly adhering to the Museum's Philosophy, we seek to further the Museum's Mission, using the skills and resources available to us.

HIGHLIGHTS

**In August Spotless Catering took over management of the Museum's Restaurant and Snack Bar*

**Media liaison to promote TAMS lecturers*

**Responsibility for promotion of exhibitions and their openings, including Monsters of the Deep, WJ Liu-Pathfinder, ICI Microcosm, 1991 Museums Week, the Woven Image, The Westpac Australian Mathematics Competition, the Discovery Space, the 1990 Eureka Prizes, the Skeleton Gallery*

AUSTRALIAN NATURAL HISTORY MAGAZINE

For the fourth consecutive year, ANH has won the Royal Zoological Society's Whitley Award for Best Periodical. The magazine has continued to improve with much coverage of environmental issues and up-to-the-minute research.

A new printer has been contracted through our art director at substantial savings that will ultimately be channelled back into marketing.

Marketing has required great creativity with a much reduced advertising budget coupled with mail costs for direct mail. An emphasis on maintaining current subscribers plus looking at the value of lifetime customers has meant very careful targeting. The most successful returns have been from campaigns that include sending a sample copy of ANH. A very successful Christmas Gift Subscription competition ran in 1990 and has been followed up in 1991 another, longer-term competition launched by ANH staff on Open Day.

Advertising sales suffered with the recession. A fresh look at the successes of the past prompted a restructuring of sales contracts. Sales are now done in-house on a restructured commission basis and show signs of success.

Newsagent sales were cancelled due to low response. Clearly single copy sales need advertising support to work.

The absence of the Circulations Manager on jury duty for 5 months created much turmoil. Fortunately an eager work experience student, Michelle Neal, came in for two months and helped alleviate any disasters. Her great assistance has led to plans for a self-supporting work experience scheme for uni students on ANH.

RECORDS OF THE AUSTRALIAN MUSEUM

During the past year Records Volume 42 numbers 2 and 3, Volume 43 Number 1 and Technical Reports 3 and 4 were published representing a total of 356 pages. The issues contained 14 zoological papers, one palaeontological paper, one type species list and one checklist. Australian Museum scientists contributed almost half of the papers, with the rest coming from other Australians and overseas scientists.

One new family, three new genera, 56 new species and one new subspecies were described, including a new species of tree kangaroo from Papua New Guinea (Dr Tim Flannery, Australian Museum and Dr Lester Seri, Division of Wildlife, PNG). Dr Winston Ponder and Gerard Clark, Australian Museum, published on the radiation of hydrobid snails in threatened artesian springs in Western Queensland, describing 12 new species. Dr Jim Lowry and Helen Stoddart (Australian Museum) described a new family genus and three species of lysianassoid amphipods from the Indo-Pacific. Mr Wayne Longmore (University of Queensland) published the type specimens list of birds held at the Australian Museum.

Work was completed on Part 1 of Supplement 13 (a total of 419 pages) and will be issued in conjunction with Part 2 in August, 1991. This major work - the families and genera of Marine Gammaridean Amphipods - is the result of over 15 years research by authors Dr Jerry Barnard (Smithsonian Institution, USA) and Dr Gordan Karaman (Yugoslavia) and is eagerly awaited by those working in the field.

MERCHANDISING

The section has been very active during the financial year, with the production and distribution of the first Australian Museum Mail Order Catalogue toward the end of 1990.

The catalogue was effective in increasing awareness of the range of products available from the Museum. As well as the direct mail response, a flow-on to product sales in the Museum shops was recognised.

The production of the next catalogue is being streamlined, and a more extensive mailing should see even better results.

A number of products that were developed by the section for the "Dinosaurs Alive" and "Monsters of the Deep" exhibitions have been sold on to the Museum of Western Australia, the Tasmanian Museum and Art Gallery, and the Newcastle Regional Museum.

A mail order book list has been developed and distributed to national libraries and there has been a considerable response to date.

MUSEUM SHOP

Early in the year the shop had a refit of the book shelving space. The result is that the area is more open and the titles are a lot more visible to passers by. Special display stands were also installed to allow the aboriginal artefacts such as the boomerang and didgeridoos to be more suitably displayed.

The shop stocked the new range of "Tiwi" design shirts, fabrics and scarves. To launch the new designs the shop was opened for evening shopping to invited guests. With some good food and wine turned on and the sound of didgeridoos playing the invited guests showed their appreciation with an evening of relaxed shopping.

Our contribution to the Museum's very successful Open Day was a special display of "Authors in the Museum". It featured display of as many titles currently available by the Museum staff and was arranged at the front of the shop. We are currently taking delivery of a new shipment of carry bags, this time however, made of recycled paper. Out with the plastic and on with the more environmentally sound packaging. The children's shop is making special efforts to have in stock the latest publications on caring for the environment.

PUBLIC RELATIONS & PUBLICITY

The Museum's public profile continued to be supported by the activities of the section throughout 1990/91. Recently undertaken qualitative market research is encouraging, as it highlights our customers positive perception of the Museum's exhibitions, services and advertising.

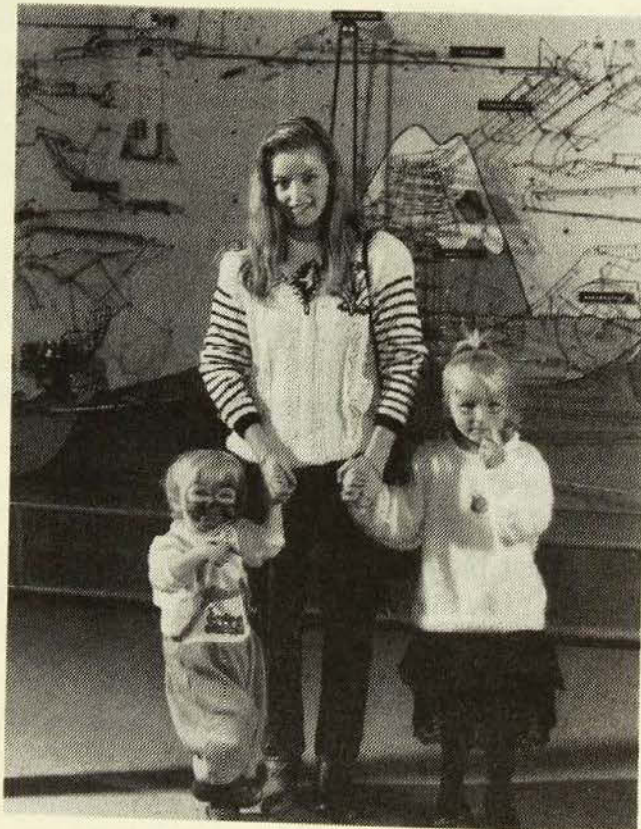
A high level of quality media coverage was achieved throughout the year, with attention being given to a number of exhibitions as well as research activities and the Science Super Series. The discovery of the night parrot resulted in media attention from around the world. The year saw an increase in the number of media enquires seeking information and/or comment on scientific issues.

Community Relations joined with Maori community groups in having the Museum involved in Sydney Maori Festival activities both at the Parramatta Riverside Theatre and at the Museum. "William Liu-Pathfinder" provided the opportunity to work with the Chinese community to promote this exhibition. Events such as the Annual Dinosaur Picnic and Open Day proved to be very popular.

The Museum continues to seek co-operative marketing opportunities through membership of the 'Great Attractions of Sydney'.

FUTURE PLANS

- *ANH will improve its efficiency by using desk top publishing via the art director.*
- *ANH marketing will focus on neglected areas, such as within the Museum and competitions will be developed further. Television ads are a possibility with telemarketing backup. An emphasis on renewals and lapsed subscribers will be refined.*
- *An author's style guide will be produced for ANH in order to avoid receiving articles that are too technical. It will give authors tips and examples on how to write for ANH readers.*
- *A new Mail-order catalogue will be produced and distributed and further opportunities for merchandising will be developed*
- *Emphasis will be given to publicising the scientific research activities of the Museum through the media and through special events*



"This is our second visit in two months" says Sharon Shambrook of Macot, with her children Alicia and Brent. "Alicia loves it. When I ask her where she wants to go she says the Museum."

CORPORATE SERVICES DIVISION

The Corporate Services Division provides innovative and pro-active people, property, financial, and information management; with high quality, cooperative services which respond to the needs of our customers.

Highlights for the Division include full computerisation of staffing functions, property asset management and financial accounting, allowing the opportunity to provide totally up to date information for managers. A two day Divisional planning meeting was held in May, involving staff at all levels across the Division, to set future goals and directions for the Division, resulting in a corporate plan and mission statement closely linked with overall Museum objectives.

The Division took a managing role in the implementation of the Structural Efficiency Principle (SEP) in the Museum, through coordinating the activities of a cross-divisional joint consultative committee. Major achievements included progress towards a negotiated agreement for Exhibitions staff, commencement of reviews of Front-of-House and Community Relations functions, and development of a Job Evaluation System. A two-day workshop was held at the North Head Quarantine Station for middle and senior management to identify skills likely to be required in five years time.

Action continued on the Site Development proposal for a joint property venture on the Yurong Street site. Consultants were also engaged to advise on implications for the Museum of the proposed William Street/Park Street tunnel.

A Preliminary Commercial Feasibility Analysis was undertaken and a report prepared which presented a blueprint for the exploitation of new business opportunities. Action has been taken to appoint a full-time New Business Development Manager to expand the Museum's non-Government funding base.

HOUSE SERVICES

The House Services Section aims to improve the level of services offered to both visitors and staff within the Museum. This involves responding to the needs of staff, supplying information to the public and ensuring that our visitors have an enjoyable visit to the Museum.

This year saw the amalgamation of security officers, cleaners, reception staff, information officers and ticket sellers under the House Services Section, increasing the staffing level to 44. This has allowed for new opportunities for staff to work in a broader range of areas and gain new skills.

During the year the Section has been involved in meeting new Health and Safety Regulations on First Aid and within the near future the majority of Security Officers will be classified as Senior First Aid Officers.

Cleaning within the Museum has continued to improve over the last twelve months following implementation of new structures, cleaning procedures, and the appointment of two Leading Hand cleaners.

NATIONAL PHOTOGRAPHIC INDEX OF AUSTRALIAN WILDLIFE

The NPIAW is an expanding archive of colour transparencies of the mammals, birds, reptiles and frogs of Australia, with the collection amounting to 26,000 images. The collection is maintained as a reference to complement the Museum's collection of preserved specimens; as a source of illustrations for publishers, authors and advertisers; and as the basis of richly illustrated books produced by the Index itself. This year over 700 transparencies were accepted as donations under the Tax Incentives for the Arts Scheme. An Historical Collection includes a large number of glass negatives and lantern slides, mainly of birds. Recently, a discovery was made in this collection of an 1889 photograph believed to be the first of a wild bird taken in Australia.

Over 900 photographs were lent out to newspapers, magazines, television stations and publishers. There was an increasing demand for photographs of endangered species not only for books, but also for magazines as diverse as 'Family Circle' and '21C' - the new publication of the Commission for the Future.

Future plans include stepping up the marketing of the Index as a source of photographic material, and publication in 1992 of the four-volume 'Encyclopaedia of Australian Animals' (Frogs, Reptiles, Birds and Mammals) and the seventh bird volume, 'Parrots and Pigeons'.

PHOTOGRAPHY

Major achievements this year include:

- *Meeting an overall increase in demand for photographic services, both from internal and external clients
- *Development of a disaster plan for the Museum's photographic collections in cooperation with the Materials Conservation Division
- *Implementation of a computer-based data management system for registration of images and job control
- *Use of a specialised positive cine film to directly produce 35mm slides from archival negatives
- *Development of methods to produce high quality slide duplicates onto archivally stable film
- *Implementation of new techniques to improve the quality of X-rays produced

PROPERTY SERVICES

This has been the inaugural year of "Disaggregation" in which the responsibility and management of the Maintenance, Repairs and Building Works were transferred to the Museum from Public Works Department.

During the year a Computerised Asset Management System (CAMSYS) was developed by the Section in conjunction with the Public Works's Asset Management Group. As well as an innovative and important management tool, CAMSYS is a commercial venture with sales to a number of other Public Sector institutions.

The Energy Management program, an important priority for the Section has led to a reduction in electricity consumption of 6%.

FINANCE

The Finance Section this year purchased new computer accounting software to assist in the adoption of accrual accounting as a day to day management tool. Considerable developments were made in clarifying and improving accounting procedures including the documentation of the Museum's Purchasing policy and guidelines. Staffing was also an area of consolidation with a core of key positions being filled on a permanent basis. During the year training was also given a higher priority in order to improve the financial understanding of both the Section and Museum staff.

During this year particular emphasis was given to Cash flow monitoring and Investments which resulted in extra income becoming available to the Trust.

The new computerised system will ensure future improvements in the quality and timeliness of information available for more effective financial management which is also consistent with current government policy.

HUMAN RESOURCE SERVICES

A significant achievement this year was taking over payment of staff salaries from the Ministry for the Arts using the CHRISPAY salaries system.

The new system has greatly improved services to Museum staff, with salary adjustments that previously took a minimum of two weeks to process being dealt with immediately, and adjustments appearing next payday. Human Resources now report up to date information on Trust, Grant and Consolidated Funds expenditure on all salaries.

A Staff Morale Survey was conducted and analysed, with a high response. Useful information was gained which will help the Museum respond to staff issues in the future.

Computer training was emphasised this year, with eighty-five staff attending training sessions in WordPerfect and Quattro Pro. Two courses in WordPerfect were also conducted internally, using a number of Museum staff as presenters.

FUTURE PLANS FOR THE DIVISION

- *Undertake periodic surveys of customer needs and appropriate action taken to change/improve services offered*
- *Continue improvements in information management and reporting to staff*
- *Provide on-line computer access for managers to financial, staffing and property information*
- *Increase involvement in Museum-wide activities*
- *Regular training needs analysis and more responsive training programs offered*
- *Regular training for all staff in Public Relations, and increased computer training*
- *Broadening of job focus for base-line staff in Division through multiskilling, job rotation, and work experience throughout the Division*
- *Maximise and expand use of photographic collections, particularly in increasing revenue*
- *Employment of a New Business Manager to consolidate and expand Museum's commercial activities*
- *Increase accessibility of photographic collection through integration of all transparencies into a single retrieval system and transferring manual records to a computerised data management system*
- *Involvement in digital imaging technology to produce images for computer interactives in public programs*



The Museum solved a mystery for Scott (10) and John Price (12), identifying this crab *Chaceon bicolor*

EARTH AND ENVIRONMENTAL SCIENCES DIVISION

Earth and Environmental Sciences, a newly created division, comprises two disciplinary areas, earth science and environmental science, with largely different aims and activities.

Earth Science manages collections of minerals, rocks, meteorites and fossils for display, research and community education. Present research focuses on volcanic activity and earthquakes in eastern Australia, related minerals and gemstones and the taxonomy and relationships of early Palaeozoic vertebrates.

Environmental Science carries out ecological research that will lead to better knowledge of ecological distributions and processes and to better environmental management. The section is active in promoting environmental management and awareness through the provision of statements, submissions, comments and advice to governments, the public, Museum programs, consultants and the media.

HIGHLIGHTS

- *Completion of > 50% of life history data extraction for beach amphipod research
- *Receipt of a \$585,000 Water Board grant by Alan Jones, Ken Brown (UTS) and John Chapman (SPCC) for the design and development of Hawkesbury Estuary environmental research programs
- *Development of commercialisation policy in collaboration with other staff and management of a major commercial project
- *Dr Lin Sutherland awarded The Royal Society of NSW Medal for 1991
- *A book 'Gemstones of the Southern Continents' by Dr Sutherland completed and submitted for publication
- *A new Meteorite Display installed in the Planet of Minerals Gallery
- *Establishment of new study sites to replace those burnt in bushfires and commencement of research at these sites
- *Richard Major was awarded a three year ARC post-doctoral fellowship to study "Territoriality and Nest predation as determinants of the distribution and abundance of nectar-feeding birds"
- *In a review by Citation Classics, Graham Pyke's review on optimal foraging was found to be the most frequently cited paper of all
- *Graham Pyke's publication "What does it cost a plant to produce floral nectar?" was accepted by Nature
- *"Monsters of the Deep" successfully exhibited
- *The Coober Pedy opalised pliosaur placed on display

MARINE ECOLOGY

Research

Alan Jones and Anna Murray's study of the biology and ecology of two beach amphipod species is proceeding according to plan. Field sampling concluded last year and over half the laboratory-based extraction of life history data has been completed this year by Ms Murray. New software has been developed to facilitate this work.

Dr Jones has designed two projects as part of the Water Board's Special Environmental Program for the Hawkesbury River. These will form the basis of post-graduate degrees based at the University of Technology Sydney in collaboration with the State Pollution Control Commission.

Environmental Activities

Dr Jones continues his substantial involvement in various environmental activities. These include the coordination and preparation of comments concerning National Park plans of management, EISs, resource atlases and government draft policies. He delivered submissions to the Resources Assessment Commission on the south-east forests and to the State Government on coastal management. He was involved with the media and contributed to an environmental education video made by Sydney University about the Sydney Harbour tunnel.

Meetings and Committees

Dr Jones attended conferences concerning the detection of human impacts, environmental law, ecotoxicology, and bioaccumulation in the marine environment and contributed to a scoping exercise at Macquarie University concerning offshore sand mining. He chaired workshops dealing with impact monitoring, with the question of taxonomic resolution in detecting impacts, with collaborative research with the Forestry Commission and with evaluation in science. As well, he addressed various conservation groups and joined the editorial board of a new journal "Biodiversity and Conservation".

He served as a councillor to:

The National Trust Coastal Conservation Committee;
Coasts and Wetlands Society;
Friends of Dee Why Lagoon;
Australians for an Ecologically Sustainable Population;
National Parks and Wildlife Advisory Council.

Commercialisation

Dr Jones and Ms Murray both acted as project managers for a large commercial project and Dr Jones contributed to the development of policy.

MINERALOGY AND PETROLOGY SECTION

Research

Dr. Lin Sutherland's 'Boomerang Volcanism' concept of curved volcanic chains has continued to develop from further age dating of volcanic rocks in N.S.W. and Queensland. New ideas on underlying 'hot spots' were given to the International Volcanological Congress at Mainz, Germany in August 1990, and a predictive model for migration of eastern Australia over 'hot spot' sources was published by the Geological Society of Australia.

A joint study with the Geological Survey of Queensland on lithosphere composition underlying some southern Queensland xenolith sites was published in a bulletin compiled by the Bureau of Mineral Resources.

Research into gemstones from volcanic sources focused mainly on diamonds, sapphires and zircons from gemfields in E. Australia. A joint study of Ion Probe lead/uranium isotope ages of gem zircons was presented to the 7th International Conference on Geochronology, Cosmochronology and Isotope Geology at Canberra in September 1990. The use of zircons to resolve origins of sapphires from E Australian gemfields was presented as a joint paper to a Society of Exploration Geophysicists-Geological Society Symposium at Sydney in February 1991.

Ideas on occurrence and origins of diamonds in E. Australia were presented in 'Anomalous Hosts, Unusual Characters and Hot and Cold Geotherms for the Eastern Australian Diamond Sources' to the 5th International Kimberlite Conference at Araxa, Brazil in June 1991.

Arguments for possible meteoritic versus volcanic causes of the end of Cretaceous mass extinctions were given at the 53rd Annual Meeting of the Meteoritical Society at Perth, Western Australia in September 1990. In other mineralogical studies Lin Sutherland described the unusual occurrence of barium-rich zeolites in mantle xenoliths from the Brigooda volcanic centre in southern Queensland.

Oliver Chalmers attended the Meteoritical Society Annual Meeting, Perth, the Australian Craters Excursion, and the International Mineralogical Association meeting in Beijing, China. With Ross Pogson he attended the Mineralogical Society Seminar 'Collections and Collecting in Australia', Sydney in June 1991.

Exhibits

A redesigned meteorite display was installed in the Mineral Gallery Foyer in April. The display includes recently conserved & re-etched specimens, as well as new acquisitions.

Minerals and antique equipment were selected for a Mineralogy display in the 'Story of Sydney' exhibition, and a temporary display of spectacular, colourful minerals was put in the Departure Lounge of Kingsford Smith International Airport.

Historic epidotes from Sulzbachthal Austria, purchased in 1878 were loaned for a temporary display at the Vienna Natural History Museum and at Salzburg as part of a Symposium for the 125th anniversary of the finding of this classic locality.

Field Trips

Lin Sutherland collected volcanic rock suites from the Rhine Graben, while at the Volcanological Congress in Mainz, Germany. With Ross Pogson he collected volcanic rocks and zircons from central Qld and New England NSW, and with Gayle Webb and Jane Barron collected zircons from the Gloucester area NSW and the gemfields of Central Qld.

Gayle Webb visited well known International gem laboratories in Europe and the Idar Oberstein centre for gemstone cutting and carving in Germany. Ross Pogson collected upper mantle rocks from volcanic areas in western Victoria with Research Associate Julian Hollis, and visitor Gero Kurat, Vienna Natural History Museum. Ross also collected from the old tin mining areas of Torrington and Emmaville NSW with the Mineralogical Society of NSW. Oliver Chalmers collected on excursions to economic mineral deposits in China, while at the International Mineralogical Society meeting.

The Royal Society of NSW Medal was awarded to Dr. Lin Sutherland. This tribute was for Dr. Sutherland's breadth of geological work, ranging from Australia's volcanic landforms, rocks and minerals to causes for the extinction of dinosaurs, his role in spreading awareness of earth sciences through popular and public activities and his extended service on the Council of the Royal Society of New South Wales, which included a term as President of the Society in 1988-89. He continued to serve on the Council of the Royal Society of N.S.W. as a Vice President.

A major book on gemstones of the Gondwana region, *Gemstones of the Southern Continents*, was completed by Dr. Sutherland. The extensive photographs by Jim Frazier include many minerals and cut gemstones from the Australian Museum collections.

Museum and Community Activities

Lin Sutherland spoke on volcanic activity in eastern Australia to the Australian Field Geology Club and the FOGAMM Society, and a lecture on the terminal Cretaceous extinction event was given to the Geology Department, University of N.S.W. A talk on plate tectonics was given to The Australian Museum Guides and an Australian Museum Seminar given on extinction of the dinosaurs. Lin spoke on sapphires from volcanic sources to The Australian Museum Society. Lin supplied information to the Media on recent volcanic eruptions in Japan and the Philippines.

Gayle Webb took a TAMS gemstone and mineral fossicking trip to New England NSW and Mt. Tambourine, Qld. With Lin Sutherland and volunteer Sue Boele, Gayle took part in the Museum Open Day program, when talks on the Section's work and practical demonstrations of gem & mineral testing procedures were given. Gayle and Lin also took a Gemmological Association group on a tour of the Mineral Gallery.

Ross Pogson spoke on meteorites to the British Astronomical Society (NSW Branch), the Astronomical Society of NSW and Parramatta Lapidary Club. He continued to serve as Librarian to the Mineralogical Society of NSW. Assistance with identification of mineral pigments was given to the Australian Museum's Materials Conservation Section. A State Library workshop on recovery of water-damaged paper materials was attended. Talks by Ross, on meteorites and Gayle, on gemstones were given to Australian Museum Guides.

Collections

Significant acquisitions included a gem topaz, aquamarine and a stibnite from China, a large display plate of azurite crystals from Thalanga Qld, a crystallised gold in quartz from Wedderburn Victoria, a collection of rare mineral species donated under the Tax Incentives for the Arts Scheme, a suite of rare Russian minerals and unusual sapphire crystals from Sri Lanka. Significant faceted gems included a large andalusite and an orange tourmaline from Brazil and a golden yellow garnet from Sri Lanka.

A computer database for the meteorite collection was completed, and several researchers lodged Type mineral specimens in the collection for safe keeping.

Meteorite exchanges were conducted with the Natural History Museum of Vienna, Tiara Observatory, Colorado USA, Mr. R. Sielecki Victoria, and private individuals in Canada and Germany. Mineral exchanges were conducted with private individuals in Victoria and NSW.

Major research users of the collections included, Institute of Metallurgy Denmark(meteorites), University of Auckland(Raman Spectroscopy of aluminium hydroxides), University of Technology Sydney (X-ray diffraction studies of rare earth minerals), CSIRO (spectral analysis of iron-bearing silicates), Macquarie University (study of wire gold and garnets), BHP (studies of manganese oxides and aragonites), ANSTO (electrochemical study of arsenopyrite) and University of NSW (Electron Spin Resonance and Thermoluminescence of calcite).

TERRESTRIAL ECOLOGY SECTION

Severe bushfires during December 1990 burnt out the section's study sites at Brisbane Water National Park. These study sites had been in continual use since the early 1960's and their loss, albeit temporary, played havoc with field programs. New study sites and research grids have now been established by Michelle Christy, Greg Gowing and Richard Major at North Head in the Artillery School and research is underway again.

Our work on nest predation of birds has started to produce results. We have identified several different predators of nests of New Holland Honeyeaters by using remote photography and artificial eggs placed in natural and artificial nests. Our experiments also indicate that the predators involved vary between different areas of heath around Sydney, both in their identity and in their rate of predation.

Graham Pyke spent much of the year collaborating with researchers at Simon Fraser University in Vancouver Canada. This trip was supported in part by a Canadian Commonwealth Research Fellowship which was awarded to Dr Pyke.

Greg Gowing continued his involvement in the Discovery Space as a member of the Project Team responsible for the space.

The Royal Australasian Ornithologists Union (RAOU) continued to operate the Australian Bird Count (ABC) Project at the Australian Museum. Such collaboration has helped to promote an interest and concern in bird conservation by members of the general community. The RAOU attracted a 5-year sponsorship, worth \$260,000, from BP Australia for the ABC Project in July 1990. ICL Computers donated much needed hardware for the project and the Australian National Parks and Wildlife Service provided additional funds to help analyse the validity of the ABC Project as a wildlife monitoring project. There are now over 800 observers censusing birds in more than 1450 sites around Australia for the ABC Project.

Richard Major presented the following papers at conferences:

The identity of nest predators: why we need to know. Poster presentation at International Ornithological Congress in Christchurch, NZ.

Nest predation in Australia: what we know and what we need to find out. Australian Bird Study Association Meeting.

Experiments on nest predation: are we putting our eggs in the wrong baskets. Ecological Society of Australia Open Forum.

Nesting success, predation and conservation: which came first, the egg or the predator?

Invited talk at RAOU Scientific Day: Practical conservation for birds: what we can do.

PALAEONTOLOGY SECTION

Research

Alex Ritchie's research into palaeozoic fishes continues. He gave a presentation at the Conference on Australian Vertebrate Evolution, Palaeontology and Systematics (C.A.V.E.P.S.) at Alice Springs on advances in the study of Ordovician vertebrates. He also attended the 7th Early Vertebrate Symposium in Miguasha, Quebec, Canada where he presented a paper.

Exhibits

Alex Ritchie was the scientific member of the project team for "Monsters of the Deep" that had its Australian premier at the Museum during the year. He organised enhancements to supplement the robotic extinct marine creatures that made the main attraction of the exhibition. He arranged the purchase and or loan of suitable display specimens that will travel with the exhibition throughout Australia.

Specimens loaned to the exhibition included the snout of a kronosaur, a complete paddle from a pliosaur, both large extinct marine reptiles, from Queensland (Queensland Museum). Purchased was a replica of the fossil remains of *Dunkleosteus*, a huge Devonian armoured fish from Cleveland in the USA.

Another Cretaceous marine reptile specimen from Queensland was donated to the Museum for display in the "Monsters of the Deep" exhibition. It was a skull of a large ichthyosaur, a dolphin-like animal that lived at the same time as the dinosaurs (Mr K Delaney).

The opalised pliosaur loaned to the Museum by Mr Sid Londish was placed on display in the fossil gallery and also used as a centrepiece for the enhancements for the "Monsters of the Deep" exhibition.

The Palaeontology section made available specimens to be included in the Museum's section of the "Story of Sydney" exhibition at The Rocks. They include our magnificent Tambar Springs *Diprotodon* skull and other specimens that relate to the Sydney area.

Museum and Community Activities

Robert Jones participated in the highly successful Museum Open Day with guided tours of the fossil collection and led a TAMS excursion to collect Permian fossils at Mulbring near Cessnock. He served as a council member on The Riversleigh Society and was a member of the Geological Sites and Monuments Sub-Committee of the Geological Society of Australia (NSW Division). He was also chairman of the Museum Occupational Health and Safety Committee.

Alex Ritchie served on the council of the Linnean Society of New South Wales.

Both Alex Ritchie and Robert Jones gave talks and or lectures to various interested groups or students on palaeontology and related topics.

Field Work

Alex Ritchie in the company of Dr Niels Bonde visited sites in southern and central western NSW to collect fossil fish.

Alex Ritchie and Robert Jones visited sites in Central Australia to collect Ordovician and Devonian fish as well as Pre-Cambrian stromatolites from the Alice Springs region.

Collections

The fossil collections increased by 1665 registered specimens being mainly further type material transferred from the University of Sydney. Also registered were 760 palaeontological thin-sections from the University of Sydney that were added to the type collection. Type thin-sections from the University of New England were transferred during the year and await registration.

Donations to the collection include the fine ichthyosaur skull from north Queensland (Mr Ken Delaney) used in the "Monsters of the Deep" exhibition and a large collection of Pleistocene vertebrate material from Redestone Creek in the New England region donated by the University of New England, Geology Department.

Acquisition of space, vacated by anthropology, has allowed us to unpack the large collection of fossils transferred from the University of Newcastle.

Following the completion of the inventory of the type collection a computer database has been established and data entry is underway. This will eventually lead to the publication of a new enlarged type list.

Robert Jones gave a paper at the C.A.V.E.P.S. in Alice Springs on the vertebrates in the type collection.

Two major purchases were made, the *Dunkleosteus* for the "Monsters of the Deep" exhibition and a spectacular slab from Western Australia displaying fifteen superb Permian crinoid (sea lily) specimens.

FUTURE PLANS

The Marine Ecology Section will continue to collect and analyse data from their current research projects on beach amphipods and Hawkesbury benthic communities. New research will develop experimental approaches to the effects of beach disturbance and pollution. Further projects in collaboration with the SPCC and Forestry Commission the Hawkesbury and other estuaries are planned. Substantial time will be committed to various environmental activities and possibly to commercialisation projects.

The Mineralogy and Petrology Section has submitted plans to upgrade its research and service facilities by installing new generation x-ray equipment. The collections will be utilised by visiting research fellows and the University of Western Sydney with whom new links have been established. The section is to reorganise its meteorite and rock collections. Expansion of commercial activities and to extend computerised collection databases is also planned.

The Terrestrial Ecology section hope to start a joint project with the Forestry Commission to conduct collaborative research on the effects of forestry practices on the intensity of nest predation of birds.

When birds have been individually identified at the new study site at North Head it is their intent to conduct experiments to determine whether territorial behaviour of honeyeaters controls their local abundance.

From their computer database of the type collection, the Palaeontology section is planning to publish, in sections as completed, a new updated type list. Research into Palaeozoic fishes from Australia and overseas will continue.

VISITORS

Dr. W. Birch, Mineralogy Department, Museum of Victoria

Dr. V.F. Buchwald, Institute for Metallurgy, Denmark (to study meteorite collection)

Prof. F. Dajun, Director of Division of Applied Geology, and Director of Institute of Palaeomagnetism and Plate Tectonics, Department of Earth Sciences, Zhejiang University, China

Mr. P. Filmer-Sankey, Assistant Director, Newcastle Regional Museum, N.S.W.

Dr Ron Goldbery - sediment analysis

Dr. G. Kurat, Mineralogy-Petrology Department, Natural History Museum of Vienna (examined meteorite collection)

Dr. B. Mason, Department of Mineral Sciences, Smithsonian Institution, Washington, U.S.A. (to study meteorites)

Dr. A. Pring, Mineralogy Department, South Australian Museum

Dr. K. Rodgers, Geology Department, University of Auckland, New Zealand (to study aluminium hydroxide minerals)

Dr. J. Wasson, Institute of Geophysics and Planetary Physics, University of California, Los Angeles, U.S.A. (to study meteorite collection)

Dr. Niels Bonde, Geological Institute, Copenhagen, Denmark.

Dr. E.S. Gaffney, American Museum of Natural History, New York, USA.

Mr. W. Brown Hawkins, University of Alabama Museum, Tuscaloosa, Alabama, USA.

Dr. Atsushi Kanenko, Kyoto University, Japan.

Asst. Prof. Kathleen Pigg, Arizona State University, Tempe, Arizona USA.

Dr. M.L. Trivett, Arizona State University, Tempe, Arizona USA.

Dr. Willi Ziegler, Senckenberg Museum, Frankfurt, Germany.

"It was really radical dude!!!"

Staci Smith, Unanderra NSW
From the Public Comments Book

EDUCATION DIVISION

The Education Division is organised into four sections; Visitor Services, Education Programs, Resource Services and Products and Services.

The Managers of these sections and their staff are also members of many cross-divisional working parties and groups.

The Division actively seeks to entertain and inform visitors, run programs for schools, provide adult training and informal education programs, publish materials and to run extension programs to outer urban and rural centres.

Other activities of the Division include representation at fields days and fairs, participation in developing exhibitions, maintenance of its collections, developing links with community groups, program marketing, staff and volunteer training and running of special events.

HIGHLIGHTS

**At a time when our overall visitor numbers have increased markedly, the programs run by Visitor Services have proved to be a great success with visitors*

**The Dinosaur Picnic and Open Day were very well attended by the public*

**Our prep shop developed some innovative and well-crafted learning materials for activity rooms, touch tables and loan cases*

**Visits by school groups increased by 20% this year*

**The Loans Case program is booked out for the year*

**We ran a National Conference on "Evaluation in Scientific and Cultural Institutions". The published papers have been well received with international sales*

**We've made a major contribution to the development of new exhibitions*

PRODUCTS AND SERVICES

This year the Product and Services section embarked on an active marketing program to the school sector. This resulted in a significant increase in school group bookings- the upgraded Aboriginal and Animals activity rooms proving extremely popular. The Museum-in-a-Box extension program has also seen a considerable increase in usage as a result of the additional marketing.

This year saw the repeat of three very successful activities begun last year; Open Night for teachers, the Annual Dinosaur Picnic and Museum Open Day. The Picnic and Open Day were both organised with other divisions and proved immensely popular with the general public, particularly Open Day which attracted approximately 10,000 to the Museum.

This year for the first time, cost-recovery and revenue-raising charges were applied to some services. This has enabled implementation of other programs within the division.

The existing program of producing quality resource material to accompany semi-permanent and travelling exhibitions, was continued this year. An additional series of activity/resource books "Action Packs for Kids" is being developed and trialled. A language-based activity/ideas book based on the Rituals Gallery was published and is on sale throughout the Museum.

EDUCATION PROGRAMS

Record numbers of school children have visited the Australian Museum this year. The Museum remains a popular venue for work experience and around 60 students have been placed in various Museum divisions, according to their interests and abilities.

The appointment of an Aboriginal Education Officer has improved contacts with Aboriginal school and community groups and increased the number of visitors to the Aboriginal hands-on room. A new room, "Animals Past and Present", opened in March 1991 with activities on evolution, classification, adaption and endangered species attracting lots of school groups.

A number of in-service days have been provided to show teachers and trainee teachers how best to use the hands-on rooms and galleries for class visits to the Museum. These in-service days complement the very successful teachers' Open Night, held in March each year to familiarise teachers with the Museum's facilities and introduce any new galleries, services or temporary exhibitions.

During the recent "Monsters of the Deep" exhibition, the Education Division held a children's competition to make a monster or write a monster myth or limerick. The competition was judged by radio and TV star, Geraldine Doogue, who picked a 2.5 metre monster from Nimbin Community school as the winner. The huge response to this competition reflected the enthusiasm of school children for this exhibition and a display of the entries has entertained visitors to the Education foyer.

CONFERENCE

There was a great deal of interest in the Museum's 1990 Conference, 'Where are we Going' which dealt with evaluation in scientific and cultural institutions. During the 2-day conference, speakers addressed issues associated with the theories and models of evaluation, what and how to evaluate, and the implications of evaluation for planning. The Conference was booked out before it began and the published proceedings are selling well, reflecting current interest in evaluation as an appropriate part of the planning and implementation of programs in a wide range of institutions.

VISITOR SERVICES

The Visitor Services section of the Education Division has continued to provide thematic public programs for museum visitors.

Over 160,000 visitors had direct contact with visitor services programs this year - school holiday programs, tours, films, talks, interactive touch tables, public entertainment, live interpretation programs, children's activities and special events.

Open Day (19th May) involved approximately 10,000 visitors in behind the scenes tours of scientific areas, science gallery stations, talks and performances. The Annual Dinosaur Picnic (7th April) attracted thousands to both the picnic activities and the concurrent Monsters of the Deep exhibition.

The Festival of Sydney program in January 1991 focused on an Aboriginal theme and an Aboriginal artist-in-residence ran workshops and mural painting, supplemented by talks, films, demonstrations and performances for 62,000 visitors.

During this year the Museum continued to successfully run WEA (Adult Education) lecture series, field trips and exhibition functions.

The Visitor Services section also co-ordinates the successful weekend Director-for-a-day program which involves all Museum staff in monitoring the weekend programs and services of the Museum.

The new Public Entertainment Program "Live at the Museum" provided thematic entertainment, music and dance performances to many thousands of Sunday visitors.

This year's training program for volunteers has attracted an increased number of people who speak a community language. The large number of dedicated volunteers has enabled us to increase the tour, touch table and gallery station components of our programs.

RESOURCE SERVICES

Museum on the Road

During the last half of 1990 the Museum on the Road exhibitions, "Arid Australia", "Mammals in Australia", "Life in the Sea" and "Aboriginal Australia" completed tours of the south coast and central western NSW, while "Papua New Guinea - The Abelam People" toured the outer urban areas of Sydney, Newcastle and Wollongong. The "What on Earth" exhibition was set up in the Newcastle Regional Museum till January and then it moved to Dubbo.

"Arid Australia" was retired in December with many of the specimens being used in the Museum in a Box program. "Life in the Sea" has been sold to a regional museum where

it is being revamped to suit the district. Mammals and Aboriginal Australia are touring the western area of NSW while Papua New Guinea is touring regional Queensland through the Regional Galleries Association of Queensland.

During this financial year over 104,000 people viewed or used a MOTR display in NSW. We are still very fortunate to have Westpac Banking Corporation sponsoring the MOTR program and National Mutual sponsoring the "What on Earth" exhibition.

Museum in a Box

During the past year we have lent 438 boxes to schools throughout NSW. A new series of boxes was completed in November 1990 on "Water in Nature" and "Water and People" thanks to the sponsorship of the Water Board.

FUTURE PLANS

In 1991-92, the Education Division plans to provide paying programs such as week-end Science seminars for HSC students, in response to the popularity of the current lectures on human evolution and classification.

Contacts with Aboriginal communities are being strengthened through the preparation for the Exhibition 'Aboriginal Artists Speak' in October 1991 and international conference to be held in 1992.

As plans go ahead for the new Cultural Diversity Gallery, Visitor Service Programs will focus on Australia's increasing cultural diversity by looking at the social issues and activities that characterise Australian society today.

"I have fulfilled a childhood dream to know what went on behind the scenes in the old College Street building."

Carol Cantrell,
Loans Officer, Australian Museum Library

EXHIBITION DIVISION

Providing Museum visitors with an experience that is stimulating, enjoyable and thought-provoking is the challenge facing the Exhibition Division.

HIGHLIGHTS

**Exhibitions: Skeletons - Framework for Survival, Power of Love, Discovery Space, The Woven Image, William Liu - Pathfinder, Monsters of the Deep*

**Story of Sydney project*

**Green Train project*

Skeletons, The Framework For Survival opened on August 21st, 1990 in the Long Gallery as a semi-permanent exhibition. 120 skeletons were shown in a presentation which has a clear biological message but compatible with the graceful, Victorian architecture of its setting.

The Power of Love: Six Centuries of Diamond Betrothal Rings, opened on September 1st in the Temporary Exhibition Space for an eight week viewing. The exhibition featured a collection of diamond rings indicating the stylistic and cultural changes reflected in their settings. Another interesting presentation of diamonds was a much publicised showing of the amazing "Argyle Egg" during November. Many visitors came to see this piece of exotica which contained 20,000 individual stones.

The Discovery Space was enlarged with completion of Stage One in December, 1990. New interactive exhibits on environmental themes were installed. More computer interactives, a kids corner and a demonstration area continued to make this one of the most popular exhibits in the Museum.

The Woven Image, a collection of contemporary Aboriginal Art opened for six weeks in the Temporary Exhibition Space on December 15th, 1990. Beautiful and delicate weavings, body ornaments, feather jewellery and paintings illustrated the continuing tradition of the women artists of Maningrida.

The Story of Sydney commissioned the Exhibition Division to provide the museum component of its \$10 million development at the Rocks, which opened in mid-January, 1991. As a first major consultancy for the Museum, this project was completed to time and budget and demonstrated our capacity to operate successfully as exhibition consultants.

The William Liu - Pathfinder 1893-1983 exhibition opened on February 25th. Twenty-six scroll paintings and memorabilia were shown to commemorate the life of a prominent Chinese Australian. The exhibition helped introduce the Museum to some members of the Sydney Chinese community as part of the Museum's strategy to encourage wider community participation.

Monsters of the Deep brought some of the great sea monsters back from millions of years ago for a thirteen week season which opened on March 1, 1990. Almost 100,000 visitors watched the submarine movements of these animatronic life-size models. The exhibition then commenced a years tour of Australian museums, organised and managed by the Exhibition Division.

The Museum also provided an exhibit for the Green Train organised by the Education Department to tour New South Wales during 1991. The train is to be launched on July 15, 1991 for a twelve week tour of all of New South Wales.

The maintenance of exhibitions within the Museum continued to be given high priority with the adoption of a seven (7) day-a-week staffing for daily maintenance and an intensive preventative maintenance regime.

FUTURE PLANS

Next year will see a complete reorganisation of the Exhibition Division through the structural efficiency program. Negotiations for exciting new temporary exhibitions will continue and a major temporary exhibition on insects will be planned for 1992. An extension exhibit (M.O.T.R.) will be completed promoting science and planning will start on new semi-permanent exhibitions for Marine Ecology and Cultural Diversity. The Division will seek to expand and consolidate its exhibition consultancy work.

VISITORS TO THE DIVISION

Mr Kozo Adachi - Director Curatorial Division, Nagoya City Museum
Mr Haruki Tanaka - Curator, Nagoya City Museum

全部見てまわれなくて残念です
が、楽しかったです。人間はさ
るから進化してる？

*"It was a pity that I could not see everything here. But I enjoyed it. Have
the humans made much progress from the apes?"*

Miho Yoritani, Japan
From the Public Comments Book

INFORMATION SCIENCE DIVISION

The Information Science Division, established in June 1989, links in an interactive manner, the broad areas of Information Management and Technology. The field of Information Science seeks to develop systems to identify, store, retrieve and transmit information in order to further what we know and can utilise from the flow of information. Computers play an important part in the process of information science applications; they are the mechanism by which much of the theory of information science is implemented.

The Information Science Division is fully involved in and committed to the Mission of the Museum i.e. "to increase understanding of our natural environment and cultural heritage..." through the exploitation of the specialised information data bases and other information resources both created and accessed by the Museum.

The Division supports and interacts with all other divisions through the management and development of internal information resources and the accessing of relevant information resources outside the Museum.

The Information Science Division covers the following broad areas: The Local Area Network (LAN); the Research Library; Archives; Records Management; Data base Development.

HIGHLIGHTS

- *LAN unplanned downtime reduced to less than 0.1%*
- *Training programme for network established*
- *Parliamentary papers database*
- *Improved access to unique anthropology collection*
- *Library items a featured part of display at the Story of Sydney exhibition*
- *Information transaction analysis*
- *Appointment of Archivist/Records Manager*
- *Development of information management systems using CARMS and DATAEASE*

LOCAL AREA NETWORK

The LAN is a PC based computer network which allows for the effective management and sharing of resources (hardware, software, information, intellectual effort and output) within the museum site. Significant developments during the year include the following:

Acquisition of a second file server

Doubling of disc capacity to over 600 megabytes

Unplanned downtime reduced to less than 0.1%

Growth of network to 60 users, encompassing all divisions and most of the museum site.

Development of network infrastructure - fibre optic link to Yurong Street buildings.

Re-location of computer room to a centrally located position, thus allowing easier access to shafts and cables, and ensuring that mission critical components are in an environmentally controlled, physically secure area.

Establishment of Network Training programme; monthly sessions on aspects of the network, not application software.

Upgrading of systems and application software: WordPerfect upgrade, Quattro Pro upgrade, cc:mail, saber menus.

PC based network fax link for the Materials Conservation Division.

Improved daily network backup procedures; using DAT drive we now have ability to backup overnight up to 1.3 gigabytes of data.

Unix based Science Multi-user server with phylogenetic management programme for scientists on Network.

RESEARCH LIBRARY

To facilitate the retrieval of current government information, the Research Library has entered its collection of Australian Parliamentary Papers onto a database. This can be searched interactively, and hard-copy lists will be generated monthly.

The relocation of items from the collection that were held in the Anthropology Division back to the main library has been undertaken. The items include 2500 monographs and 150 serial titles and their re-location will free up space in the Division, and also facilitate control and access to the library's unique anthropological resources.

The preservation program for our unique collection of rare books is ongoing - this year, some 70 rare items were phase-boxed and 40 volumes of rare books were re-bound. These developments are part of an ongoing, prioritised plan to ensure future access to these items. As an indication of the value, beauty and relevance of these items, rare books from the Research Library, and original watercolours from the Archives, have been lent to the Story of Sydney exhibition. In addition, several hundred plates from the library's rare book collection have been photographed for use in the exhibition.

A detailed analysis of the type and number of information transactions carried out by the library has revealed that during the last year, library staff dealt with a total of 5,647 requests for information. These requests came from both inside and outside the organisation, in a variety of modes (in person, by letter, telephone, e-mail and fax) and ranged from simple queries to complex information searches and document delivery.

In addition, the number of in- person users of the main library resources has almost doubled since 1988/89. At that time, our annual visitation rate was 6,300; the number for the this period is 11,439. Library tours and orientation sessions were conducted for librarianship students, Museum Open Day participants, TAFE students and new Museum staff in order to ensure that these segments of our market are aware of the services and resources available.

ARCHIVES

A permanent Archivist/Records Manager was appointed in March 1991, to develop archives and records management programs to ensure the preservation of permanent value records, regular disposal of non-permanent records and more efficient access to the records.

An analysis of reference use of the Archives indicates that there is increasing demand both in servicing the needs of staff to document the collections and also the research demands of external users. Development of an archival collections management system using the database program DATAEASE is underway, which will allow more efficient archival control systems and information retrieval.

The problems of electronic records are being investigated, both from an archival and local area network point of view, and a workshop on Electronic Records Issues, run as part of the Australian Society of Archivists' (ASA) conference, was attended by a number of Information Science staff. The guest speaker, David Bearman, editor of *Archives & Museum Informatics* and a leading figure in the United States in the electronic records field, was invited to the Museum in an informal gathering to allow the local museum community to meet him and to exchange ideas. Another international speaker at the ASA conference, Lynn Davis, chairman of the Bishop Museum archives, was also invited to the Museum to discuss collection access and collection computerisation systems.

The Archivist/Records Manager organised for the ASA conference a workshop on Managing Images, which saw much interest expressed by the custodians of photographic & other image collections in exchanging information on the different automated image control systems being developed.

The Archives was approached by the National Library of Australia to participate in providing entries for the *Guide to Collections of Manuscripts relating to Australia* and has agreed to provide information on the collections of personal papers held in the Archives.

The development of off-site storage in the Marrickville repository will relieve pressing storage problems for the archival and current records holdings. It is anticipated that semi-active records will be moved there during the next year.

RECORDS MANAGEMENT

The priority for the records management program is the further development of the CARMS (Computer Aided Records Management programme) system for the control of file creation, management and retrieval for the central records system. The appointment of a trained records manager was critical to the development and management of this information system. In addition, the incorporation of central files from the Director's Office into the CARMS system is underway, together with the archiving of inactive semi-current files.

Access to CARMS is through the local area network and training in the operation of CARMS is being given to the small group of authorised users. As part of the better

management of the central files, new codafile file covers were introduced to allow more efficient file storage and retrieval.

DATA BASE DEVELOPMENT

Various databases on the network are in a developmental stage. These are being developed in order to meet the information needs of all areas of the museum and in order to be able to provide information to various segments of the community.

FUTURE PLANS FOR THE DIVISION

- *Development of serials module for integrated library system*
- *Synthesis and dissemination of environmental monitoring information to staff*
- *Implementation of merchandising plans for Research Library*
- *Development of system for archiving electronic records*
- *Fax gateway on network*
- *Access to global electronic mail*
- *Development of archives database*



Museum Education Officer, Sheryl Connors, painted a mural onto the ceiling of the 'Aboriginal Australia' gallery

DIVISION OF INVERTEBRATE ZOOLOGY

The Invertebrate Division works to make known the animals without backbones (such as worms, crustaceans, snails, spiders and flies) that make up the greater part of Australia's fauna. This is achieved by active research and publication programmes on the systematics of invertebrates, utilising field studies, reference collections (the most extensive in Australia), data storage systems, character analysis programs and biochemical techniques. Thus we are increasing knowledge of the diversity and means of identification of many thousands of Australian species, their evolution and relation to the ever changing environment, and the numerous ways in which they affect our lives. We are in the forefront of the new awareness which sees our invertebrate fauna as a treasure of international value and we employ our understanding to help ensure its availability to citizens of the future.

HIGHLIGHTS

- *Arrival of Dr George (Buz) Wilson as new Scientific Officer performing research on Crustacea.*
- *Research projects by Division scientists attracted external grant funding of almost \$300,000 this year.*
- *Two new Scientific Officers (Collection Management), Dr Penny Berents and Mr Max Moulds, were appointed as part of staff restructuring in Science.*
- *Development of METAPHYSIS software by Dr Mary Mickevich for complex character analysis in constructing evolutionary patterns.*
- *Receipt of the Hickman Tasmanian spider collection including more than 5 000 mostly identified specimens.*
- *One identification project by Marine Invertebrate and Malacology Collection staff for an environmental impact statement grossed more than \$100 000 for the Museum.*

MARINE INVERTEBRATES (other than molluscs)

Research

Patricia Hutchings has continued her revision of two families of Australian polychaete worms, the Aphroditidae and Sigalionidae. This project is funded by the Australian Bureau of Fauna and Flora Scheme. Dr Hutchings also carried out extensive field studies as outlined below.

Jim Lowry and Stephen Keable went to Madang, Papua New Guinea, as part of an international expedition studying the amphipod fauna of the Madang Lagoon. The team has discovered more than 200 species of gammaridean amphipods living in the lagoon. Dr Lowry and Mr Keable finished their field work on the scavenging crustacean community of Madang Lagoon. Dr Lowry and Helen Stoddart have discovered 3 new

genera and 13 new species of scavenging lysianassoid amphipods from the Madang Lagoon collections. Their report on these species is the first definitive work on tropical lysianassoid amphipods.

Dr Lowry and Ms Stoddart completed their study of the systematics and biogeography of the Indo-Pacific lysianassoid genus *Ichnopus*.

A landmark was reached in the monographic study by Dr Lowry and Ms Stoddart on the type species of the world lysianassoid amphipod genera with the completion of the drawings of all available (150) type species. The plates for the book will be finished this year. The text is being written by the taxonomic data base program DELTA.

The goal of George Wilson's research is to increase knowledge of the crustacean order Isopoda, especially the suborders Asellota and Phreatoicidea, with a focus on their taxonomy, phylogeny, morphogenesis, biogeography and diversity, both within and outside the order. Dr Wilson's research project on evolutionary morphology of isopod genitalia, began in the USA and uses histology, scanning electron microscopy, and other gross morphological techniques to evaluate evolution of sex organs of both sexes.

"A phylogenetic analysis of the Isopoda, with some classification recommendations" by Dr Richard C. Brusca (San Diego Natural History Museum) and Dr Wilson was recently completed. This work is a symposium contribution presented at the International Crustacean Conference in Brisbane, July 1990. This paper contains a detailed character analysis of the morphology of all suborders of the Isopoda and presents a new estimate of their phylogeny. Their work indicates that the primordial isopod was most similar to ancient Phreatoicidea, common today only in the freshwaters of Australia and New Zealand.

A survey of Museum unsorted specimens has assembled all Isopoda Phreatoicidea for a future synthetic study of the group.

Collections

More than 1 000 lots of marine invertebrates were registered and added to the collections. Many more were accessioned without registration. More than 32 000 lots of crustaceans have been entered to the computer database TITAN. The polychaete collection space in the spirit house was expanded to give better access and room for growth.

Field Work and Travel

Patricia Hutchings participated in the 2nd International Marine Biology Workshop held at Rottnest Island, WA, in January 1991, and substantial polychaete collections were made. Dr Hutchings spent 3 weeks in French Polynesia working with French colleagues, establishing some long-term experiments to study the agents and effects of bioerosion on

reefs subjected to varying degrees of pollution. The field trip was made possible by a grant from the Federal Dept of Industry, Technology and Commerce as part of the Australian French Co-operative coral reef research programme. Dr Hutchings has continued throughout the year, sampling in mangroves, salt marshes, subtidal seagrass beds and non vegetated sediments, in Jervis Bay, NSW, to document the seasonal and annual variations in these communities as part of a detailed study of the Bay for the Dept. of Defence.

Jim Lowry, Stephen Keable, Roger Springthorpe and Penny Berents conducted a collecting expedition to Tasmania. This work extended Dr Lowry and Mr Keable's survey of eastern Australian scavenging crustaceans to Tasmania. Lysianassoid amphipod scavengers are extremely abundant in Tasmanian waters, in some areas up to 5 000 per trap but the highlight of the trip was the discovery of luminescent ostracodes and amphipods. More than 250 samples were collected from both the east and west coasts. Samples were collected by setting baited traps in the evening and returning the next morning to collect the trap, as well as general collecting for small crustaceans and marine worms.

Services to the Community and Science

Dr Hutchings has served as President of The Australian Coral Reef Society and Treasurer of The International Society of Reef Studies. Dr Hutchings has been involved throughout the year with the Scientific Working Group on Ballast Water Introductions into Australia. This group was convened by the Bureau of Rural Resources, Dept. of Primary Industry, and is about to let a contract for a consultancy to investigate the possible treatment options for ballast water.

Conferences and Workshops

Dr Pat Hutchings with two colleagues from the USA, gave a Polychaete Workshop for graduate students in Taiwan, which was funded by the Taiwanese Academia Sinica and the Environment Protection Agency.

Dr Lowry, Dr Berents, Mr Keable and Mr Springthorpe attended the International Crustacean conference in Brisbane in July. Dr Lowry gave a keynote address on the phylogeny of lysianassid amphipods and Mr Keable presented a poster on the ecology of the scavenging crustacean community of Lizard Island, and Dr Berents presented a poster on commensal amphipods at Jervis Bay.

In September 1990 George Wilson attended a workshop on Crustacean phylogeny in Kristineberg, Sweden. The workshop, which brought together leaders in the field of higher-level Crustacean systematics, resulted in a short work on computer-assisted phylogenetic techniques, reviewing aspects of the determination of the most probable evolutionary trees of the Crustacea.

Commercialisation

Collection management staff were heavily involved with commercialisation projects. They identified marine invertebrates for other government departments and for private industry as a part of Environmental Impact Statements.

MALACOLOGY

Research

Winston Ponder's major research program is the investigation of hydrobiids, small snails which live in fresh and brackish water. This research is funded by ARC and the ANPWS Endangered Species Program. Results this year include a paper being completed on the genetics and systematics of *Tatea*, a common estuarine snail in temperate Australia. In addition a large monograph on a genus of Tasmanian snails, *Beddomeia*, is virtually completed, which highlights the large number of species with very limited ranges, many being known from only single locations. Dr Ponder's genetic studies of hydrobiids in artesian springs near lake Eyre and at Dalhousie Springs, South Australia, as well as at Wilson's Promontory, Victoria are well advanced. His ARC funded program on small marine cerithioidean snails terminated at the end of 1990 and a large manuscript on the distribution and taxonomy of the common, widespread genus *Diala* is almost ready for submission, with others well advanced.

A visiting fellow, Dr D. Lindberg from the University of California, Berkeley, and Dr Ponder embarked on a program to undertake a cladistic analysis of the Gastropoda, involving a major reassessment of the classification of this very large group of animals. This is now being developed into a manuscript. Another project commenced with another visitor, Dr G. Haszprunar, of the University of Innsbruck, Austria, and also involves Dr S. Tillier of the National Museum in Paris. This project is undertaking a cladistic classification of the major pulmonate groups (the group that includes the land snails). A manuscript on an enigmatic high-tidal slug, *Smeagol*, the study of which lead to this project, has been completed.

A joint paper by Dr J. Taylor, Natural History Museum, London, and Dr Ponder, recording shell boring by marginellids for the first time, has also been completed.

Bill Rudman has continued his research into aspects of the ecology and evolution of opisthobranch molluscs (sea-slugs), including the completion of the first section of a review of the fauna of the heavily polluted waters of Hong Kong. Another major project nearing completion, is a monograph on the New Caledonian fauna being funded by ORSTOM, the major overseas research agency of France. Because the biology of the whole of the Pacific Ocean is so closely inter-related, these studies are providing information, essential for the better understanding of our Australian marine fauna.

Corals and soft-corals are essential elements of the tropical marine environment. Dr Rudman is continuing his studies of sea-slugs which exclusively feed on reef-forming corals, including collaborative studies with scientists in Hawaii, Enewetak and the U.S.A.

Collections

Material from Rushcutters Bay store was transferred to the Marrickville store, and the wet collection was transferred from the general working area to the Stanley St Annexe. Accessions amounted to 19 290 lots. There were 11 exchanges (37 lots, 65 specimens), and 87 loans (2 332 lots, 10 673 specimens).

Important donations were received from David Brunckhorst (nudibranch molluscs), Helen Blackburn (Australian shells), Ethel Harris (New South Wales shells), Sheila Hunter (Terebridae, Strombidae), Ken Hipkins (New Zealand shells), and Mike Shea (land snails).

Visitors to the Malacology section included 14 from overseas and 17 from interstate.

Fieldwork

Bill Rudman led a highly successful field trip to the Coffs Harbour - Solitary Islands region of northern New South Wales as part of a continuing study of the tropical influences on the opisthobranch molluscs (sea-slugs) of this region. The Field party included museum staff Ian Loch and Geoff Avern, and a group of about 10 local amateur divers, some of whom took their annual leave to assist. Without their hospitality, logistical support and local knowledge much of the fieldwork would not have been possible.

Gerard Clark visited the Cooma area of southern New South Wales in connection with Dr Ponder's hydrobiid project. Dr Ponder also carried out field work on the New South Wales south coast and on the Boyd Plateau.

Ian Loch collected marine molluscs in the Swain Reefs, Queensland, in August 1990.

Services to the Community and Science

Bill Rudman gave illustrated talks to various amateur dive clubs and the Conchology section of the Royal Zoological Society of New South Wales. He continued as Associate Editor (Invertebrates) of the Records of the Australian Museum. Both Dr Rudman and Dr Ponder reviewed manuscripts submitted for publication in several scientific journals. They also reviewed grant applications for a number of overseas and Australian organisations.

Conferences and Workshops

Winston Ponder and Bill Rudman attended the IX Willi Hennig Society meeting in Canberra. Dr Ponder gave an invited paper at the Tasmanian Wilderness Symposium in Hobart. Dr Rudman and Dr Ponder also attended the Symposium of the Australian Systematic Botany Society in Canberra in August 1990. Dr Ponder organised a DELTA Workshop run by Dr M. Dalwitz, the developer of the program, in July 1990, and attended a Marine Biology Workshop at Rottne Island in January 1991.

ENTOMOLOGY AND ARACHNOLOGY

Research

Michael Gray has begun an ABRS supported study of shawl-web spiders of the subfamily Desinae, a widely distributed group that includes the 'black house' spiders plus several communal web builders. A manuscript on the genetic structure of the latter spiders (*Badumna candida* species complex) with Dr D. Colgan has been completed. Dr Gray also submitted a manuscript on desid spiders from New Caledonia. His work on the large *Forsterina* generic complex is progressing well with assistance from Ms Judith Thompson.

Daniel Bickel was appointed to the permanent position of Scientific Officer in Entomology. Dr Bickel continued studies on the long-legged flies (family Dolichopodidae) of the Australasian region. This included the completion of a large manuscript for the Fauna of New Zealand series, and description of subfamily Sympycninae in the Australian fauna.

David McAlpine's work on acalyptate flies has involved much assessment of morphology as a basis for phylogenetic classification. He completed a study of the margin flies (Zimbabwe and Madagascar) which constitute the new family Marginidae. His now completed work on the anomalous seaweed-living half-bridge flies (*Heterocheila*) indicates that they also require a new family. Some species of African flies ("Miller's fly"), constituting a third new family, have been the object of a joint study by Dr A. Freidberg (Israel), Dr R.M. Miller (S. Africa) and Dr McAlpine, who has investigated the phylogenetic relationships of the group. Dr McAlpine has continued compilation of descriptions and keys of Australasian platystomatid flies.

Gerry Cassis has completed writing two volumes of the Zoological Catalogue of Australia on the suborder Heteroptera or true bugs. With Dr Gary Stonedahl, Dr Cassis has completed a revision and phylogenetic analysis of the bug genus *Fingulus*. He continues taxonomic work on Australian earwigs, and has found many new genera and species.

Max Moulds has continued his work on the systematics of Australian cicadas with revisions of the genera *Burbunga* and *Gudanga* now almost complete. He is also working

with R. Lachlan (Associate) on a study of the butterflies and hawk moths of Vanuatu and the hawk moths of Papua New Guinea.

Glenn Hunt has revised two groups of harvestmen (arachnids related to spiders) which are common in Australian caves. The genus *Holonuncia* occurs in caves in N.S.W. and Victoria, including the popular tourist venues at Jenolan and Wombeyan. The genus *Lomanella* occurs in Tasmanian caves. One species is the first blind harvestman described from an Australian cave. It is completely white and has very long legs, both adaptations to the cave environment. Dr Hunt has also completed a short review of harvestmen found in the arid parts of Australia.

Research Associate, Dr Shane McEvey, has completed four taxonomic papers on new species of Drosophilidae from Madagascar with M.T. Chassagnard, L. Tsacas (CNRS, Paris) and David Grimaldi (AMNH, New York); other projects are under way with Drs Gerhard Bächli (Zürich), Chassagnard and Grimaldi.

Several Research Associates have active Museum based projects. Courtenay Smithers has studied a large collection of Irish Psocoptera (Booklice) at the request of the Irish National Museum which has led to the preparation of a synopsis of Irish Psocoptera to be published in Ireland. He also studied booklice intercepted by Quarantine Officers, a collection of booklice from the nests of wasps and spiders, as well as continuing his work on other Australian psocid collections. Dr Smithers has also published on the distribution and ranges of several Australian butterflies and has continued his work on butterfly migration.

Günther Theischinger is continuing his research on the systematics of the Australian craneflies and dragonflies.

Clarence Chadwick is undertaking an extensive study of insect pollination in cycads and spoke on this subject at the 2nd International Congress on Cycad Biology.

Collections

Some 26 000 insects and 7 000 arachnids were added to the collections and a total of 89 loans were processed involving 500 insects and approximately 1 000 spiders.

The curation backlog of both the insect spirit collection and dry collection has been substantially reduced. Six new insect storage cabinets have allowed upgrading and expansion of part of the Diptera (flies), Coleoptera (beetles) and Hemiptera (true bugs) as well as partial rehousing of our large collection of Pacific/Papua New Guinea beetle collection.

All spider types have now been extracted from the main collection and relocated together for safer keeping and easier access. The Mascord slide collection, which is undoubtedly

the best collection of Australian spider photographs ever made, has been transferred to an archival storage system and catalogued.

Dr C. Smithers has completed identification and rearrangement of the Brown Lacewings (Hemerobiidae), Green Lacewings (Chrysopidae) and Osmiid lacewings. He is currently updating the Antlions and Owlflies (Myrmeleontidae and Ascalaphidae). With the help of staff and Associates updating of the True Bugs (Heteroptera) and Stick Insects (Phasmatidae) is under way.

David McAlpine arranged exchanges of Diptera material with Natural History Museum (London), California Academy of Sciences, B.P. Bishop Museum, Canadian National Collection, Natal Museum, Museum of Victoria, and Queensland Dept of Primary Industries.

Donations

In addition to the V.V. and J.L. Hickman collection of spiders mentioned above, a most important donation was the leafhopper collection of the late J.W. Evans, Director Emeritus of the Australian Museum, received from Mrs Faith Evans. Other important donations were those of Mr G. Williams - 10 000 insects from NSW rainforests; Mr R. de Keyser - 800 beetles, mainly from Asia; and Mr G. Hangay - 4 000 insects, mostly Australian beetles.

Field Work and Travel

On a visit to Zimbabwe, David McAlpine rediscovered the little known African upside-down fly (*Neurocytta prisca*), recording its behaviour and host plant for the first time. As this is similar to fossil species, the observations suggest that these flies may have indulged in head-downwards cursorial behaviour for the last 40 million years. Dr McAlpine and Barry Day made field observations of acalyptrate flies in the Cairns-Ravenshoe vicinity of Queensland. Dan Bickel participated in an ORSTOM-Paris Museum expedition to New Caledonia and made significant collections of long-legged and platystomatid flies. Gerry Cassis spent six weeks in the field in south-western Australia collecting and observing bugs associated with native flora and obtaining new species of earwigs.

David McAlpine visited the Natural History Museum, London, National Museum of Natural History, Paris, Natural History Museum, Vienna, and Natal Museum, Pietermaritzburg, where he studied comparative morphology of acalyptrate flies and examined significant type specimens in connection with his work on phylogeny and taxonomy.

Services to Science and the Community

Michael Gray has served as Head of the Division of Invertebrate Zoology throughout the period, but received permanent appointment in April 1991. Dr Gray has served as:

Treasurer of the Linnean Society of New South Wales; member of Jenolan Caves Scientific Advisory Committee; Cooperative Research Council proposal committee member; Insect Gallery Steering Committee member; member of Scientific Committee for 12th International Arachnological Congress. He has produced a spider identification poster 'Spiders in Australia', a cooperative project with Bayer Australia. Dr Gray identified the Eberhard Tasmanian Cave collections for University of Tasmania.

David McAlpine made specialist identifications for Tel Aviv University, CSIRO Division of Entomology, Australian Customs, Royal Botanic Gardens (Sydney), and Queensland Department of Primary Industries. He also gave two lectures to amateur societies, and advised on two conservation sites.

Shane McEvey has edited the collected writings of a leading Australian evolutionist, Prof Hugh Paterson. The work will be part of a two volume set about the Recognition Concept of species, to be published in 1992 by John Hopkins University Press.

Max Moulds has been guest speaker at meetings of the Entomological Society of NSW and Society for Growing Australian Plants, also celebrity speaker at the Grange Retirement Village. He accompanied a TAMS trip to Mittagong Butterfly House as guest scientist, has spoken to Museum Guides, and been interviewed for radio.

Conferences and Workshops

Dan Bickel and David McAlpine attended the Second International Diptera Congress at Bratislava, Czechoslovakia, in August 1990 and presented papers on the Systematics of Sciapodinae (Diptera: Dolichopodidae), and Primary phylogenetic divisions of the Diptera-Schizophora respectively. Dr Bickel also presented a paper on Biogeography of Pacific Basin Dolichopodidae by invitation at the Nineteenth Pacific Science Congress at Honolulu in May 1991.

Gerry Cassis presented a paper at the IX Willi Hennig Society Conference in Canberra. Several other staff also attended this meeting. Max Moulds also attended the 21st AGM and Scientific Conference of the Australian Entomological Society and the IX Willi Hennig Society meeting, both in Canberra.

Students

Max Moulds gave two lectures to TAFE students. Shane McEvey taught dipteran systematics to 4th year entomology students at Sydney University, and tutored postgraduates in evolutionary biology. David McAlpine gave an explanatory talk to students from Sydney University on taxonomic research in the Museum.

VISITORS

Entomology and Arachnology

- Prof. C.R. Baltazar, University of the Philippines, Manila.
Dr Michel Baylac, National Museum of Natural History, Paris
Dr Thierry Bourgoïn, National Museum of Natural History, Paris Dr C. Costa, University of Sao Paulo, Sao Paulo
Dr M. Heyworth, University of California, San Francisco
Dr J. Hickman, Hobart
Dr A.G. Kireilshak, Zoological Institute of USSR, Leningrad
Dr R. Leech, University of Alberta, Edmonton
Dr Pat Matyot, Victoria, Seychelles
Dr Scott Miller, Bishop Museum, Honolulu
Prof. R. Pilgrim, University of Canterbury, Christchurch
Dr P. Simmons, University of Georgia, Athens, USA
Dr I.M. White, CAB International, London

Marine Invertebrates

- Dr Akira Asakura, Natural History Museum, Chiba, Japan
Dr Richard Brusca, San Diego Natural Museum, California
Dr Marit Christiansen, University of Oslo Zoological Museum, Norway
Dr Richard Emlet, Natural History Museum of Los Angeles County, California
Dr Christer Erseus, University of Goteborg, Sweden
Dr Ráfael Lemaitre, Smithsonian Institution, Washington DC
Dr Ray Manning, Smithsonian Institution, Washington DC
Dr Patricia Mather, Queensland Museum, Brisbane
Dr Shane Parker, South Australian Museum, Adelaide
Dr Jurgen Sieg, University of Osnabruck, Germany
Dr Macros Tavares, National Museum of Natural History, Paris
Dr Les Watling, University of Maine, Maine
Dr Austin Williams, Smithsonian Institution, Washington, DC
Dr Toshi Yamaguchi, Chiba University, Japan

Malacology

- Prof. K. Bandel, Geological-Palaeontological Institute, Hamburg University, Germany
Mr H. Dijkstra, Zoological Museum, Amsterdam
Dr G. Harzprunar, University Institute for Zoology, Innsbruck, Austria
Dr J. Healy, Queensland Museum, Brisbane
Dr A.R. Kabat, National Museum of Natural History, Washington, DC
Mr P. Laboute, ORSTOM, Noumea
Dr D.R. Lindberg, University of California, Berkeley, California
Dr F. Wells, Western Australian Museum, Perth
Dr B. Wilson, Department of Conservation and Land Management, Perth
Mr Y. Yuki, University of Tokyo, Japan

FUTURE PLANS FOR THE DIVISION

Plans are under way to establish a database of the 10 000 or so types in the insect collection.

Accessioning of the Hickman arachnid collection will continue and sorting of the large and valuable Boyd Plateau survey material will commence. The erection of additional shelving within the insect spirit collection will soon relieve overcrowding in the arachnid collection.

Michael Gray is to visit four state museums to examine material for the desid spider project. Dr Gray will also make a field trip to the Nullarbor Plain with the Western Australian Speleological Research Group to investigate troglobitic mygalomorph spider populations.

Shane McEvey, who has been awarded a Visiting Research Fellowship will establish a computerised geographic information system (GIS) of the Sydney region. Habitat-distribution of drosophilid flies will be used to demonstrate the various applications of a GIS across urbanised and undisturbed environments.

David McAlpine intends drawing up a list of rare and interesting acalyprate flies of New South Wales whose conservation status may give cause for concern. His research has already indicated that many of Australia's insects are as unusual as our birds and mammals. He also plans to study the internal phylogeny of several fly families.

Dr Hutchings' plans are to complete the revision of the two polychaete families begun in 1989, and the report on the three-year Jervis Bay study, which must be submitted to the Department of Defence in early 1992. Dr Hutchings will be continuing with the ARC research, which is a multi-institutional grant. This project is determining the impact of varying densities of seagrass on the productivity of these important estuarine habitats. Throughout Australia, seagrass beds are being impacted by man's activity and it is important to understand the consequences of declining or actual losses on seagrasses and their associated fauna on estuarine productivity. This manipulative work is being carried out in Warnborough Sound, Western Australia.

Parts of the dry molluscan collections are to be relocated to the mezzanine floor and possibly the Pacific store, to enable construction of work space for visitors, staff, volunteers and library, and full computerisation facilities are to be established in the Malacology Section.

"I'll definitely come again. If you find an extra black umbrella, it's mine."

Kamae Masayuki, Namazu Japan
From the Public Comments Book

MATERIALS CONSERVATION DIVISION

The Materials Conservation Division aims to prevent damage to the collections, conserve items of special importance, undertake research to increase the immediate and long-term preservation of the collections, and disseminate information on conservation methods. These activities contribute to the Museum's Strategic Corporate Plan by improving access to the collections for research and communication to the public, and, to preserve the collections for the benefit of future generations.

HIGHLIGHTS

- *Implementation of a safe technique for the control of insect infestations in the collections.*
- *Safe relocation of the Anthropology collections.*
- *Conservation of new acquisitions to the Anthropology collections established.*
- *Outreach Conservation program established.*
- *Exhibition maintenance program established.*
- *Improved access to Marind Anim collection*

MUSEUM PEST CONTROL PROGRAM

New fumigation policy has been implemented for the treatment of objects returning from loan, new acquisitions and infested objects found in the collections of the Anthropology Division. Guidelines for an alternative technique using freezing have also been prepared. Monitoring of insect populations in Anthropology collection storage areas is proceeding on a regular basis, whilst in natural history collections it is proceeding upon request.

MUSEUM DISASTER PLAN

The training of collection managers and other key staff in the recovery of records and museum specimens continued this year. A number of staff members attended courses on the handling of water-damaged books and photographs. A seminar on the recovery of water-damaged magnetic media (i.e. computer files and sound recordings) was held in the museum and a survey of photographic collections with reference to disaster preparedness was undertaken.

RELOCATION OF ANTHROPOLOGY COLLECTIONS

Relocation of the collections into a new storage facility has finally been completed. Since the project began about four years ago, staff have designed and constructed supports and mounts for over 2000 objects. The principle behind the work has been to protect and preserve any object deemed at risk from physical damage or insect attack both during the actual move and, where possible, in long term storage.

CONSERVATION OF COLLECTIONS

Most of the items in the Marind Anim collection have been stored in a newly developed mounting system using fibreglass which allows access to this extremely fragile and significant collection of ethnographic objects from Irian Jaya. Further preliminary work is required before conservation treatments can be undertaken.

A conservation procedure for new acquisitions to the Anthropology collections has been established which ensures objects are preserved in the best possible condition and will provide access to fragile objects for research and study. Inspection, documentation, provision of storage systems and, where required, interventive treatment, is being carried out for all incoming objects. A database has been developed for the documentation of condition and any treatment requirements for objects under this program.

A survey of mats and textiles in the Asian, African and American collections in the Anthropology Division has been completed. Improved storage systems for the Balinese paintings on textiles and for the mats have been provided which allow easy access. Proposals for treatment and improved storage of the textiles have been developed.

Almost 200 Anthropology artefacts were prepared and packed for loan (mostly for exhibition) to 12 institutions, at home and overseas. Cost of time and materials was recovered where appropriate. Artefacts returning from loans were examined and their condition checked on arrival at the museum.

An exhibition maintenance program with conservation input was formalised in October 1990. Objects within the Aboriginal and Abelam Galleries have been cleaned as part of the exhibition maintenance program and several objects from other public and corporate areas within the museum. Treatment of objects and reconstruction of part of the Rituals in the Human Life Cycle Exhibition due to flooding from a leaking roof has involved a lot of our time. A computer database for the Conservation component of the Exhibition Maintenance Program has been devised.

RESEARCH ON CONTROLLED ATMOSPHERE FUMIGATION

Experimental work for the development of low oxygen atmosphere fumigation, a safe alternative to traditional insecticides for the control of insect infestations in museum collections, is almost complete. The efficacy of low oxygen atmospheres against the powderpost beetle, a common museum pest, has been determined. A fumigation program involving the use of AGELESS, a commercial oxygen scavenger, as a practical means of generating low oxygen atmospheres has commenced.

RESEARCH ON PAINTED ARTEFACTS

Techniques for the removal of mould stains which have disfigured traditional designs on Aboriginal painted wooden artefacts are currently being developed. This major area of

research involves the use of specific enzymes to digest the cell walls of the fungi and probably will be combined with the decolourisation of melanin - the pigment causing the stain. Research on new methods for the consolidation of powdery paints on Aboriginal artefacts is continuing with the development of identification procedures for traditional binding media used in the paints.

EXHIBITIONS

The Division has been actively involved in the creation of the highly successful Woven Image exhibition from Maningrida. Innovative mounting systems were designed to good effect.

OUTREACH CONSERVATION

Two Arts and Crafts centres in Arnhem Land were visited and a two day seminar was given in Darwin for the Association of Northern Central Australian Aboriginal Artists (ANCAAA). During this time advice was given to the communities on the particular problems faced by them on the care of their artefacts in Keeping Places as well as those being transported to the southern regions for sale.

COMMERCIALISATION OF DIVISION SERVICES

The Division has developed a conservation strategy document considering product, competition, market, fee rates, responsibility and liability, and potential directions. The Division has been successfully involved in an exhibition for "The Story of Sydney" and with the Education Division in presenting public lectures in the Museum and Behind The Scenes' WEA tours.

FUTURE PLANS

Continue to facilitate access to the Anthropology collections by improvements to storage and condition of artefacts. Identify what conservation work needs to be undertaken by the Division on the natural history collections (i.e. other than those belonging to Anthropology) and draw up a long-term strategy to meet those needs. Develop a procedure for the recovery of photographic materials in event of a disaster. Further development of Outreach Conservation program.

"I like the feeling that I am building on the work of others before me stretching back to 1827...in a way you never cease to have relevance for someone"

Kate Khan
Anthropology Project Officer, Australian Museum

DIVISION OF VERTEBRATE ZOOLOGY

The aim of the Vertebrate Zoology Division is to conduct research and provide information on the systematics, ecology and behaviour of Australasian vertebrates (fishes, amphibians, reptiles, birds and mammals) and their relatives from other areas. The Division is also responsible for maintaining and enhancing the collections of these animal groups and information about them.

HIGHLIGHTS

**Collection management restructuring has resulted in appointment of 2 scientific officers (in Ichthyology and Terrestrial Vertebrates) as collection managers, vertebrate collection Responsibilities for Herpetology, Mammalogy and Ornithology have been amalgamated under a single Collection Manager for Terrestrial Vertebrates.*

**Major research grants were received for five projects resulting in funding to the Museum of approximately \$290,000 for the year.*

**Reorganisations of collection resulted in move of Bird Collection to new quarters and plans were developed for Mammal Collection move. Material stored at a warehouse in Rushcutters Bay was relocated to Marrickville.*

**Publication of one book on Australia's Vanishing Mammals and Whitley Award for book on Biology and Evolution of Australian Lizards.*

**Rediscovery of the Night Parrot, whose existence had not been documented since 1912 and establishment of the Australian Geographic - Australian Museum Night Parrot Fund to study this species*

**Rediscovery of Bulmer's Fruit Bat, previously known only from fossils and skulls*

RESEARCH

Research is carried out by scientists in fishes, reptiles, mammals and birds. Additional research is carried out in one or more of these areas by scientists from other institutions through the Museum's Visiting Fellowship program and by Research Associates of the Australian Museum.

HERPETOLOGY

Allen Greer's research dealt with the taxonomy of skinks, the morphology and reproduction of lizards and snakes, and a book on the biology and evolution of Australian snakes.

Ross Sadlier's research was directed toward the fulfilment of a consultancy contract with the New South Wales National Parks and Wildlife Service to determine the conservation status of the reptiles and amphibians in the Western Division of the state using the Section's extensive collections as the main data base.

ICHTHYOLOGY

John Paxton continued his studies on deep sea whalefishes with support from an ARC grant. Current research is concentrating on the reproductive biology of these rare fishes. A two year grant has been received from the Fishing Industry Research and Development Council to study the biochemical genetics (with Don Colgan of our Evolutionary Biology Unit) of gemfish and ocean perch, in hopes of distinguishing separate breeding stocks of the former and possible separate species of the latter.

A 3 year ARC grant received by Jeff Leis enabled the continuation of a study of larval tropical snapper. The Sydney surf zone field sampling of larval fishes was finished and a grant from the Water Board will enable completion of sample sorting. The discovery of the bizarre larvae of a rare toothpick goby resulted in a description in collaboration with Doug Hoese and Tom Trnski. A major paper on larval fish assemblages was completed.

Doug Hoese spent much of the year in bringing 3 major studies of fishes to near completion. One study involves a major radiation of freshwater gobioid fishes in Australia, New Guinea and Suluwesi. The second study concerns one of the most speciose groups of marine fishes, a genus of small gobies from coral reefs. The third study involves a group of live-bearing weedfishes, common to marine vegetation in southern Australia. Other studies of smaller groups of marine fishes were also carried out.

MAMMALOLOGY

The Mammal Section has continued its major programs in research and conservation of Australasian mammals. Scott's Tree-kangaroo, one of the regions most endangered species, is the subject of an intensive ecological study using radiotracking. A major success was the fitting of radio transmitters to three individuals. A specimen of Bulmer's Fruit Bat was found by Alex Szalay among specimens in the collection. It is the first specimen for which the external morphology is known (it previously being known only from fossils and skulls). It is from a previously unknown locality, and was collected some 10 years after the species was thought to have become extinct. Next year, funds will be sought to search the region (in west PNG) for a surviving colony. On the Australian front, Tim Flannery finished a major book "Australia's Vanishing Mammals", which documents the history of 30 extinct and endangered mammal species. New information is included, and the book should help to popularise the plight of endangered species in the region.

The survey of southwest Pacific mammals continues, and is still producing major surprises, such as the five undescribed murid species found in the Moluccas earlier this year. The survey begins its third year this year. It is expected to run for a total of five years.

ORNITHOLOGY

Walter Boles spent most of his limited research time on Tertiary fossil birds. Four manuscripts on fossil birds were submitted for publication during the year. New projects are underway on storks, waterfowl and a lyrebird-like songbird.

Walter Boles, Wayne Longmore and Max Thompson found a road-killed specimen of the Night Parrot *Geopsittacus occidentalis*. The last documented record was from 1912, and some authorities thought the species could be extinct. Mr Dick Smith, publisher of Australian Geographic, generously donated \$50,000 to establish the Australian Geographic - Australian Museum Night Parrot Fund. This will be used to finance fieldwork to discover and study live parrots in the wild. A popular article relating the most peculiar circumstances leading to this research program was published in 'Australian Natural History'. A more detailed article will appear in the future. Smaller projects related to plumage ontogeny were completed. Short papers were published on aspects of plumage and breeding in the Rufous Whistler and relatives, and on a new preparation technique for producing combined skin-spirit specimens.

Research Associates also contributed significantly to research of the Bird Section. Wayne Longmore had two major publications during the year: 'The Honeyeaters and Allies of Australia', a volume in the National Photographic Index of Australian Wildlife series on Australian birds; and the type lists of Australian birds held by the Australian Museum. The latter has been an ongoing project for some years. John Disney published the results of his study on age and sex differences in the Welcome Swallow *Hirundo neoxena*. Terry Lindsey revised field edition of Neville Cayley's 'What Bird is That?' was published. Joe Forshaw saw the publication of the 3rd edition of his book 'Parrots of the World'.

COLLECTIONS

The Museum maintains collections of fishes, reptiles, amphibians, birds and mammals which are used for research by Museum scientists and scientists from other institutions from all over the world.

ICHTHYOLOGY

A total of 125 loans and exchanges were sent out (1200 lots and 6926 specimens). In total, 7935 lots (50,159 specimens) were registered and/or had data changed on the computer. The collection now contains 106,359 lots and approximately 450,000 specimens. Support was obtained from the Trust to register 75% of the larval fish backlog (2000 lots). The Section organised the manufacture of plastic inserts to seal the necks of 2 litre specimen jars resulting in markedly reducing evaporation problems. The skeleton collection was curated and relocated from the spirit house to Yurong street annexe to increase wet storage space in the spirit house.

Considerable progress was made in the computerisation of collections. New databases were made for Genus names (3422 records), References (2949 records), Types (321 records, linked to the main fish database), Addresses (206 records, linked to the loan system), Specimen storage (498 records), Australian Ichthyoplankton Newsletter (57 records).

Collection management accounting included the following progress:

A total of 540 records of Sepik River fishes (8000 specimens) were computerised in Wewak, PNG in late June 1990. These records were added to our database (Titan) upon return to the Museum in July 1991.

Also 132 records of deep-water Western Australian fishes caught and registered on board the R/V Southern Surveyor and 127 records of fishes from the northern NSW coast near Camden Haven were computerised in the field and added to the database upon return to the Museum.

The Collection manager organised and ran a 2 day Titan database administrators course for 8 collection managers.

A volunteer (M. Driver) has entered all past incoming loans (1192 records) to Fish Section scientists into a database.

Numerous procedures, software and programs were written to simplify and improve data input, output and communication.

The collection manager has taken a major role in museum-wide collection computing. One day per week is provided for system support and development for Titan/Xenix users.

TERRESTRIAL VERTEBRATE COLLECTIONS

In Herpetology notable acquisitions have been 200 specimens from Ross Sadlier's trip to the Kimberley region and approximately 300 specimens from the Solomon Islands obtained by T. Flannery and associates (working on the Scott Foundation grant).

In mammals and birds a major move of the off-site specimen storage took place in January 1991. Slightly larger storage space at Marrickville now houses the large gallery mounts and the marine mammal osteology collection. A backlog of mostly Australian specimens (approximately 250) have been registered by Alex Szalay.

The curatorial program in birds was dominated by two major moves: the main collection to new accommodation in what had been the Lower Pacific Store (William Street Girls School) and the Rushcutters Bay holdings to new off-site storage at Marrickville. Both moves give more better quality space for collections and workers, but considerable time was required for post-move reorganisation.

Other curatorial activities in Birds were made possible with temporary assistance and could not have been achieved otherwise. Inventories were completed of skeletons, carcasses awaiting skeletonisation, spirit specimens in polydrums and carcasses held in the freezer. A number of maceration specimens were incorporated into the skeleton collection. The alcohol in all spirit jars and drums was topped up or changed. Storage

of the spirit collection remains a problem but this should be rectified within the coming year. Ongoing registration of the Bettington-Hyem Egg Collection continued. Almost all outstanding skins, spirit specimens and skeletons were registered, leaving virtually no backlog of prepared specimens.

Many more important specimens were obtained from the Scott bequest fieldwork of Tim Flannery and his colleagues in the southwest Pacific. The Museum now holds important spirit collections from the Solomon Islands and Fiji. Other major donations came from NSW National Parks and Wildlife Service, Taronga Zoological Park and Wildlife Information and Rescue Service.

The mammal section obtained its first specimen of Brydes Whale, the first record of this species from New South Wales.

FIELDWORK

Ross Sadlier participated in a joint herpetology/ornithology field trip to northern Australia. In addition to obtaining valuable specimens for the general collections, a rare and endangered species of scincid lizard in Western Australia was discovered outside its previously known range.

Six staff (in Ichthyology) and one volunteer collected fishes for one week in the Camden Haven area of the NSW north coast, an area for which the research collection holdings were poor. John Paxton spent two weeks on the FRV Southern Surveyor sampling deep sea fishes between Port Hedland and Geraldton. Alistair Graham, Jeff Leis, Sally Reader, Tom Trnski and others completed the two year Sydney surf zone sampling.

Dr Dawbin and associates continued to carry out the twice yearly field trips off Coffs Harbour. This work records and analyses the songs of Humpback Whales migrating up and down the east coast. A colleague in Western Australia also provided recordings of west coast Humpbacks to enable further comparisons between east and west populations.

The major fieldwork in Birds during the year consisted of an extensive, eight week trip through northwestern and northern Australia, encompassing the Tanami Desert, Roebuck Bay, Kimberleys and Mitchell Plateau, Top End, west side of the Gulf of Carpentaria and western Queensland. Participants on the trip were Walter Boles (AM Ornithology), Ross Sadlier (AM Herpetology), Wayne Longmore (AM Associate, QM Ornithology) and M. Thompson (visiting scientist: Southwestern College). Very useful and important specimens were obtained from a wide variety of habitats, and several taxa new to the collection were acquired. On the way home the group found a Night Parrot.

CONFERENCES

Mark McGrouther attended a 3 day C computer programming course run by Knowledge Engineering in Melbourne. Doug Hoese, Jeff Leis and John Paxton attended the Willi Hennig annual conference in Canberra. Doug Hoese and John Paxton attended the Sharks Down Under conference in Sydney and John presented a paper. John also presented a paper and sat on a symposium panel on introduced aquatic organisms in the Pacific Basin at the Pacific Science Congress in Honolulu. Jeff Leis attended the American Society of Ichthyology and Herpetology meetings at the American Museum of Natural History in New York and by invitation the larval fish meetings at the Los Angeles County Museum. Ross Sadlier was an invited speaker on the status of New Caledonian reptiles at the Pacific Science Congress. Walter Boles presented an invited paper at the 20th International Ornithological Congress, in Christchurch, New Zealand, on what the fossil record revealed about the origins and radiations of Australasian birds. This will appear in the proceedings of the Congress.

TRAVEL

Jeff Leis examined larval fishes at the American Museum of Natural History, New York; Smithsonian Institution; Los Angeles County Museum; Museum of Comparative Zoology, Harvard; South Carolina Marine Sciences Laboratories, Charleston; and the Royal Ontario Museum, Canada. He also visited Perpignan, France to work on a collaborative project with Dr Rene Galzin.

Linda Gibson and Dr Bill Dawbin attended a conference on "Humpback Whales" held at the Queensland Museum, Brisbane in October 1990. This was a special conference held to commemorate the special achievements in this field of research of Dr Dawbin and Dr R. Chittleborough.

Linda Gibson attended the opening of a new seal exhibit in the Eden Whaling Museum in September 1990. Special advice on natural history/display techniques and taxidermy were provided by the Australian Museum as part of a continuing association with the Eden Museum. Linda also attended a special forum organised by the Royal Zoological Society entitled "Zoologist in Court".

While overseas on holiday, Walter Boles worked on fossil material in the University of Kansas Museum collection, which has one of the world's largest osteological holdings. He identified an early Tertiary fossil, one of the older known birds from Australia, as belonging to the shorebird-gull lineage; it does not appear referable to any living family.

COMMUNITY AND MUSEUM ACTIVITIES

Most of the Division staff participated in running tours and giving presentations during Museum Open Day.

Allen Greer's community activities included: lectures to TAFE herpetology students on reptil anatomy; talks to the Australian Herpetological Society, the Bankstown Bushwalking Club, and the general public; radio and newspaper interviews on herpetology in Australia, cane toads, green tree frogs, snakes in the Sydney area, usefulness of species, natural selection; wrote letters to the editor on the usefulness of species, and natural selection; reviews for "Australian Geographic"; identifications for the NSW Department of Agriculture and Fisheries.

Allen Greer's Museum activities included: chairmanship of the Animal Care and Ethics Committee and of the Peter Rankin Trust Fund for Herpetology; associate editorship of the "Records of the Australian Museum"; Scientific Officer on the Museum of the Road (MOTR) exhibition on science in the Museum; Scientific Officer for the Museum's Open Day; management of the Museum's toxic waste disposal program; reviewing and writing for "Australian Natural History"; participation in the planing for the "Discovery Space"; organisation of the Wednesday lunch for Museum research staff; organisation of the Division of Vertebrate Zoology's annual report; part time Acting Head of Vertebrate Zoology Division; talk to Museum Guides.

Ross Sadlier's community and Museum activities included: participation in a symposium of the future of native fauna in western New South Wales organised by the Royal Zoological Society, and a session on biodiversity of New Caledonia at the Pacific Science Congress; "behind the scenes" talks to the general public on "Open Day" and to the Australian Herpetological Society.

Mark McGrouther participated in the Investigation Centre project team (Chairperson), Commercial Resolution of Administrative Procedures committee, the Corporate Identity Project Team, the design of interactives for the Discovery Space, talked to students from Canberra University and was involved in talks with E. Hinde, S. Sayes, L. Anderson, P. Wilson.

The following staff participated in the Director for a Day program; Walter Boles, Doug Hoese, Jeff Leis, Mark McGrouther, John Paxton and Ross Sadlier.

The following staff participated in seaweek demonstrations; Pablo Bolomey, Mark McGrouther, Sally Reader and Tom Trnski.

Tom Trnski participated in the design of interactives for the Discovery Space, gave a talk to the Underwater Research Group and continues to edit the Australian Ichthyoplankton Newsletter.

Four work experience students were supervised throughout the year in Ichthyology.

The Ichthyology Section raised \$2159.50 in commercial funds, primarily by specimen identifications. John Paxton gave lectures on deep sea fishes at James Cook University

and the Fisheries Research Institute at Cronulla, as well as a CAE lecture on sharks. Information was also given to newspapers and radio.

Jeff Leis gave a major input of time to the Lizard Island Research Station (management, fellowships, etc) as well as representing the Museum in a successful attempt to prevent spear fishing at Lizard Island where the Museum maintains a research station, and restrict it in other areas of the Great Barrier Reef Marine Park. He gave a talk to Balmain Public School on the Museum. He completed a year as head of the Division, being replaced on a long term basis by Doug Hoese.

Linda Gibson continued to attend meetings of the Landscape Conservation Committee of the National Trust. Linda also gave a number of talks to various WIRES (Wildlife Information Research) group in Sydney on the topic of mammal identification. Talks were also given to the Museum Guides. Linda also provided advice and specimens to the organisers of the private museum "Story of Sydney". A poster paper entitled 'Cetacean Stranding Records for NSW' was presented by Linda Gibson and Murray Ellis (NPWS) at the Australian Mammal Society meeting.

During the year, Walter Boles gave several talks, speaking to the NSW Field Ornithologists Club (twice), Hunter Bird Observers Club, Cumberland Bird Observers Club, Australian Bird Study Association, Parrot Society of Australia (NSW), Australian Geographic Society Awards Night, Australian Museum Open Day, and training courses for the guide volunteers. His work on different aspects of parrots brought many radio and newspaper interviews, many from overseas, and he featured on a segment of Burke's Backyard.

Walter Boles attended the Royal Australasian Ornithologists Union's Scientific Day and participated in the Museum's Conference on Evaluation in Cultural Institutions. He continues as a member of the RAOU's Taxonomic Advisory Committee and the Museum's Animal Care and Ethics and Disaster Management Committees. He completed his term as editor of the Australian Bird Study Association but remains on the committee.

ACKNOWLEDGMENT OF COOPERATION/DONATIONS

Mr R. Berghouse and Mr N. Halliwell donated collections of exotic aquarium fishes. CSIRO Marine Laboratories in Hobart made time available on their research vessel for collection of fishes. Mr M. Ellis spent time at the museum installing and demonstrating an environmental resource and mapping system. René Galzin of the Universite de Perpignan, assisted with a visit to France by Dr Leis. Mr K. Graham donated fishes collected by FRV Kapala. Dr W. Ivantsoff of Macquarie University donated important collections of freshwater fishes. Dr A. Miskiewicz donated important larval fishes. Mr J. McKenzie of New Zealand Fisheries and Mr K. Rowling of NSW Fisheries donated gemfish. Dr J. Randall of the Bishop Museum, Hawaii donated 94 type specimens to the

collection. Mr G. Wilson donated fishes collected along the northern NSW coast. Mr P. Unmack donated fishes from central Australia.

The Bureau of Fauna and Flora provided computer records of a bibliography of Australian Fishes prepared in large part by the Museum.

Valuable specimen continued to be received for the following organisations: N.S.W. National Parks and Wildlife Service; Australian National Park and Wildlife Service; Taronga Zoo; Tasmanian National Parks and Wildlife Service; Coffs Harbour Porpoise Pool; University of Sydney; W.I.R.E.S. Special acknowledgment is made of the assistance of the ORRCA (Organisation for Rescue and Research on Cetacean in Australia) group in the collecting of specimen and data from stranded marine mammals. A substantial grant was received from the estate of Winifred Scott to support mammal research in the Southwest Pacific.

VISITORS

Visitors to Herpetology included: Mr J. Cann from LaPerouse to discuss tortoises; Mr S. Conroy from the Australian National University to work on water dragons; Mr M. Guinea from the Northern Territory University to work on sea snakes; Mr P. Harlow from the University of Sydney to work on snakes; Dr K. Henle from Universität Stuttgart to examine gecko types; Dr M. Hutchinson from the South Australian Museum to discuss skinks; Mr M. McCoy to discuss Solomon Islands herpetology; Dr R. Murphy from the Royal Ontario Museum to discuss arid zone lizards; Dr J. Stewart from the University of Tulsa to work on placentation in lizards; Mr J. Webb from the University of Sydney to examine typhlopoid snakes and pygopodid lizards.

Visitors to Ichthyology included Dr R. Bailey, University of Michigan, U.S.A., freshwater fishes; Dr G. Burgess, Florida State University, U.S.A., shark taxonomy; Dr G. Cailliet, Moss Landing Marine Laboratory, U.S.A., shark biology; Dr R. Cashner, University of New Orleans, U.S.A., freshwater fish distributions; Dr J. Humphrey, Cornell University, U.S.A., collection databasing; Dr J. McCosker, Steinhardt Aquarium, U.S.A., sharks and eels; Dr J. Moron, Universidad Complutense, Madrid, Spain, shark biology ; Dr G. Nelson, American Museum, U.S.A., fish skeletons; Dr J. Randall, Bishop Museum, U.S.A., fish taxonomy; Dr W. Raschi, Bucknell University, U.S.A., shark anatomy; Dr K. Sasaki, Visiting Fellow, Kochi University Japan, systematics of jewfishes.

Several visitors worked in the Mammal Section. Prof. Johnathon Kingdon of Oxford University spent a week at the museum studying possums. Dr Richard Tedford, Head of Palaeontology at the American Museum of Natural History also called in to discuss Pleistocene history of Australasia. Other visitors to the Mammal section included Dr C. Kemper, (Marine Mammals), South Australian Museum; Dr P.D. Shaughnessy, (Marine Mammals), CSIRO Division of Wildlife and Ecology; Dr Peter Van Bree, (Marine Mammals), Instituut Voor Taxonomische Zoologie, Universiteit van Amsterdam Nederland.

In Birds Mr Max Thompson (Professor of Biology, Southwestern College, Kansas, United States) spent 6 months at the Museum while on sabbatical. He joined Walter Boles and Associate Wayne Longmore for extended fieldwork in northern Australia and finding dead parrots. He and Walter Boles carried out preliminary investigations on ultraviolet fluorescence of the plumage of parrots. Dr Gillies Gauthier (LaValle University, Canada) studied specimens of Pink-eared Ducks *Malacorhynchus membranaceus*. Professor Allen Keast (Queen's University, Canada) looked at various Australian passerines. Dr Carlo Violani (Genoa Museum, Italy) examined type specimens of Australian birds. Dr William Davis (Boston University, United States) studied a selection of Australian forest songbirds. Dr Joel Cracraft (University of Chicago, United States) examined birds of paradise.

FUTURE PLANS

ICHTHYOLOGY

Research on gemfish and ocean perch will intensify as a number of whalefish projects are completed.

Within the next 12 months the Section will be able to plot species distribution maps and will change the method of wet label printing from sheet to tractor feed. We will also endeavour to increase incoming revenue from commercial sources.

MAMMALOLOGY

Complete faunal surveys of Vanuatu, and continue with New Caledonian and Moluccan surveys. Begin survey of PNG islands. Continue our ecological study of Scott's Tree-kangaroo, and work on Bulmer's Fruit Bat and Pleistocene fossils from Irian Jaya.

ORNITHOLOGY

Continue research on fossil birds. Initiate a tracking program for the Night Parrot.

In the past two years the Museum has presented two exhibitions dealing with Greek culture. Seeing the interest shown by the Australian community makes me proud of my cultural background."

Donna Schizas

Senior Accounts Clerk and Translator for the Australian Museum

LIZARD ISLAND RESEARCH STATION

The Lizard Island Research Station provides housing and research facilities on the Great Barrier Reef for scientists and educational groups. Established by the Australian Museum in 1973, the station has developed into a world-class research facility. Because of its situation in the pristine waters of the northern Great Barrier Reef, the station's international importance is increasing as coral reefs in other parts of the world continue to be degraded. The station's primary aims are to encourage high-quality research leading to an understanding of tropical marine ecosystems and to foster education on that topic.

HIGHLIGHTS

- *New Co-Directors recruited*
- *Funds for new wet laboratory pledged*
- *Valuable research fostered by fellowships*
- *Educational groups study reef ecosystems at Lizard Island*

NEW DIRECTORS

Dr Lyle Vail and Ms Anne Hoggett replaced Dr Norman Quinn and Dr Barbara Kojis as Co-Directors of the station in August this year. Dr Vail received his PhD from James Cook University and Ms Hoggett has submitted her PhD thesis to the University of Queensland through the Northern Territory University.

RESEARCH

This year saw the beginning of a major research project to be carried out at Lizard Island concerning bioerosion of the reef. Headed by Prof. J.H. Choat and Dr. D. Bellwood of James Cook University and including individual studies by several PhD students, the ARC-funded project will determine the role of various organisms in eroding coral reefs.

Qantas Travel Fellowships enabled visits to the station by Prof. Ken Sebens (Northeastern University, Massachusetts, USA) and Mr Vincent Dufour (University of Perpignan, Perpignan, France). Prof. Sebens investigated the effects of water movement on reef corals. This study will increase our understanding of coral distributions and assist in predicting the impact of developments on coral reefs. Mr Dufour surveyed short-term recruitment of reef fish from the plankton. Because it is thought that adult fish population levels are determined by recruitment, this study will increase our understanding of fluctuations in reef fish numbers.

This year's Lizard Island Research Station Doctoral Fellowship was awarded to Ms Alison Green of James Cook University. Her work on labrid fishes (wrasses) will challenge some current ideas on reef fish ecology and provide much-needed data on this common but poorly known family.

In total, 36 individual research projects were carried out at the station this year by 78 people, who visited for an average of 25 days each. Sixteen scientific publications based on research at Lizard Island were added to the station's collection this year, bringing the total contribution to 296 papers, theses and books.

EDUCATION

Groups of students from Copland College (Canberra) and the College of Idaho (USA) visited the station to learn about coral reef ecosystems.

A new video about the station's facilities, research in progress, and the importance of research to management of the Great Barrier Reef has been produced, mainly to show to the 2,000 tourists who visit the station annually.

R.V. SUNBIRD

The unique sailing research vessel, "Sunbird", continues to make the reef more accessible to scientists in its second year of highly successful operation from Cairns by Captains Lois Wilson and Terry Ford.

DEVELOPMENTS

This year has seen major maintenance programs at the station, including improvements to the housing and aquarium system. Two new dinghies were donated by Alcan Australia Ltd. to maintain the safety and reliability of the station's fleet. Plans for the Raymond E. Purves Laboratory have been drawn up. This new wet laboratory will be operational by next year, providing much-needed space for researchers.

FUTURE PLANS

The Lizard Island Research Station will maintain its reputation as a world-class research station. Increased usage of the station's facilities by researchers and educational groups is expected from the efforts of a promotional campaign. Infrastructure and service provided at the station will be maintained and improved in order to meet the needs of visitors. The station will have greater input into issues concerning the Great Barrier Reef.

"It was great. I don't think there was a school in our area that didn't visit."

Andrew White, Children's Librarian for Orange City Library comments on a travelling exhibition from the Australian Museum

THE AUSTRALIAN MUSEUM SOCIETY

The Society promotes a community awareness of and support for the Museum, encouraging an interest in natural history and a concern for the environment.

SCIENCE SUPER SERIES

The Science Super Series continued to draw capacity audiences, and included such eminent speakers as Richard Dawkins, Rupert Sheldrake, E.O. Wilson, Jonathon Porritt, David Attenborough and Stephen Jay Gould. This Series aims to demystify science and encourage greater community awareness of the environment.

During the year the Society's volunteer co-ordinator selected and placed approximately 150 volunteers working in all areas of the Museum. These committed people provide a service which in monetary terms alone represents a significant contribution to the Museum.

The Society furthered its financial assistance to the Museum with a donation of \$ 25,000 to upgrade and refurbish the Museum's Theatre.

Members' participation in the Society's activities continued to increase throughout the year, with a high demand for lectures dealing with current issues; these included a series of three lectures on the ancient history of Iraq, and a lecture on the devastating Sydney thunderstorm of January 21.

Response to overseas tours was disappointing, but this was countered by the increased popularity of the domestic tours program which included a Whale Watch on Fraser Island, a walking and camping tour of the Grampians, and a sapphire tour of the New England district.

Once again generous support was received from the corporate sector through the Circles of Natural History, with a membership increase of 25% over the previous year.

FUTURE PLANS

The results of a current market research survey will be analysed and a marketing strategy for membership recruitment will be implemented.

The Society's computer requirements will be reassessed with regard to recent growth.

OFFICE OF THE DEPUTY DIRECTOR

In his capacity as Vice-President of the International Commission on Zoological Nomenclature, Dr Cogger attended a series of meetings of the ICZN in Washington in July 1990; they were held in association with the fourth International Congress of Systematic and Evolutionary Biology (ICSEB IV), which he also attended. While in Washington Dr Cogger visited and consulted with the heads of the Smithsonian Naturalist Centre and the U.S. National Museum of Natural History's electronic databases.

In November 1990 the Australian National Parks and Wildlife Service contracted the Australian Museum, with Dr Cogger as Chief Investigator, to prepare a national Reptile Action Plan for the recognition and conservation of Australia's endangered reptiles.

In May 1991 Dr Cogger was an invited delegate to a Workshop on "Temperate Ecosystem Comparisons Across the South Pacific" held in Honolulu prior to the seventeenth Pacific Science Congress, which he also attended.

Dr Cogger was appointed to a Vice-Chancellor's committee of the University of Sydney to review the status and future development of the University's museums and collections.

Dr Cogger has been appointed a member of the Federal Government's Biological Diversity Advisory Committee which has been asked to draft a National Strategy for the Conservation of Biological Diversity.

FUNDRAISING ACTIVITIES

Besides the consulting work undertaken in various divisions of the Museum, we have continued to seek funding from the private sector in the areas of sponsorship, donations and bequests.

Sponsorships

Support of Museum exhibitions and research was significant, attracting almost \$500,000 during 1990/91, including some sponsorship "in kind". The Australian Museum Society provided \$25,000 for the refurbishment of the Theatre.

Donations

Donations totalling \$125,000 were received this year, from the corporate sector.

Bequests

A program to solicit gifts by Will was introduced this year, with a number of people indicating that they are supporting the Museum in this way. The program will continue in 1991/92.

ANIMAL CARE AND ETHICS COMMITTEE

This Committee of the Australian Museum met twice during the year.

The Committee is in the process of formally applying for accreditation as an approved animal research institution. We are expecting provisional accreditation at the Animal Review Panel's August meeting and full approval after their subsequent site visit.

Committee membership has been expanded by one, with the inclusion of Dr David Butcher of the RSPCA.

Animals held for educational purposes will now also fall under the aegis of the Committee and will require that a specific proposal covering them be made to the Committee.

The required annual inventory of animals (vertebrates) used in 1990/91 was submitted.

Allen E. Greer
Chairperson

RECYCLING AT THE MUSEUM

A small committee, the Paper Group, was established in August 1988 to encourage conservation and recycling of paper in all areas of the Museum. The Group's role was to inform and educate staff to reduce usage and waste of paper, to encourage double-sided copying of multi-page documents and to recycle waste paper.

All aspects of the program have been successfully implemented. It is estimated that around 30 tonnes of paper is recycled annually. Glass and aluminium cans are also recycled.

It is hoped that recycling rates will be even further improved in the future. Additional collection points will be established and a campaign to encourage recycling will be undertaken.

"By working here I am now more aware of issues such as the greenhouse effect and the depletion of rainforests"

Dayn Cooper
Finance Clerk, Australian Museum

EQUAL EMPLOYMENT OPPORTUNITY (EEO)

The Australian Museum is fully committed to Equal Employment Opportunity and has in place a Management Plan which outlines the Museum's objectives and strategies for achievement in this regard. This plan is produced annually.

Below are listed, in tabular form, the key redistributive indicators.

Table One **Representation and Recruitment of**
Aboriginal Employees and Employees with a Physical Disability
1990/91 *1989/90*

	Total Staff	Aboriginal People	PWPD*	Total Staff	Aboriginal People	PWPD*
Total Employees	282	3 1.1%	2 0.7%	276	2 0.7%	2 0.7%
Recruited in the year	42	1 2.4%	0 0.0%	34	0 0.0%	0 0.0%

* People with a physical disability

Table Two **Representation of Target EEO Groups within Levels**
1990/91 *1989/90*

	Total Staff	Women	NESB (1)	Total Staff	Women	NESB (1)
Below C.O.1 (2)	14	6 42.9%	1 7.1%	14	6 42.9%	1 7.1%
C.O.1 - Gd 1 (3)	97	51 52.6%	13 13.4%	97	47 48.5%	13 13.4%
A & C Gds 1-2	43	18 41.9%	4 9.3%	42	16 38.1%	2 4.8%
A & C Gds 3-5	67	32 47.8%	9 13.4%	62	24 38.7%	9 14.5%
A & C Gds 6-9	41	17 41.5%	2 4.9%	40	16 40.0%	2 5.0%
A & C Gds 10-12	14	2 14.3%	0 0.0%	15	2 13.3%	0 0.0%
Above A & C Gd 12	6	1 16.7%	0 0.0%	6	1 16.1%	0 0.0%
TOTAL	282	127 45.0%	29 10.3%	276	112 40.6%	27 9.8%

- (1) Non-english speaking background
 (2) Employees on salaries below Clerical Officer Scale Grade 1, 21 year old rate.
 (3) Employees on salaries from Clerical Officer Scale Grade 1, 21 year old rate to below minimum Administrative and Clerical Scale Grade 1

Key Achievements during 1990-91:

. With regard to the employment of women and people of a non- english speaking background, in the last year there have been increases in the number of people from both groups who have been employed by the museum. Women now make up 45% of the total employed, an increase of 4.4% over the previous year. Representation of women at all levels has increased, apart from in the very lowest and the very highest categories.

. There has been an increase in the number of aboriginal people employed by the Museum.

. There has been an increase in the number of employees from a non-english speaking background. Currently, over 10% of our employees come from a non-english speaking background.

. With regard to training opportunities, 57% of all people (180) attending courses were women. The courses were both internal and external and covered topics including: management skills, computer skills, supervisory skills, selection techniques.

Key Objectives for 1991-92:

. Increase aboriginal representation and opportunities within the Museum.

. Ensure that training opportunities for target groups are, at a minimum, kept at current levels; endeavour to increase opportunities.

"Working in Human Resources you get to meet many people who do lots of interesting things like identifying animals, conserving artefacts, playing with spiders, making models - the list goes on and on!"

Donna Grubb
Human Resources Manager, Australian Museum

FREEDOM OF INFORMATION (FOI)

The Australian Museum is committed to the concepts embodied in the *Freedom of Information Act* 1989.

For the reporting period, 1 July 1990 - 30 June 1991, the Australian Museum received nil requests for information under the FOI Act, nor did it carry over any requests from the previous year.

The Australian Museum publishes, as required, both a *Freedom of Information Statement of Affairs* and also a *Summary of Affairs*, the later as follows:

FREEDOM OF INFORMATION Section 14(1)(b) and (3)

SUMMARY OF AFFAIRS of the

AUSTRALIAN MUSEUM (F.O.I. Agency N°. 377)

SECTION 1 - Policy Documents

The Planning and Policy documents of the Australian Museum are as follows:

- Corporate Strategic Plan
- Strategic Plans for Divisions
- Exhibition Philosophy
- Policy Regarding Acquisition of Cultural Property
- Equal Employment Opportunity Management Plan
- Ethnic Affairs Policy

SECTION 2 - Statement of Affairs

This document summarises the Museum's structure and functions, the kinds of documents the Museum holds, and how they may be accessed. The latest edition of this document was published in June 1991. It is available free of charge from the Australian Museum Library.

SECTION 3 - Contact Arrangements

Documents published by the Australian Museum: All of the Museum's published books, serials, reports and documents may be accessed through the Australian Museum Library, Monday to Friday, 9 am - 12.30 pm, 1.30 pm - 5 pm.

Personnel Files: Staff do not need to use FOI to access their personnel files. A request to access one's file should be directed to the Human Resources Branch.

Planning and Policy Documents: These documents are all available through the Australian Museum Library, at the times listed above.

Archives: These may be accessed through the Australian Museum Library at the times listed above.

All other documents: To access all other records, applications in writing must be made to the FOI Coordinator, Australian Museum Library, 6 College St, Sydney 2000. Applications may be made in person at the Australian Museum Library.



BOX 12 GPO
SYDNEY NSW 2001

AUDITOR-GENERAL'S OPINION

AUSTRALIAN MUSEUM TRUST

I have audited the accounts of the Australian Museum Trust for the year ended 30 June 1991. The preparation and presentation of the financial statements comprising the accompanying statement of financial position, operating statement and statement of cash flows, together with the notes thereto, and the information contained therein is the responsibility of the Trustees. My responsibility is to express an opinion on these statements based on my audit as required by Sections 34 and 41C(1) of the Public Finance and Audit Act 1983.

I conducted my audit in accordance with the provisions of the Act and the Australian Auditing Standards to provide reasonable assurance as to whether the financial statements are free of material misstatements. My procedures included examination, on a test basis, of evidence supporting the amounts and other disclosures in the financial statements and the evaluation of accounting policies and significant accounting estimates. These procedures have been undertaken to form an opinion as to whether, in all material respects, the financial statements are presented fairly in accordance with the requirements of the Public Finance and Audit Act 1983, and Australian accounting concepts and standards, so as to present a view of the Australian Museum Trust which is consistent with my understanding of its financial position and the results of its operations.

In my opinion, the financial statements do not comply with Section 41B of the Act. However, they have been prepared in accordance with the "Financial Reporting Code Under Accrual Accounting for Inner Budget Sector Entities" with the approval of the Treasurer and I am in agreement with the format adopted.

Except for the departure from the requirements of the Act referred to above, the financial statements present fairly the financial position of the Australian Museum Trust as at 30 June 1991 and the results of its operations for the year then ended, and are in accordance with the Statements of Accounting Concepts and applicable Accounting Standards.

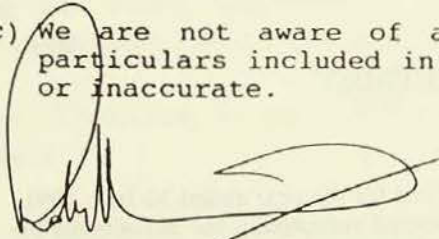
K.T. FENNELL BA FCPA
DEPUTY AUDITOR-GENERAL OF NEW SOUTH WALES

SYDNEY
17 October 1991

AUSTRALIAN MUSEUM TRUST
STATEMENT IN ACCORDANCE WITH SECTION 41b(1)(f)
OF PUBLIC FINANCE AND AUDIT ACT, 1983

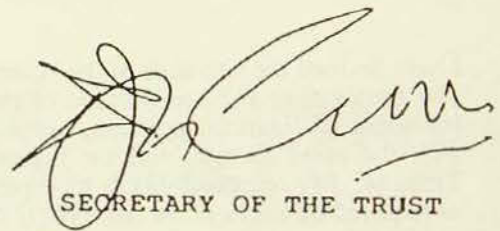
In accordance with a resolution of the Australian Museum Trust we state that:

- (a) The financial statements and notes thereon exhibit a true and fair view of the financial position and transactions for the year ended 30 June 1991.
- (b) The financial statements have been prepared in accordance with Statements of Accounting Concepts, applicable Australian Accounting Standards, the requirements of the Public Finance & Audit Act 1983, the Annual Reports Act and Regulations 1985, and the Financial Reporting Directives published in the Financial Reporting Code Under Accrual Accounting for Inner Budget Sector Entities. ("the Code")
- (c) We are not aware of any circumstances which would render any particulars included in the financial statements to be misleading or inaccurate.



PRESIDENT OF THE TRUST

10 AUGUST 1991



SECRETARY OF THE TRUST

10 AUGUST 1991

AUSTRALIAN MUSEUM TRUST
OPERATING STATEMENT
for the year ended 30 June 1991

	Notes	Actual 1991 \$'000	Budget 1991 \$'000	Actual 1990 \$'000
Operating Expenses				
Employee related	4	8,375	8,209	7,485
Maintenance & working	4	6,326	6,584	3,949
Depreciation & Amortisation	4	462	350	342
Grants & subsidies	4	2,284	1,538	1,794
Other		71	101	52
ABNORMAL ITEM :				
Annual Leave Entitlement	2.5	615	-	-
Total Operating Expenses		18,133	16,782	13,622
Operating Revenues				
Endowment		200	200	200
Subsidy		350	350	350
Grants - Government	9.1	394	321	305
Grants - Other	9.2	1,629	1,122	875
Gross Profit on Trading				
Operations - Shops	5.1	327	353	353
Trading Operations - Other	5.2	594	675	449
Other		120	108	150
Net income from:				
Australian Museum Foundation	6.1	465	297	403
Australian Museum Society	6.2	85	12	38
Peter Rankin Fund		1	-	-
Total Operating Revenues		4,165	3,438	3,123
NET COST OF SERVICES		13,968	13,344	10,499
Consolidated Fund recurrent allocation		13,092	13,310	10,518
Operating Result		(876)	(34)	19
Consolidated Fund capital allocation		705	545	-
OPERATING RESULT after capital allocation		(171)	511	19

The accompanying notes form part of these statements.

AUSTRALIAN MUSEUM TRUST
Statement of Financial Position
As at 30 June 1991

	Notes	Actual 1991 \$'000	Actual 1990 \$'000
Current Assets			
Cash		534	594
Investments	7.1	171	119
Receivable	7.2	159	125
Inventories	7.3	184	208
		-----	-----
Total Current Assets		1,048	1,046
		-----	-----
Non-Current Assets			
Property	8.1	124,225	32,732
Plant & Equipment	8.2	1,081	1,004
Exhibitions	8.3	1,674	1,463
Collections	8.4	1	1
Leave Entitlements Owing by Treasury	10.1	-	1,623
		-----	-----
Total Non-Current Assets		126,981	36,823
		-----	-----
TOTAL ASSETS		128,029	37,869
		-----	-----
Current Liabilities			
Creditors & Accrued Charges		250	503
Bank Overdraft		-	7
Grants received in Advance - Government	9.1	187	173
Grants Received in Advance - Other	9.2	71	105
Provision for Leave Entitlements	10.1	700	1,494
		-----	-----
Total Current Liabilities		1,208	2,282
		-----	-----
Non Current Liabilities			
Advance State Treasurer		17	2
Provision for Leave Entitlements	10.1	-	129
Treasury Loan	2.1	-	200
		-----	-----
Total Non-Current Liabilities		17	331
		-----	-----
TOTAL LIABILITIES		1,225	2,613
		-----	-----
NET ASSETS		126,804	35,256
		=====	=====
Equity			
Accumulated surplus/(deficit)	11.1	220	(67)
Reserves	11.2	126,584	35,323
		-----	-----
TOTAL EQUITY		126,804	35,256
		=====	=====

The accompanying notes form part of these statements.

AUSTRALIAN MUSEUM TRUST
CASH FLOW STATEMENT
For the year ended 30 June 1991

	Notes	Actual 1991 \$'000	Actual 1990 \$'000
Cash Flow from Operating Activities			
Net cost of services		(13,968)	(10,499)
Adjustments for non-cash items :			
Depreciation of Plant and Equipment	8.2	200	178
Depreciation of Buildings	8.1	7	7
Amortisation of Exhibitions	8.3	255	157
Provision for Doubtful Debts	7.2	5	2
Provision for Annual Leave	10.1	700	-
		-----	-----
(Increase)/Decrease in receivable	7.2	(12,801)	(10,155)
(Increase)/Decrease in inventories	7.3	(39)	550
Increase/(Decrease) in liabilities		24	(26)
		(280)	(106)
		-----	-----
Total Net Cash Used on Operating Activities		(13,096)	(9,737)
		-----	-----
Cash Flow from Investing Activities			
Purchases of property, plant & equipment		(275)	(1,070)
Purchase of investments		(52)	(28)
Deferred Costs Exhibitions	8.3	(705)	(202)
		-----	-----
Total Net Cash Outflow on Investing Activities		(1,032)	(1,300)
		-----	-----
Net Cash Outflow from Operating & Investing Activities		(14,128)	(11,037)
		-----	-----
Government Funding Activities			
Return to Crown on State Treasurer's Advance		13	(73)
Consolidated Fund Recurrent Allocation		12,071	10,518
Consolidated Fund Capital Allocation	2.9	1,726	885
Computer Finance Facility	2.1	258	200
		-----	-----
Total Net Cash provided by Government		14,068	11,530
		-----	-----
Net Increase/(Decrease) in Cash		(60)	493
Opening Balance		594	101
		-----	-----
CLOSING CASH BALANCE		534	594
		=====	=====

The accompanying notes form part of these statements.

AUSTRALIAN MUSEUM TRUST - NOTES TO AND
FORMING PART OF THE FINANCIAL STATEMENTS
FOR THE YEAR ENDED 30 JUNE, 1991

1. THE MUSEUM TRUST REPORTING ENTITY

The Australian Museum Trust comprises all the operating activities and entities under its control. It also encompasses funds which are restricted for specified purposes by the grantor or donor, but are nevertheless controlled by the Trust.

All transactions and balances between the funds and entities comprising the Australian Museum Trust have been eliminated in the process of preparing the financial statements.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICY

2.1 Basis of Presentation

Treasury has given approval under Section 9(2) of the Public Finance and Audit Act 1983 for the Museum to prepare its Financial Statements in accordance with the Financial Reporting Code under accrual accounting for Inner Budget Sector Entities. The statements are in accordance with full accrual accounting principles and comply with the Accounting Standards, industry practices, the requirements of the Public Finance and Audit Act, 1983 and the Public Finance (Statutory Bodies) Regulation, 1985. The statements have been prepared using the historical cost convention and do not take account of changing money values with the exception of the Museum Complex in Sydney which is shown at a Public Works Department replacement valuation as at 30 June 1991.

The Museum has followed the Financial Reporting Code with the exception of its treatment of Grants in Advance. The existing method has been continued and is in accordance with full accrual accounting principles. The variation between methods is that \$257,870 is shown as a liability whilst the Code requires it to be recorded as income.

The Code causes material changes in presentation, with the Income and Expenditure Statement, Balance Sheet and Statement of Source and Application of Funds being replaced with the Operating Statement, Statement of Financial Position and Cash Flow Statement. Budget comparisons where possible have been included. Consolidated Fund capital expenditure contributions are treated as either capital or maintenance contributions with the appropriate classification before and after the operating result in the Operating Statement.

During the year a number of changes in government policy also caused changes in the Financial Statements. These are the responsibility and reporting for building maintenance being transferred to the Museum from the Public Works Department (See note 2.9). Acceptance of the Treasury, from 1 July 1991, of the liability for deferred employee entitlements in respect of extended leave (\$1,086,116) and unfunded superannuation liability as an obligation of the crown. Recognition of the provision for annual leave as a liability of the Museum funded from future recurrent allocations (\$699,430). The Computer Finance Facility was abolished from 30 June 1991, this resulted in all loans received from this source being converted to equity (\$457,587).

2.2 Fund Accounting

The Trust maintains proper accounts and records for all its operations in terms of Section 41(1) of the Public Finance and Audit Act, 1983. To ensure observance of the limitations and restrictions placed on the use of resources available to the Trust, accounts are maintained in accordance with the principles of fund accounting. This procedure classifies resources for budgetary control, accounting and reporting purposes into distinct funds established according to their appropriation nature and purposes for operational purposes. Reporting by Funds is now excluded from these Statements.

2.3 Employee Superannuation Entitlements

All past liabilities of this nature are paid upon emergence by the NSW Treasury, through the State Superannuation Scheme and the State Public Service Superannuation Scheme. The Museum is not involved in any financial transaction regarding the unfunded liabilities for Superannuation and has therefore not included any amount in this year's accounts.

As from the 1 July 1991 the Treasury has accepted liability for unfunded superannuation liability as an obligation of the Crown.

2.4 Insurance

As at 1 July 1989, Government policy changed in respect of insurance practices for inner budget sector organisations when the Treasury managed Fund came into effect. This fund provides coverage for liability by the Museum in respect of personal accident, workers compensation, fire, theft and damage, etc. previously covered under specific policies with the Government Insurance Office.

2.5 Annual and Extended Leave

A calculation has been made of the total liability for both accrued extended leave for all employees with an entitlement based on five (5) or more years service and accrued annual leave at their rate of pay at balance date. (See note 2.1 and 10.1.)

The NSW Treasury, from 1 July 1991, has accepted the liability in respect of extended leave as an obligation of the Crown.

The accrued annual leave is a liability of the Museum funded from future recurrent allocations. In previous years this was offset by the accrual of the equivalent amount as income due from Treasury. The change in government policy has resulted in an abnormal item in this year's financial statements. The cost of this change in policy in respect of previous years annual leave liabilities accounted to \$614,899. The cost of this liability in respect of 1990/91 was \$84,531 and this amount has been charged as an operating expense within the category Employee Related Costs.

2.6 Depreciation and Amortisation

Depreciation of buildings in Sydney was not necessary as a valuation was received at the end of the financial year; the buildings on Lizard Island are depreciated on a straight-line basis over their remaining estimated life of up to 40 years on the assumption that the Museum's lease of land on the Island will be renewed in 1998.

Depreciation of Plant and Equipment is calculated on a diminishing value basis, the asset categories of Audio Visual, Photography, Science, Tools, General are at 12%, with Computers at 24% and Vehicles at 9%. Individual assets acquired for less than \$500 are expensed in full in the year of acquisition and therefore not depreciated.

Exhibitions are amortised on a straight-line basis based on their expected useful life. (See note 8.3)

2.7 Restricted Assets

Funds received as Grants in Advance are for use on specific projects as stipulated by the Granting body. These funds are not available for other purposes.

2.8 Monies held in excess of 2 years

All amounts unclaimed from Consolidated Funds are forwarded to the Treasury for credit of Special Deposits Unclaimed Monies account and are available for refund from that account.

2.9 Capital Allocation and Building Maintenance

The Museum received a capital allocation from the NSW Government for 1990/91. Works funded from this source were of a maintenance nature and the expenditure was therefore treated as operational expense for the year.

The Museum was also given responsibility and funds totalling \$715,000 for building maintenance together with a further special supplementary allocation of \$134,700 to facilitate the disaggregation process, ie that is the transfer of responsibility for building maintenance from the Public Works Department to the Australian Museum. In previous years the Department of Public Works had responsibility for these works and the expenses were recorded within that Department's accounts. This explains the major variation in Maintenance and working expenditure between the 1989/90 and 1990/91 financial years.

2.10 Grants

The balances of Grants in advance is a net figure and includes a number of Special Purpose Grant funds that are in arrears. The significant ones, as at 30 June 1991 being Lizard Island Research Station (\$162,118), National Photographic Index (\$47,236), Taonga Maori Touring Exhibition (\$168,866), Mail Order Program (\$87,565), Monsters of the Deep Touring Exhibition (\$40,757).

It is expected that with the exception of Taonga Maori these balances will be recovered in the 1991/92 financial year. The shortfall within the Taonga Maori account will be eliminated as soon as practical.

3. BUDGET REVIEW

The net costs of services was higher than budget by \$623,682. This was primarily due to the change in government policy involving annual leave. This increased expenses this year by \$699,430 and was not budgeted for. See note 2.5. Without this item the net cost of services would have been lower than budget by \$75,748. The operational income exceeding budget by \$727,212. This was due to increased grant funding, donations, sponsorship and the activities of the Australian Museum Foundation and the Australian Museum Society. Operational expenditure exceeded budget by \$651,464. This was due to increased grant activity, depreciation costs and a reduction in maintenance costs resulting from improved expenditure controls.

4. OPERATING EXPENSES

	1990/91 \$'000	1989/90 \$'000
a) Employee related expenses comprise the following specific items:		
Salaries and wages	7,132	6,621
Superannuation	371	150
Payroll tax and fringe benefit tax	492	402
Long service leave	155	142
Annual Leave	85	-
Workers compensation insurance	132	160
Other	8	10
	<u>8,375</u>	<u>7,485</u>
b) Maintenance and working expenses comprise the following specific items:		
Rent	361	380
Building Maintenance	2,302	917
Travel	144	129
Freight	75	41
Motor Vehicles	114	116
Advertising & Promotional	335	344
Fees	437	362
Electricity	510	727
Insurance	316	275
Postal & Telephone	300	246
Stores & Printing	1,165	1,051
Maintenance Contracts	154	63
Other	113	183
	<u>6,326</u>	<u>4,834</u>
c) Depreciation and Amortisation are charged as follows:		
Buildings	7	7
Exhibitions	255	157
Plant and equipment	200	178
	<u>462</u>	<u>342</u>
d) Grants and subsidies comprise the following specific items:		
Scientific Research - Government Funds	394	305
Scientific Research - Other	751	672
Education Programs	5	3
Exhibitions Programs	721	810
Commercial Ventures	399	1
Other	14	3
	<u>2,284</u>	<u>1,794</u>

5. TRADING OPERATIONS

5.1 Shop Trading Operations

		1990/91	1989/90
	\$	\$	\$
Sales		926,108	860,225
Less: Cost of Sales			
Opening Stock	207,562		
Purchases	<u>574,997</u>		
	782,559		
Less: Closing Stock	<u>183,877</u>	<u>598,682</u>	<u>506,724</u>
Gross Profit		<u>327,426</u>	<u>353,501</u>

Closing Stock has been valued at the lower of average cost price or net realisable value.

Direct salaries and wages of \$168,842 (\$164,213 in 1989/90) and measurable overheads of \$61,119 (\$20,680 in 1989/90) were also identified against Shop Trading Operations. It is not the Museum's policy to consider and charge against the Shop Trading Account indirect costs. All expenses mentioned above are included in Expenditure in the Operating Statement.

5.2 Trading Operations - Other

	1990/91	1989/90
	\$	\$
Income from other Trading operations comprised:		
Australian Natural History	391,724	322,903
Gallery Income	113,758	254,391
Restaurant Activities	38,551	22,564
Sale of Brochures/Guides	40,347	24,416
Sale of Films	7,726	9,252
Miscellaneous	<u>1,413</u>	<u>6,026</u>
	<u>593,519</u>	<u>639,552</u>

6. OTHER INCOME

6.1 Australian Museum Foundation

The Foundation was established for the purpose of raising funds from the business sector to assist in the work carried out by the Trust.

	1990/91 \$	1989/90 \$
INCOME		
Donations	425,000	383,033
Interest	<u>39,887</u>	<u>24,274</u>
	464,887	407,307
EXPENDITURE		
Government Charges	97	130
Other	<u>0</u>	<u>4,448</u>
	97	4,578
NET INCOME	<u>464,790</u>	<u>402,729</u>

6.2 The Australian Museum Society (TAMS)

The Society was established for the purpose of promoting a greater knowledge of and concern for the environment and to encourage community support for the work of the Museum.

	1990/91 \$	1989/90 \$
INCOME		
Subscriptions	191,231	190,785
Merchandise	1,760	3,325
Functions	274,630	199,095
Donations	3,930	4,770
Other	<u>20,577</u>	<u>56,390</u>
	492,128	454,365
EXPENDITURE		
Merchandising	2,883	3,007
Functions	190,519	177,702
Salaries	102,484	94,782
Working Expenses	<u>111,721</u>	<u>140,615</u>
	407,607	416,106
NET INCOME	<u>84,521</u>	<u>38,259</u>

7. CURRENT ASSETS

7.1 Investments

Investments recorded at cost comprised:

	Cost \$	Face Value \$
Bank Term Deposit	171,363	172,721

Investments are brought to account at cost.

7.2 Receivable

At an aggregate value of \$158,784 recorded at balance date these comprised:

	1990/91 \$	1989/90 \$
Debtors	49,097	25,231
Less: Provision for Doubtful Debts	<u>5,034</u>	<u>1,903</u>
	44,063	23,328
Accrued Income	<u>114,721</u>	<u>101,521</u>
	<u>158,784</u>	<u>124,849</u>

Within the figure of \$114,721 (\$101,521 in 1989/90) for accrued income is an amount of \$51,174 (\$61,461 in 1989/90) recoverable from the Consolidated Fund in 1991/2. The amount represents the net of accrued charges brought to account at 30 June, 1991 for goods and services at a cost of \$107,314 (\$96,415 in 1989/90) and rent paid in advance of \$56,140 (\$34,954 in 1989/90).

Bad Debts to the value of \$615 (\$2151 in 1989/90) have been written off this year.

7.3 Inventories

The value recorded at 30 June 1991 of \$183,877 (\$207,562 in 1989/90) represented stock in trade held by the Museum's shop outlets. Stocks were brought to account at the lower of average cost price or net realisable value.

This represents a small change in previous year's policy where stocks were brought to account at the lower of average cost price or market value. The effect of this change is believed to be insignificant as the majority of items are valued at average cost price.

8. NON-CURRENT ASSETS

8.1 Property

The value recorded in the Statement of Financial Position covers the following Trust Property:

		<u>Land</u>	<u>Buildings</u>
	\$	\$	\$
Museum Property - College and William Sts. Sydney (at valuation)		17,000,000	
Museum Property - Yurong and William St. Sydney (at valuation)		2,000,000	
Museum Buildings - At above listed properties (at valuation)			105,000,000
Lizard Island Research Station Buildings Costs (1973 to 1988)	283,291		
less: Accumulated Depreciation	<u>58,363</u>		
Written Down Valuation			<u>224,928</u>
		<u>19,000,000</u>	<u>105,224,928</u>

The Museum Complex in Sydney was valued by the Department of Public Works as at 30 June 1991 with a replacement cost of \$105,000,000. This value recognises the use of current technology to replace the building with one that is the same size and performs the equivalent functions of the present Museum Complex. The Lizard Island Research Station site is occupied by the Trust as lessee from the Queensland Government for a twenty five year period terminating in 1998 at an annual rental of \$25. A depreciation charge of \$7,082 against operations was brought to account in 1990/91.

Attention is also drawn to note 2.10 outlining the position concerning arrears maintenance funding requirements in respect of the Museum's building complex.

8.2 Plant & Equipment

The book values are summarised as follows:

	1990/91	1989/90
	\$	\$
Adjusted Capital Value Brought to Account at 1 July 1990	1,004,585	862,030
Movements for 1990/91	<u>275,616</u>	<u>320,519</u>
	1,280,201	1,182,549
Less: Depreciation 1989/90	<u>199,542</u>	<u>177,964</u>
Book Value at 30 June 1991	<u>1,080,659</u>	<u>1,004,585</u>

Items costing less than \$500, were fully expensed in the year of acquisition as indicated in the accounting policy referred to in note 2.6.

8.3 Exhibitions

The value of Exhibitions represents capitalisation of the development and establishment costs of exhibitions that will continue to generate revenue or provide a community service beyond the financial year or years in which these costs were incurred.

Development and establishment costs as capitalised include material and construction expenditure but do not include an assessment of the intrinsic value of collection items incorporated in an exhibition unless specifically purchased (and thus costed) for the purpose. Labour costs for permanent staff inputs to the development of exhibitions have not been brought to account although attention is being directed towards the question of capitalising direct labour costs in future.

The accounting action for 1990/91 is summarised as follows:

	1990/91 \$	1989/90 \$
Book value of Exhibitions operational at 1 July 1990	1,463,187	1,690,865
Capitalisation of Exhibitions developed in 1990/91	<u>704,949</u>	<u>201,642</u>
	2,168,136	1,892,507
Less: Amortisation to Operating Statement	255,418	157,283
Less: Amortisation against reserves*	<u>239,066</u>	<u>272,037</u>
Book Value of Exhibitions at 30 June 1991	<u>1,673,652</u>	<u>1,463,187</u>

* This relates to exhibition assets brought to account for the first time in 1988/89 but fully expensed against operations in years prior to that date. Accordingly, this component of exhibition assets are written down annually by amortisation against reserves.

8.4 Collections, Works of Art, Specimens and Other Acquisitions

In accordance with the Policy Guidelines for Valuation of Physical Non-Current Assets in the NSW Public Sector the Museum's Collections are classified as category C assets and may be recognised at the nominal value of \$1. For presentation purposes only, the Trust has rounded this nominal value to nearest whole number to ensure this significant asset appears in the Statement of Financial Position. Acquisitions are expensed against operations in the relevant year of purchase. Acquisition costs do not feature as a major component of operating costs.

By way of example, the costs so expensed over the past 5 years were:

	\$,000
1986/87	- 80
1987/88	- 69
1988/89	- 65
1989/90	- 50
1990/91	- 40

See also comment under note 8.3 concerning Exhibitions and note 2.4 regarding Insurance. The Trust's Collections was valued in 1981 by the Museum at \$76 million for insurance purposes.

9. CURRENT LIABILITIES

9.1 Grants Received in Advance - Government

The Australian and State Governments provided grants for specific scientific purposes. Movements with respect to those funds and balances held at the beginning of the year to 30 June, 1991 were:

	1990/91	1989/90
	\$	\$
Opening Balance	173,078	56,433
Received 1990/91	<u>408,268</u>	<u>421,247</u>
	581,346	477,680
Transfers to		
Operating Revenue 1990/91	<u>394,412</u>	<u>304,602</u>
Closing Balance	<u>186,934</u>	<u>173,078</u>

9.2 Grants Received in Advance - Other

Private sources provide grants for scientific research, exhibitions, education etc. Movements with respect to funds received in 1990/91 and balances held at the beginning of the year were:

	1990/91	1989/90
	\$	\$
Opening Balance	105,246	-83,344
Received 1990/91	<u>1,610,274</u>	<u>1,074,241</u>
	1,715,520	990,897
Less: Transfer to Creditors	16,052	11,124
Transfer to		
Operating Revenue 1990/91	<u>1,628,532</u>	<u>874,527</u>
Closing Balance	<u>70,936</u>	<u>105,246</u>

The Museum has followed International standards in the treatment of Grants in Advance and is in accordance with full accrual accounting principles. The conditions of use of Grant funding are such that the use of these funds is restricted to the purpose specified by the granting body. The Museum would not be entitled to these funds (and thus recognise the income) until expenditure has been incurred.

The new Financial Reporting Code under accrual accounting for Inner Budget Sector Entities recognises Grants in Advance as income when the cash is received. This is a cash accounting principle and is not an accrual accounting principle. The Museum has therefore not complied with this particular section of the code.

10. LIABILITIES

10.1 Employee Leave Entitlements

	1990/91 \$	1989/90 \$
Accrued Annual Leave	<u>699,430</u>	<u>614,899</u>

Assessment of Employee Leave Entitlements as recorded were based upon:

- a) Extended leave liability of \$1,086,116 (\$1,007,841 in 1989/90) for the total value of leave accrued but not taken by employees with five or more years' service existed as at 30 June 1991. During this financial year an on-cost of 2.2% on gross salaries and wages was charged against operations and paid to the State Treasurer towards funding the liability on benefit emergence.

The NSW Treasury, from 1 July 1991, has accepted the liability in respect of extended leave as an obligation of the Crown and this item is therefore has not been included in these Financial Statements other than by way of note.

- b) Annual Leave payments for leave taken during the year were charged as an operating cost. Accordingly the liability as recorded above represents the accumulated value of untaken annual leave (inclusive of industry loadings) at 30 June 1991.

In previous years was this offset by the accrual of the equivalent amount as income due from Treasury. This change in Government policy has resulted in an abnormal item this year.

11. EQUITY

11.1 Accumulated Funds

	1990/91 \$	1989/90 \$
Balance at 30 June 1990	-66,939	-85,928
Operating Result for Year	-170,665	18,989
Assumption by Treasury of Computer Finance Facility liability	<u>457,587</u>	<u>-</u>
Balance at 30 June 1991	<u>219,983</u>	<u>-66,939</u>

11.2 Reserves

	1990/91 \$	1989/90 \$
Net reserves at 30 June 1990	35,322,381	19,817,081
Revaluation of Property	91,500,000	15,640,971
Revaluation of Plant & Equipment	-	136,366
Amortisation of Exhibitions	-239,065	-272,037
Balance as at 30 June 1991	<u>126,583,316</u>	<u>35,322,381</u>

12. COMMITMENTS FOR EXPENDITURE

12.1 Commitments for Goods and Services

Goods and Services contracted for at 30 June 1991 not otherwise accounted for in the Statement of Financial Position totalled \$662,359 (\$995,054 at 30 June 1990).

12.2 Commitments for Leases

The Trust has forward commitments for lease rentals with respect to three properties it occupies as lessee. The aggregate lease expenditure contracted for at 30 June 1991 (subject to adjustments) comprises:

	\$
Not later than 1 year	372,863
Later than 1 year & not later than 2 years	372,863
Later than 2 years & not later than 5 years	516,913
Later than 5 years	36,050

13. MATERIAL ASSISTANCE PROVIDED AT NO COST TO THE TRUST

Material assistance provided to the Museum for which payment was not made, (figures are not available as to the cost of these services) included:

Volunteer Services, Legal Assistance, Industrial Relations and Recruitment Services.

14. AUDIT FEE

The fee for the audit of the Museum's accounts and records, by the New South Wales Auditor-General's Office was \$23,000. The Auditor received no other benefits.

15. MEMBERS FEES OR BENEFITS, ETC.

Trust members do not receive emoluments or other benefits of office. There were no loans made to members or employees of the Trust.

16. PROGRAM INFORMATION

Program 1 Administration and General

Program 2 Community Relations

Program 3 Education

Program 4 Exhibitions

Program 5 Scientific Research and Collections

	Program 1 \$,000	Program 2 \$,000	Program 3 \$,000	Program 4 \$,000	Program 5 \$,000	Total \$,000
Operating Expenses						
Employee related	(2,445)	(515)	(706)	(1,016)	(3,693)	(8,375)
Maintenance and working	(4,434)	(800)	(227)	(121)	(744)	(6,326)
Depreciation	(48)	(9)	(4)	(276)	(125)	(462)
Grants and subsidies	(21)	(313)	(44)	(761)	(1,145)	(2,284)
Other	(26)	(4)	-	-	(41)	(71)
ABNORMAL ITEM						
Annual Leave Entitlement	(131)	(54)	(53)	(69)	(308)	(615)
Total Operating Expense	(7,105)	(1,695)	(1,034)	(2,243)	(6,056)	(18,133)
Operating Revenue						
Endowment	-	-	-	-	200	200
Subsidy	40	-	20	119	171	350
Grants - Government	-	-	-	-	394	394
Grants - Other	40	212	33	447	896	1,629
Trading	49	718	40	114	-	921
Other	116	-	-	-	4	120
Foundation	90	-	45	127	203	465
TAMS	-	85	-	-	-	85
Peter Rankin	1	-	-	-	-	1
Total Operating Revenues	355	1,015	138	807	1,868	4,165
NET COST OF SERVICES	(6,750)	(680)	(896)	(1,436)	(4,188)	(13,968)
Government Allocations	6,818	743	767	1,125	4,344	13,797
Operating result after Government Allocations	68	63	(129)	(311)	156	(171)

END OF AUDITED FINANCE STATEMENTS

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* Denotes position no longer occupied by this person ** Denotes part time employment
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S. Raftery K. Schuller S. Smith C. Szpak D. Sun
O. Tavendale P. Thomas S. Tuckwell A. Waghorn M. Warre
P. Webb M. Wilson G. Wise

Volunteers who assisted the Port Jackson Archaeological Project include:

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J. Drew D. Gosden J. Grey G. Haworth J. Haworth
J. McPhail K. Murray A. Powell C. Schaulier L. Schaulier C.
Sefton M. Schouten O. Tavendale D. Towne S. Welfare
K. Wilkinson

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M. Dingle Head of Division
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J. Eather BA (Comm) Publicity Officer *
J. Gates BA Editor, Records
T. Gibson Publicity Officer
G. Hickey BSc Scientific Editor
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S. Kennedy Shop Assistant
E. Knowles Shop Assistant
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C. McGahey Circulations Officer ANH
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S. Meadows Assistant Shops Manager
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P. Russell Shop Assistant
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 L. Kelly BA Grad Dip EmpRel Special Projects Officer (T)
 G. McKenzie CPA Assistant Director [Corporate Services]
 S. Winspear Corporate Sponsorship Manager

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 S. Bender Security Officer
 R. Berry Security Officer (T)
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 H. Butler Security Officer
 K. Bow Security Officer (T)
 N. Calavrias Cleaner
 E. Cosmo Cleaner
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 L. Donoghue Security Officer
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 M. Kent Security Officer
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 H. Pierson Security Officer
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 R. Sampson Security Officer
 R. Scott Security Officer *
 B. Seears Security Officer
 D. Shallis A/Security Manager
 I. Shepherd House Services Manager
 A. Sommer Telephonist
 B. Walsh Cleaner
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 A. Farr Photographer *
 D. Fraser Museum Assistant *
 K. Handley Museum Assistant *
 M. Ortega Photographic Operator (T)
 H. Pinelli Museum Assistant (T)
 S. Rossi Photographer *

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 R. Hewitt Technical Services Officer
 K. Joseph BA Dip Hort Property Officer
 Dip T&C Planning
 K. Mulvey Property Officer
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 D. Cooper Accounts Payable Clerk
 F. Cox Accounts Payable Clerk *
 D. Cox Accounts Payable Clerk (T)
 R. Gooding Clerical Assistant *
 T. Ireland Stores Officer
 K. May Mail Clerk (T)
 W. May Assistant Finance Officer
 J. Pritchard Cashier (T)
 J. Rusten Stores Officer
 D. Schizas Senior Accounts Clerk
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 T. Wong Clerical Assistant *
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K. Attwood Technical Officer (T)
 A.R. Jones MSc PhD Research Scientist (Head of Division)
 R. Marsh BSc Technical Officer (T)
 A. Murray BSc Technical Officer, Project Leader(RMI)
 V. Tzioumis BSc(Hons) Technical Officer (T)

Volunteer in Marine Ecology

R. Marsh

Mineralogy and Petrology

B. J. Barron PhD Scientific Officer (T) **
 H. Barton Museum Assistant (T) *
 S. M. Folwell BA Museum Assistant (T) **

T. Murphy	Museum Assistant (T) *
R.E. Pogson BAppSc(Hons)	Technical Officer
MAusIMM	(Collection Manager)
F. L. Sutherland MSc PhD	Senior Research Scientist
FAIG	Head of Earth Sciences Division
	to May 91
G. Webb BA FGAA DipDT	Technical Officer

Volunteers in Mineralogy and Petrology

W. Alison S. Boele J. Edwards D. Follington E. Hepburn

Terrestrial Ecology

M. Christy BSc Dip Nat Res	Technical Officer (T)
G. Gowing BSc (Hons)	Senior Technical Officer
R. Major BSc (Hons) PhD	Research Associate (T)
G. Pyke BSc (Hons) PhD	Senior Research Scientist

Australian Bird Count

S.J. Ambrose BSc(Hons) PhD	Project Officer
R. Hill	Research Assistant
T. Nias	Research Assistant
K. Walker	Research Assistant

Volunteers in Terrestrial Ecology

T. Boyce A. Charlton T. Ivson R. Hill M. Pyke
F. Sanchez-bayo

Australian Bird Count volunteers

J. Bennett T. Boyce L. Cont D. Cooper A. Dodd
J. Dunkerley I. Ember I. Glass M. Hayward R. Hill
R. King D. McKenzie M. Pyke B. Salpeter R. Salpeter
T. Saunders P. Schofield S. Smith K. Walker M. Wood

Palaeontology

R.K. Jones MSc	Scientific Officer
	(Collection Manager)
K.E. Page	Technical Officer (T)
A. Ritchie BSc PhD	Senior Research Scientist

Volunteers in Palaeontology

W. Boogaart J. Bollinger G. Foldvary J. Hodgson

EDUCATION DIVISION

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CertScComm	Education Officer
J. Barnett DipSpecEd GradDip	
EnvironEd	Program Manager *
G. Bartalesi DipTeach	Education Officer
M. Chapman BA DipEd	Guide
P. Chatenay BA	Guide
S. Connors BEd(VA)	Education Officer
G. Ebeling BSc DipEd	Program Manager
L. Ferguson BA(Comm)	Senior Explainer **
F. Fletcher	Clerical Officer
R. Hackett BA DipNur	Guide *
J. Hatherly BSc DipEd	Education Officer **
N. Hazenveld	Senior Explainer **
E. King MA DipEd	Head of Division
M. Khun BEd(Sci)	Senior Explainer **
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MACE	
C. MacLulich BEd(Hons)	Program Manager
DipMusStud	
S. Main BA DipEd	Education Officer
T. Mansour	Senior Explainer **
M. Martin BA DipEd	Program Manager

P. McDonald BSc(Hons)	Senior Explainer **
D. Millar	Preparator
M. Robinson BAppSc	Preparator
H. Samios	Clerical Officer
L. Saunders	Program Manager
A. Skates BA DipTeach	Education Officer
H. Slarke BA	Guide
W. Steele	Museum Assistant
A. Watterson BSc(Hons) DipEd	Education Officer

Explainers **

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C. Bowden N. Brew E. Coomber R. Corran N. Cox P. Destefanis
R. Eggins N. Ehlers O. Evans E. Gatchalian J. Goetz A. Gonzalez
F. Greening H. Handley M. Harrigan A. Harris T. Harris V. Hazenveld
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M. Petrovska F. Ridley M. Van-Schellebeck M. Shaddock L. Slade
J. Smith M. Thomson E. Yim S. Young K. Young V. Young

Volunteers in Education

J. Anderson M. Beavis W. Bennetts R. Biddle D. Blew
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E. Geering G. Geering J. Henwood P. Heuer J. Irani
C. Johnston J. Kinsela M. Konstantaras L. Kovacs J. Lane
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L. McHale J. McDonald J. McDonald G. Oldfield S. Pels
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F. Sinn J. Smith J. Steenson J. Stuart J. Tendys
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G. Ferguson Dip App Art	Project Manager
A. Gregg BA (Vis Art)	Designer
K. Gregg	Designer
R. Joyner ADIA	Head of Division
J. Mastrogianidis BA (Vis Art)	
Grad Dip Vis Art	Designer
N. Mather	Designer *
B. Matzick	Project Manager
A. Richards Dip Vis Art	Project Manager
H. Rocak	Designer
R. Ross-Wilson	Project Manager
G. Sommer	Designer (T)
Y. Wakim	Assistant to Head of Division
A. Ward	Designer *
R. Weakley	Designer

Audio Visual Section

M. Cooper	Technician
G. Hardimann	Technician

Preparations Section

L. Bernard	Preparator
M. Bray	Preparator
M. Dingley	Preparator
G. Hangay Grad Dip Vis Art	Chief Preparator
MCA	
J. Hood	Preparator
B. Horn	Preparator
C. Johnston	Preparator
O. Keywan	Preparator
E. MacLeod Dip Art	Preparator
H. Magor	Preparator

R. Moloney	Preparator
T. Ralph Grad Dip Gal Man	Preparator
R. Scott-Child	Preparator
A. Wang	Preparator
C. Wang	Preparator **

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INFORMATION SCIENCE DIVISION

M. Adamson BA Dip IM (Archives Admin)	Project Officer Records *
N. Bain	Senior Library Technician **
G. Baker BA(LibSc) ALAA	Head of Division
J. Brazier BA(Hons) Dip IM (Archives Admin)	Archivist/Records Manager
C. Cantrell	Library Technician
J. Dudman	Museum Assistant
K. Fox	Assistant Library Technician
M. Kumvaj BA Dip Lib	Acting Chief Librarian
A. McConochie	Senior Library Technician **
C. Pyne	Clerical Assistant
R. Ratajczak	Assist. Library Technician (T)
P. Young	Assist. Library Technician ***

INVERTEBRATE ZOOLOGY DIVISION

Entomology & Arachnology

D. Bickel PhD	Scientific Officer
G. Cassis PhD	Visiting Research Worker
S. Cowan	Clerical Officer (T) **
B. Day	Technical Officer
S. Fellenberg	Museum Assistant (T) ** *
M. Gray MSc PhD	Head of Division, Scientific Officer
C. Horseman	Technical Officer
G. Hunt PhD	Visiting Research Worker **
A. Leask	Technical Officer (T) ** *
J. Manning BSc(Hons)	Technical Officer (T) **
S. McEvey PhD MAIBiol	Visiting Fellow
D. McAlpine MSc PhD	Principal Research Scientist
M. Moulds TchC	Scientific Officer (Collection Manager)
J. Thompson AssDip EnvStud	Technical Officer (T) **
L. Torr	Technical Assistant (T) ** *

Malacology

C. Allen BSc	Technical Officer (T) **
P. Burton	Technical Officer (T) ** *
G. Clark B AppSc	Technical Officer (T)
P. Colman	Technical Officer
A. LeRoi	Technical Assistant (T) ** *
I. Loch	Senior Technical Officer
A. Miller	Technical Officer (T) **
W. Ponder MSc PhD	Principal Research Scientist
W. Rudman DSc PhD	Principal Research Scientist
J. Waterhouse BSc	Technical Officer
T. Worsfold BSc	Technical Officer (T) ** *

Marine Invertebrates

L. Albertson BSc GradDipArt	Technical Officer
P. Berents MSc PhD	Scientific Officer (Collection Manager)
J. Clarke BSc	Technical Officer (T) ** *
M. Heberstein BSc	Technical Officer (T) ** *
M. Howell BSc	Technical Officer (T) *

P. Hutchings PhD DSc	Principal Research Scientist
T. Hutton	Data Entry Operator (T) **
S. Keable BSc	Technical Officer (T)
J. Lowry MA PhD	Senior Research Scientist
F. Mackillop BSc	Technical Officer (T)
A. Meza BSc(Hons)	Technical Officer (T)
J. McRae BSc	Technical Officer (T)
A. Murray BSc	Technical Officer
A. Parker BSc(Hons)	Technical Officer (T) *
R. Paterson BSc	Technical Officer *
M. Predavec BSc	Technical Officer (T) **
C. Rose BSc	Technical Officer
R. Springthorpe BSc	Technical Officer
H. Stoddart BSc(Hons)	Technical Officer
G. Torr BSc(Hons)	Technical Officer (T)
S. Williamson BSc(Hons)	Technical Officer (T) *
G. Wilson PhD	Scientific Officer

Volunteers in Invertebrate Zoology

Entomology and Arachnology

M. Anderson B. Balmer B. Bradney C. Chadwick G. Copp
A. De Laurentis S. Fellenberg A. Jones G. Knowles A. Leask B.
Lorner S. McEvey P. Swieca L. Torr

Malacology

F. Ashdown J. Beck F. Brown P. Burton D. Drake J. Fisher T.
Ireland A. Leroi L. Lovett M. McKellar C. Neild
D. Pearson H. Ronay R. Simmons J. Turner J. Wise
T. Worsfold

Marine Invertebrates

K. Attwood V. Attwood C. Brown E. Cameron C. Evans
B. Oldmeadow A. Sinclair E. Silk H. Ward S. Ward L. Ward

LIZARD ISLAND RESEARCH STATION

T. Ford	Master of RV "Sunbird"
A.K. Hoggett, BSc (Hons)	Co-Director
B.J. Kojis, PhD	Co-Director *
M. Pearce	Accommodation/Transport Officer
L.L. Pearce	Maintenance Engineer
N.J. Quinn, PhD	Co-Director *
L.L. Vail, PhD	Co-Director
L. Wilson	Crew/relief Master of R.V. "Sunbird"

Volunteers at Lizard Island Research Station

S. Bauhaus S. Blake S. Collins T. Collins V. Craney
L. Cusack B. Engelbrecht S. Fowler S. Greene S. Hauswaldt W.
Heegard A. Kimpton J. Luetz A. Maehl B. Matsuda
R. Mühlemann T. Pogue K. Rudeen N. Shelton A. Simpson
V. Sorenson P. Sorenson J. Warren N. Williams

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ArchCons	
P. Edmonds BAppSc	Conservator
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S. Groom	Assistant Conservator (T) *
D. Horton-James BSc	Head of Division
M. Kelly	Assistant Conservator
A. Lecoullier	Assistant Conservator (T) *
C. MacGregor BSc	Conservator
DipArchCons	
M. McCord NND DipEd	Conservator (T)
ConsCert FIIC	
M. Pacheco	Clerical Officer **
A. Roach	Assistant Conservator

G. Scott BSc SocScConsCert Conservator
S. Vallis BAppSc Conservator (T)

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M.Ed MACE	(from 26.3.91)
Doug Nicholas BSc	(to 26.3.91)
Bill Orme BSc BE	
Lyndsey Stockdale	(from 26.3.91)
Peter Van Velzen BE	(to 26.3.91)
Peter White MA PhD	(to 26.3.91)
Roger Williams BSc DipEd	(from 26.3.91)

Museum Staff Councillors

Max Dingle
Des Griffin AM MSc PhD
Evelyn King MA DipEd
Bob Ross-Wilson

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Michelle Brittain BSc	Administration Assistant
Sherry Gregory BA(Hons)	Manager Corporate Membership
Frances Shinn	Book Keeper
Wendy Wilkins MA	Project Officer

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Herpetology

J. Goodsell	Technical Officer **
A.E. Greer PhD	Senior Research Scientist
R.A. Sadler BSc	Technical Officer
G. Shea BVSc	Technical Officer **

Herpetology Volunteers

R. King M. Milston

Mammalogy

T. Ennis	Technical Officer **
T. Flannery BSc PhD	Scientific Officer
L. Gibson	Technical Officer
S. Ingelby BSc	Scientific Officer (Southwest Pacific faunal survey)
H. Parnaby PhD	Technical officer (Southwest Pacific faunal survey)
A. Szalay	Technical Officer

Volunteers in Mammalogy

K. Swarbrick M. Francis A. Fisher P. Bolomey C. Smith

Ornithology

W.E. Boles BSE Senior Technical Officer

(to 25 April 1991)

Scientific Officer

(from 26 April 1991)

Curatorial Assistant (T)

Curatorial Assistant (T)

Curatorial Assistant (T)

T.J. Ivison

T.R. Lindsey

P. Rowland

Volunteer in Ornithology

M. Tink

Ichthyology

P. Bolomey	Technical Officer (T)
D. Brown BA	Technical Officer **
S. Cowan	Clerical Assistant (T) ** *
M. Garreton MSc	Technical Officer (T) **
A. Gill BSc PhD	Technical Officer (T) *
T. Goh	Typist
A. Graham BSc (Hons)	Technical Officer (T) *
D. Hoese BA PhD	Senior Research Scientist
	Head of Division
K. Kuzma BSc	Technical Officer (T)
P. Laegdsgaard BSc (Hons)	Technical Officer (T) ** *
J. Leis BSc PhD	Senior Research Scientist
J. McGrouther BSc DipEd	Technical Officer (T) **
MSc (Prelim)	
M. McGrouther BSc (Hons)	Scientific Officer
	(Collection Manager)
J. Paxton MSc PhD	Senior Research Scientist
S. Reader BSc	Technical Officer
T. Trnski BSc	Technical Officer
S. Williamson BSc (Hons)	Technical Officer (T) ** *

Volunteers in Ichthyology

V. Bates A. Daniel L. Davis M. Driver D. Emery D. Fallon
A. Thomas

Evolutionary Biology Unit

G. Avern BSc MSc DipEd	Technical Officer
D. Colgan BSc BEc PhD	Research Scientist
P. Eggler BSc	Technical Officer (T) **
M. Humphrey BSc	Research Assistant (T) **
J. Macaranas BSc MSc PhD	Research Assistant (T) **
G. Serkowski	Technical Officer
T. Terzis BSc	Technical Officer (T)
A. Toluzzi BSc	Technical Officer (T) **

Volunteer in Evolutionary Biology

F. Widdowes

Research Associates

His Imperial Highness Emperor Akihito
M Archer BA PhD
I Bennett AO MSc
JB Burch PhD
CE Chadwick BSc
RO Chalmers ASTC
W Dawbin DSc
HJ de Disney MA
B Egloff MA PhD
BM England BSc DipGemmology
F Evans MSc
HO Fletcher MSc
JM Forshaw
RLK Fullagar BA PhD
B Goldman
JD Hollis PhD
KW Huffman BA DipEthnol
P Kailola BSc(Hons)
KC Khoo BSc(Hons)
RJ Lampert PhD FAHA
JE Marlow BSc(Hons)
FD McCarthy DipAnthrop Hon DSc FAHA
PM McDonald BSc MEd
SF McEvey BSc PhD FRES
GA Mengden BSc PhD
M Moulds TchC
TR New ARCS DIC BSc PhD
RAL Osborne DipEd MSc PhD
H Paxton PhD
J Pickett MSc DPhilNat
EC Pope MSc CMZS
SF Rainer BSc MSc PhD
GM Shea BVSc(Hons)
R Shine BSc PhD DSc
CN Smithers MSc PhD
W Starck PhD
NN Tait PhD
FH Talbot MSc PhD FLS FRZS FRSA
G Theischinger
AG Thorne BA MA(Hons) PhD
IWB Thornton BSc PhD DSc
R Torrence AB MA PhD
JP White MA PhD
ME White MSc
MJ Whitten BSc(Hons) BA PhD FTS
G Williams
RVS Wright MA
JC Yaldwyn MSc PhD FMANZ

Associates

K Atkinson
B Bertram
E Carthew
TS Coldham BA FGAA
N Coleman
L Courtney-Haines
G Daniels
W Dawbin DSc
JA Frazier
H Goodall
O Griffiths BSc
A Healy
J Henley BAppSc FGAA
V Kessner
R Kuitert
RB Lachlan BEd DipTeach FRES
JA Lindsay MA PhD
TR Lindsey
NW Longmore
DF McMichael CBE MA PhD
W McReaddie
K Meguro
DR Moore MA DipAnthrop
R Morrison
NW Rodd BSc
AB Rose
DJ Scambler BSc
R Steene
GAJ Swan
M Tuckson
S Walston DipCons(Lond)
L Wilson

Visiting Associate

R Cartar PhD

CONSULTANTS

The following consultants, costing less than \$30,000 each, were contracted by the Australian Museum during 1990/91:

A.Badaines
Accountancy Placements
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D.C.P. Pty Ltd
Dean Hastie
Desiree DeKlerk
Dianne Moon
Dr Ron Goldbery
Heriglade Environmental Management
Hudson & Associates
Ian McGrath
Inview Research
J.Owen
JPM Networks
Lincolne Scott Australia Pty Ltd
Miller, Milston and Ferris
National Safety Council Of Australia, N.S.W. Division
Nicole Mather
Public Works Department Asset Management Group
Public Works Department Architectural & Special Projects
Sandy Cull
St Johns Ambulance Service of N.S.W.
Studio of Arts & Sciences
T.W.Crow and Associates