

ANNUAL REPORT



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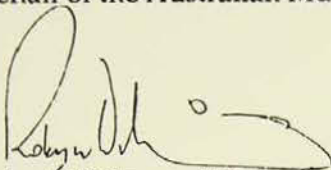


To the Hon. Peter Collins, MP  
Minister for the Arts in NSW

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, 1990, for presentation to Parliament.

On behalf of the Australian Museum Trust,



Dr Robyn Williams, AM



Dr Des Griffin, AM

The Trust and staff have pleasure in thanking all those organisations and individuals who have provided financial assistance. In particular we would like to acknowledge the following supporters.

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Hal Cogger MSc, PhD

**DIRECTOR EMERITUS\***

John W Evans MA, ScD, DSc

\*Since deceased



NEW SOUTH WALES



Minister for the Arts



It gives me great pleasure to table the 1990 report of the Australian Museum to Parliament.

The Office of Public Management's report established that the Australian Museum "is held in high esteem by the academic and scientific communities, special interest groups and the general community, and plays an integral role in the social development and education of the State.

The Museum is to be congratulated on this and its implementation of strategic plans for public programmes, scientific research, business and fundraising activities.

A number of exhibitions punctuated the year, but most worthy of mention are the "Taonga Maori" exhibition of Maori artefacts which the Museum toured around Australia, and the "Dinosaurs Alive" travelling exhibition of robotic dinosaurs which has already attracted over 170,000 visitors.

The Museum's activities in Environment Science are now being complemented by a "Visiting Fellowship Programme", under which leading world authorities can spend periods at the Museum undertaking collaborative research with Museum scientists.

I congratulate the Trustees and staff of the Australian Museum on their fine work this year, particularly in light of the fact that these initiatives have been achieved against a backdrop of economic stringency.

The Australian Museum has maintained a full range of services whilst, at the same time, meeting the required productivity savings necessary to put this State on a sound financial footing.

I am sure that the Museum will continue to provide a first class service to the people of New South Wales.

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

Peter Collins, M.P.  
MINISTER FOR THE ARTS



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# STATEMENT OF PHILOSOPHY

**W**e 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.

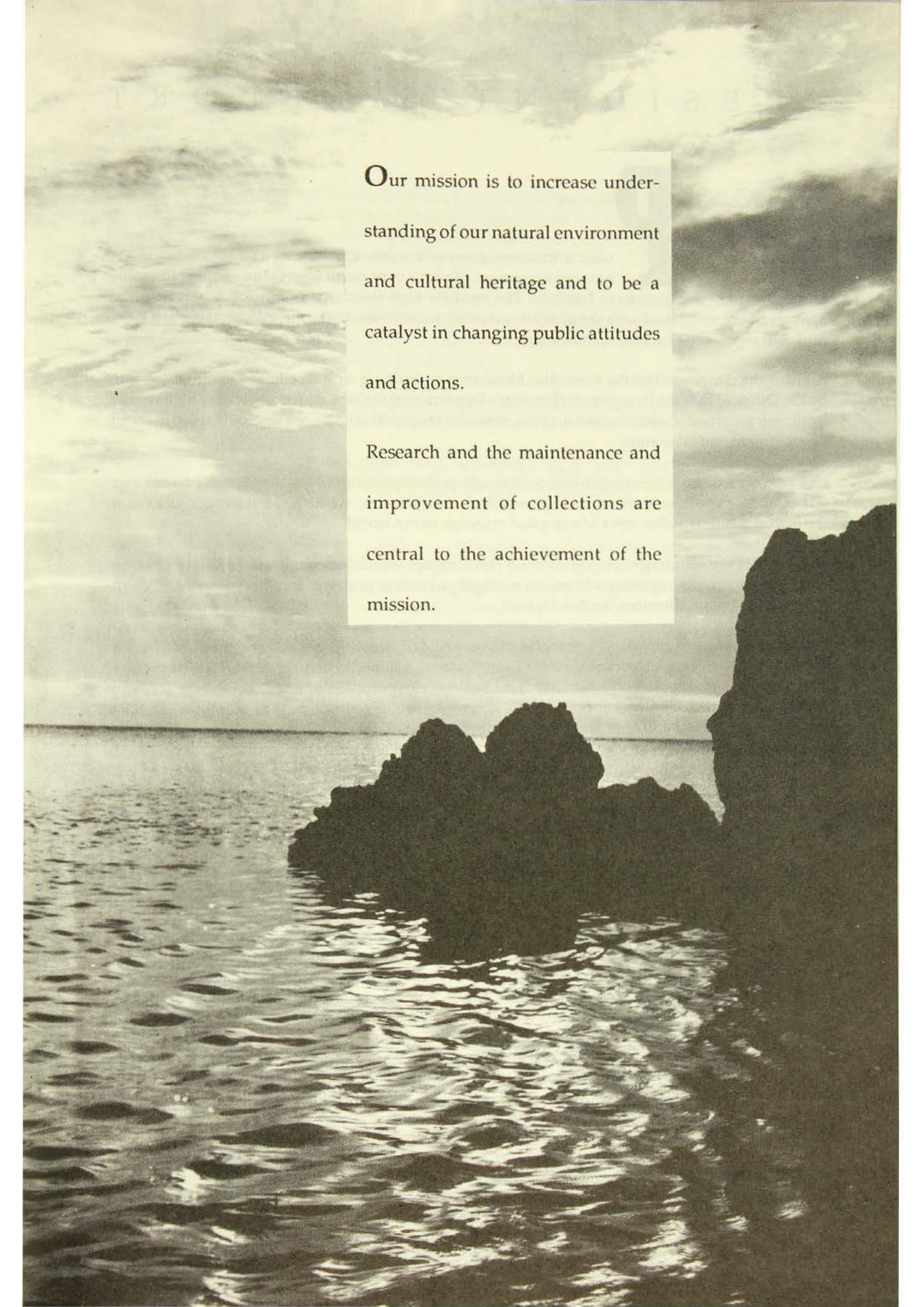
We will provide opportunities for staff to contribute to the development of the Museum, realise their own potential and co-operate with others to achieve those ends. It is intended that staff contribute to a range of Museum programs beyond the discipline in which they work. We will seek new ways to advance 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 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.



# P R E S I D E N T ' S   R E P O R T

**P**ublic institutions everywhere are experiencing a rugged time - this is no news to anyone. We have been particularly concerned about some of our great sister museums in London. The need for high standards of efficiency and financial accountability, combined with the absolute necessity to innovate, make the management of a large museum especially challenging nowadays.

I am delighted to report that the Australian Museum is performing with excellence. The investigation by the Office of Public Management (Premier's Department) found that we are held in high regard by the scientific and academic communities, as well as the public, and have a key role to play in social development and education.

Our reporting systems in management, our periodic self-assessments of goals and performance, and our exhibitions policies were found to be excellent. Furthermore, we turned out to have just about the lowest administrative costs of any great museum in the world.

As a mark of the standing of our director, Dr Des Griffin, I was delighted that in February 1990, he was invited to give the opening address on managing a modern museum, to the conference of North American museum directors, held in Hawaii.

Our exhibitions continue to try to combine the very best of scientific and cultural merit, with high public interest. We took responsibility for Taonga Maori, a splendid display of artefacts from New Zealand. The opening, in the presence of New Zealand Governor General Sir Paul Reeves was one of the most spectacular, and most publicised, the Australian Museum has ever staged. The exhibition continued to other capitals, including contributions in performance, guidance and education from indigenous people (both Maori and Australian) wherever it went.

Our moving, growling, terrifying display of 'Dinosaurs Alive' was staged in conjunction with the National Science & Technology Centre in Canberra. We enhanced the exhibition with additional material: real dinosaur bones, a full-scale representation of Muttaborrasaurus, and Chasmosaurus, a North American monster brought to us with the assistance of writer, Colleen McCullough. Dr Alex Ritchie must be thanked for achieving this sponsorship. The exhibition, had received 170,000 visitors by the end of June and was still going strong with over two months to run!

Our sponsorship efforts proceed well with the help of our Foundation and the co-ordinating efforts of Scott Winspear. Our support comes not only from corporations, but also through the support of individuals, such as Ken and Yasuko Myer. Dr Tim Flannery should be congratulated for demonstrating how to maintain an effective public profile without diminishing science in the process. He has received a substantial allocation from an estate to further his work in mammalogy.

We were saddened by the death of Reg Watson at the beginning of 1990. A past Chairman of the State Bank of NSW, Reg was the first person to chair our Foundation and launched us into the difficult world of modern fund-raising with flair, humour and commonsense. He got results. We miss him.

The Science Super Series, bringing scientists of the first-rank internationally, is doing brilliantly. This year our guests have included Academician Sergei Kapitsa from Moscow, Prof Paul Ehrlich



from Stanford University and Prof Paul Davies, the renowned astrophysicist, from Adelaide. It was extraordinary to see a packed Sydney Town Hall attend Prof Davies' lecture on the 'End of the Universe' and to see his subsequent article in the Independent of London saying that such public and media attention to science was unheard of in the U.K.!

Perhaps when our planned new tower is erected in the southern part of the grounds we will have our own auditorium therein, and won't have to go outside for large public lectures. The plans march on and we may soon see tangible evidence of a new building (if only in model form). It will give heart to those of our scientists still toiling in the catacombs.

Meanwhile TAMS has become well established in offices at the top, with one of the most dramatic views of Sydney. The activities of the Society flourish as never before. We are proud of them.

ANH magazine in its bigger and bolder format, its range of original articles and superb illustrations, must be amongst the top handful of its kind in the world. Maybe that is why it keeps winning awards.

The work of our scientists is also worthy of congratulations. Dr Jeff Leis has established a world centre for the study and classification of larval fishes, which should have substantial commercial value to fisheries. Dr Tim Flannery is extending his work on endangered species in the Pacific and our Division of Environmental Science published a significant report on the south-east forests. Dr Alex Ritchie and team display no end of entrepreneurial flair, lately revealing a unique pliosaur from a mound of opalised stone, and acquiring an ichthyosaur fossil of considerable interest for the Museum. I'd like to mention every member of staff, scientific, educational, those in exhibitions and so on. If I did my report would be ten pages long. I said at the Museum's Christmas party what I felt about their achievements - simply that they're world class.

Finally, thanks must go to the Trust and to Peter Collins and his wife Dominique, who have both shown consistent and informed support for this Museum but above all, to Dr Hal Cogger. Hal, apart from establishing our new Eureka prizes (which promise to be a great success) and running the research effort of the Museum, has been the intellectual engine, the stabilising force and a fount of moral commonsense for so long, it's easy sometimes to take him for granted. As the staff demonstrated this year, we don't take him at all for granted and neither does the Trust. We have one of the best Museum executives in the world working with us and, what's more, he's light-years away from retirement.

**Robyn Williams**  
July 1990



# DIRECTOR'S MESSAGE

**W**

e intend to act as a catalyst in changing people's attitudes and actions. We intend to increase understanding of our natural environment and cultural heritage."

The mission of the Australian Museum was amended this year as part of the completion of a new corporate strategic plan for the next five years. The plans for 1990-91 reflect new commitments to effective and efficient management, research and collections, public programs and financial viability. The plans comprise objectives directed to achieving results in each of these 'key result areas'. Within each objective actions for the next two years are outlined along with a statement of the present position and resources required. Stakeholders relevant to each of the objectives, means of communicating with them and benefits to them are included. Performance indicators are an integral part of each objective. The planning documents comprise a Corporate Strategic Plan for the Museum as a whole and Strategic Plans for each Division.

The introduction to the Corporate Strategic Plan said, in part,

"The Australian Museum can realistically strive to be among the best natural history museums in the world in terms of its educational and research programs, that it can add to and emphasise the creative contribution of Australians...

"The broadening of our involvement in human studies, both in research and public programs, to embrace all cultures making up the Australian population, is as major a feature of this plan as is the renewed commitment to excellent public programming.

"The pressure for exploitation of commercial opportunities will require attention because of its fundamental difference from the manner in which museums have historically conducted their business.

"Scholarship is vital to the Museum's future. The support of science continues to be a feature of the Museum's budget outcomes. But the Museum is first and foremost an educational institution..

"The Australian Museum sees its future in being more concerned with the community, with its visitors and with the future of Australian cultural life and its natural and social environment, as making a major contribution to the understanding of the issues relating to these aspects of life. It will have to do this in an even more confident and self-reliant manner than previously.

"...the Australian Museum seeks excellence as an organisation in managing its future, in being part of the community's education resources, in being concerned with ideas rather than things..."

As the year ended plans prepared by each Division and relating to the same key result areas were nearly complete.

The year saw unprecedented media attention, major travelling exhibitions, advances in accounting, staffing, security and cleaning services, attention to commercialising our skills and services and moves to greater opportunities to manage our own affairs through more successful fund-raising, merchandising as well as control of buildings and maintenance. There were a number of important



There were advances too in research and collection management, in the use of computers, and in public programs: an integrated approach to all public programs took shape partly through restructuring of the Education Division and improvements in other areas.

One of the aspects of greater attention to the visiting public was a more strongly developed 'Visitor Services' program. One of its components is 'Director for a Day' in which senior staff are responsible for the activities in the galleries on weekends when the majority of our visitors come to the Museum. A not unimportant outcome was the realisation by those participating, of the level of skill and dedication that all front of house people such as Guides and Security Officers, bring to their work.

With the encouragement of President Robyn Williams we strengthened the 'Science Super Series' and commenced planning for the 'Eureka Prizes'. The first brought celebrated scientists - including Professor Paul Erhlich from Stanford University, Professor Robert May from Cambridge University and Dr Peter Raven from Missouri Botanic Gardens - to speak at the Museum to enthusiastic audiences of several thousand people. This project was managed in co-operation with TAMS and their Executive Secretary Susan Bridie. The 'Eureka Prizes' will recognise outstanding achievement in Australia in science and the environment and the promotion of understanding as well as efforts by industry to support science. This project was managed by Deputy Director Hal Cogger.

This of course was in addition to our ongoing communication activities like the quarterly 'Australian Natural History' magazine which won its usual share of prizes for excellence, the tremendously active program of the Museum Society (TAMS), and the lectures and activities managed by the Education Division.

Following the successful completion of the exhibition of Greek antiquities, 'Treasures from Ancient Macedonia', the Museum staged another important travelling exhibition.

In 1986 the Museum initiated a major exhibition from New Zealand to be undertaken in co-operation with that country's National Museum. Taonga Maori was designed and managed by the Museum around treasures of Maori cultural life selected and documented by National Museum of New Zealand staff. Taonga Maori was opened by His Excellency the Governor General of New Zealand, Sir Paul Reeves, early in the morning of October 1 following an appropriate and very moving dawn ceremony by hundreds of Maori people. The exhibition again reflected our commitment to increasing understanding among people. As with Australian people of Greek origin and 'Ancient Macedonia' substantial assistance of Maori people living in Australia contributed significantly. Maori people were brought together. They guided visitors through the exhibition and performed songs and dances on special occasions. The exhibition fascinated and touched Australian visitors in Sydney, Melbourne and Brisbane. This was the first international exhibition toured by the Australian Museum.

On April 1 a special picnic in Hyde Park opposite the Museum involved hundreds of children and adults in celebrating the opening of 'Dinosaurs Alive', moving robotic dinosaurs - realistic models (half life-size) electronically controlled and pneumatically powered - together with a number of fossil skeletons and interpretive material. The exhibition, based on material from the National Science and Technology Centre in Canberra, had attracted almost 200,000 people by year's end: it will close early August and is set to break the previous record attendance for an exhibition of 246,000 for the 'Chinese Dinosaurs' exhibition in 1984.

Two events this year startled some museum watchers but also showed commitment to our concern



for the future of our natural environment and cultural heritage expressed in the statement of philosophy.

The first was the release of a statement on 26 January 1990, Australia Day. In it, the Museum called upon Australians through their Governments, to take a stronger stand on the key environmental problems facing Australia and the world, especially those inherent in the push for more and more growth.

In part the statement said; "Australia must invest more in its own creativity and seek its own solutions to its own problems. We must manage our resources for sustainable use."

"We must come to terms with the cultural diversity of Australia including Aboriginal people and their justifiable claims for treatment in the framework of natural social justice..."

"It is a myth that Australia is underpopulated and will see its way out of its economic troubles simply by increasing population or increasing consumer demand. The destruction of the world's natural environment is caused by human population growth and consumer demand. Australia is no exception..."

The statement was sent to Commonwealth and Territory governments, leading business and community groups.

The second was the release of a report on the South East forest of NSW which have been subject to a long running argument between the timber industry and conservation groups over the extent to which logging can proceed in the area, especially in National Estate forests. The report analysed previous studies and reports. It concluded that reserves to conserve flora and fauna should be enlarged and logging excluded from them: no evidence was found to show that logging will not lead to significant reductions of wildlife populations.

Museum scientists also appeared before a number of inquiries concerned with the natural environment and made many submissions on environmental impact reports.

Important scientific research conducted during the year included a study of endangered species of mammals, birds and reptiles in nations in the Pacific by Dr Tim Flannery with the support of a grant from the Winifrid Scott Foundation and investigations of the animals of wetlands and subtidal bottom-dwelling animals in Jervis Bay by Dr Patricia Hutchings for the CSIRO and the Royal Australian Navy. Numerous other projects contributed further knowledge about the life histories of Australia's animals, their evolution and ecology, mineralogy, palaeontology and anthropology.

The move of all anthropology collections of over 100,000 items to new storage in the Museum's Bicentennial wing continued: by the end of 1990 all collections will be housed in high quality storage for the first time and will be easily accessible for research and public programs. More importantly, Aboriginal secret and sacred collections are now housed respectfully in a discreet area to which access is carefully controlled. Substantial improvement in the utility of many collections continued through computerised cataloguing which enhances access by all those wishing to use this vast resource.

The Corporate Services Division made substantial progress. Accrual accounting introduced in the new Finance Section at the end of last year was consolidated and new accounting control procedures put in place for use by senior management. Advances in the newly formed Human Resource



Services section included the taking over the staff payroll through the acquisition of new software as well as a vigorous program of staff development including training in use of the media and stress management. Within the responsibility of Security access control was strengthened through the placing of television monitors (CCTV) throughout all public areas. An audit of the cleaning services in the Museum led to restructuring of the Section, redefinition of performance standards and the formation of teams working over a longer period than previously at no extra cost. From next year the Museum will be responsible for its own building maintenance, a function carried out since earliest times by the Government's Department of Public Works. It is hoped that high standards will be reached more efficiently.

Responsibility for all information management including management information systems as well as computer software and hardware acquisition and management and the control of correspondence records, was transferred to a new Division of Information Sciences responsible to the Deputy Director; the Scientific Library is also within the Division.

Introduction of the Structural Efficiency Principle (SEP) commenced. SEP is designed to simplify award structures, break down unproductive appointment and promotion barriers, and remove unnecessary administrative procedures.

I travelled in February, by invitation, to address the American Science Museum Directors Council on 'Management and Leadership in Museums' and in April attended, by invitation, the World Congress of International Friends of Museums in Cordoba, Spain to present a talk on changes in museums and the importance of friends.

In May results of a survey by the Australia Council of attendances, activities and expenditures at Australia's museums was released. Over 17 million visits were made to 178 museums in the 1988-89 year, almost 2,000 exhibitions mounted of which half were major refurbishment or similar; 3,500 staff were employed in that year, 7,000 volunteers gave of their time and the museums spent \$218 million! These figures are important for all people interested in museums.

Australia has a huge number of museums with a very considerable range of sizes, different staffing and collections, policies and controlling organisations. Discussion within the museum community, initiated by the Council of Australian Museum Associations (CAMA), of which I am Chairman, has led to a recognition that only by working together to share knowledge and co-ordinate what we are doing will we be able to achieve significant results. During the year planning continued for a Heritage Collections Council which would play a major role in the development of policies and plans to improve museums and make Australia's 'heritage collections' more accessible. Ministers from the Governments of all States and the Commonwealth, meeting as the Cultural Ministers Council, agreed at the end of May to establish a working party to develop these proposals further.

The Australian Museum, like other museums and cultural activities, brings enjoyment to people in Australia, distinction to Australia overseas, contributes substantially, both culturally and economically to the community and has no foreign debt.

Again I take this opportunity to thank President of the Trust, Robyn Williams AM, and my colleagues who have again shown themselves seemingly limitless in the energy, resources and especially this year, the innovation, they are prepared to devote to the Museum.

As last year ended, restrictions on funding loomed on the horizon. The Museum managed, with the



help of the Minister for the Arts, to avoid substantial reductions. But again this year it is clear that economic conditions will be difficult. Events in England where imposition of general entry charges has been only part of an agenda which has also included reductions in Government funding are a frightening omen. Less resources are not an appropriate response to substantial contribution to the community!

As the year ends it is clear that considerable progress lies ahead for the Australian Museum in international travelling exhibitions, enhanced services to visitors and in commercialising a number of services and productions including merchandising, exhibitions, training and development, so increasing and diversifying our presently small financial base. Progress is to be made also in our core activities of scientific research and collection management. Next year will see the opening of the new 'Discovery Space', an entire public gallery floor of over 600 sq metres devoted to interactive learning about the natural environment.

"We intend to act as a catalyst in changing people's attitudes and actions. We intend to increase understanding of our natural environment and cultural heritage."



# DR JOHN EVANS

**J**ohn William Evans, DSc, ScD, Director of the Museum from 1954 to 1966, died on July 15, 1990 after a long and debilitating illness. His distinguished contribution to the Museum was recognised by his appointment in 1977 as the first ever Director Emeritus of the Museum. John Evans was an outstanding scientist who made significant contributions to our understanding of insects, especially leafhoppers. But more than that, he brought with him, and developed as Director, a vision of what the Museum should do. It was shown by his recruitment of many outstanding young scientists, by his improvement of the education and exhibit activities, and by major additions to the Museum's buildings. These laid the ground work for the development and achievements which came after him. John also brought to his job a belief in people. His staff remember him as an engaging but firm, fair person who was true to his own values.

As a lifelong naturalist John had a genuine concern for nature conservation. Dr Max Whitten (Chief of the CSIRO Division of Entomology), in his foreword to John's autobiography, 'Insect Delight - A life's journey', summarised John's views, "Insects have lived on this planet longer than the human species yet damaged it much less".



# CORPORATE STRATEGIC PLAN 1990-1992

**T**he Australian Museum has been involved in corporate planning since 1976. Corporate Plans were large documents encompassing the full range of abilities, prepared by 'senior management' without extensive consultation with other staff and were then 'passed down the line'. A new process commenced in 1984 and was again modified in 1987.

In 1990 it had been accepted by senior managers that whilst the planning process is vitally important, the structure of planning had still led to documents which were too large and therefore unwieldy and indigestible.

It was intended in 1987 that this Corporate Plan contain those objectives where concerted management effort was required, whilst those objectives and actions that were ongoing and did not need intervention were left to Divisional Plans. This led to a lack of involvement by senior management in overall integrated strategic planning for the museum as a single organisation.

Planning and assessment of the progress is intended to become a part of the corporate culture of the Museum; planning leads to Museum staff retaining a measure of control over the Museum's future. That consideration and the weakness mentioned above and drawn out by the Office of Public Management's Report, were the starting point for the new Strategic Plan released on the 28th March, 1990.

The Museum's philosophy, around which the plan is shaped, is in essence a statement of strategic position. That it is a statement of the position it wishes to have vis-a-vis all important resources and opportunities.

The new plan seeks to give greater attention to where in the 'market' the Museum wants to be, compared with the position of other organisations producing like products.

The aim of the Plan is to set out a new agenda for the Museum: to focus on key result areas and objectives. It seeks to:

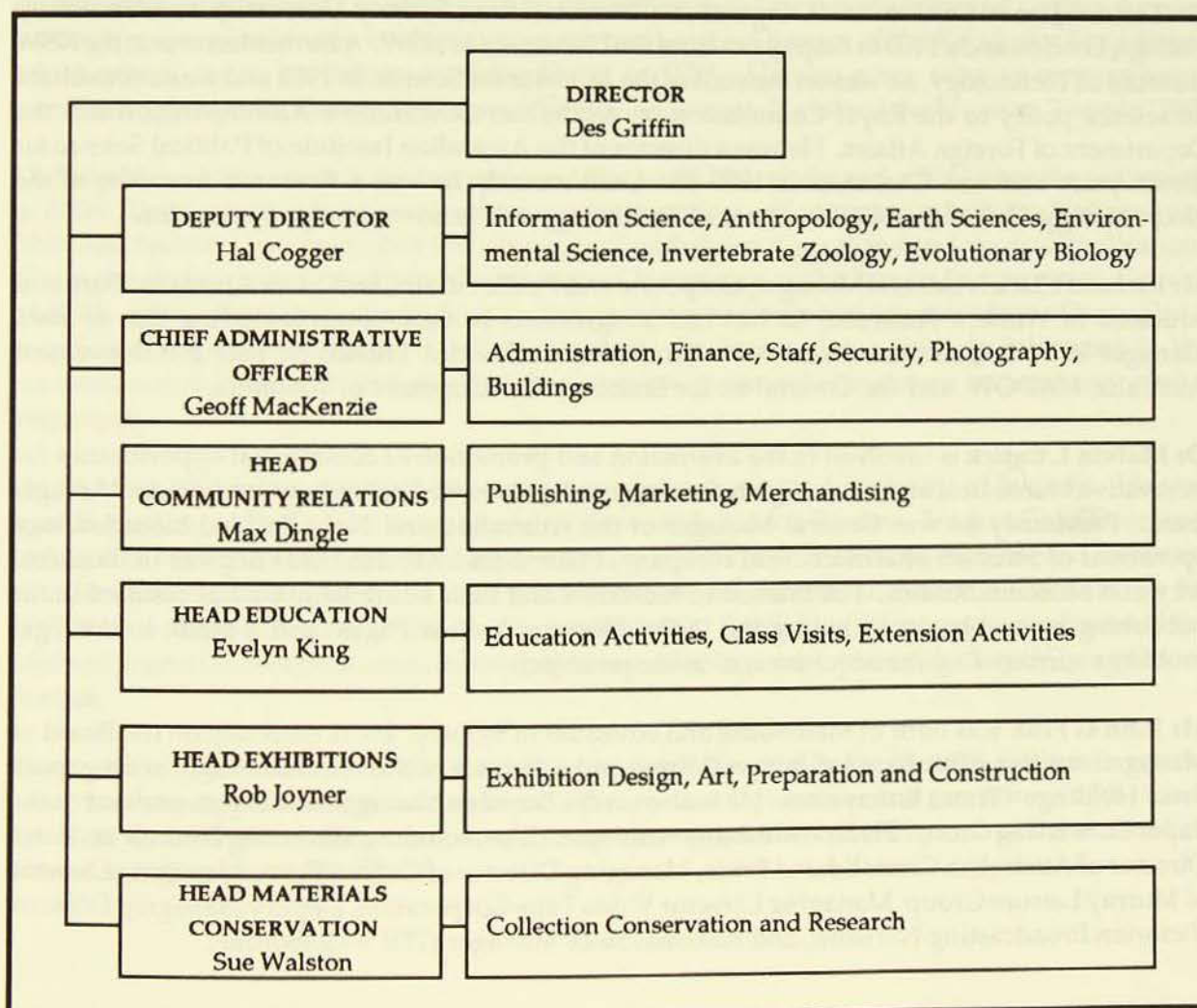
- .closely reflect the philosophy which expresses the most direct statement of what the Museum stands for;
- .turn the statements of philosophy into assessable statements of strategic objectives;
- .incorporate targets, evaluation strategies and performance measures with each key result area;
- .integrate, where appropriate, the recommendations of the Office of Public Management review and of other reports;
- .address the need to have the Museum more directly and obviously orient its output to its customers;
- .be as brief as possible without compromising effectiveness in communication; and
- .make explicit the connection between this Strategic Plan and the plans to which the Divisions work



(The Divisional Plans must have clarity to people at an administrative senior level as well as to people at the 'coal face').

The objectives addressed in the strategic plan are those where concerted action is needed to change what the Museum is now doing: those activities not needing special attention at management level are not dealt with.

Divisional strategic plans will address objectives derived from this Strategic Plan, especially the actions for the next two years.





**D**r 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.

**Mr Colin Bull, AM** was Managing Director of Johnson & Johnson from 1969-81 and Chairman 1982-85. He is a Director of Manufacturers Mutual Insurance and of Clyde Industries. He was a member of the NSW Manufacturing Industry Advisory Council, Chairman of the NSW Innovation Centre, Executive Member of the Grocery Manufacturers of Australia and in 1974, Chairman of that group. A council member of the Chamber of Manufacturers of NSW since 1979, he served as President in 1981-82. He joined the Museum Trust in 1985.

**Dr Telford James 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.

**Mr Richard Clark** is General Manager, Corporate and Public Affairs, for Caltex Australia. Born and educated in Western Australia, he has had assignments in most states including that of State Manager in both Queensland and New South Wales. He is a Trustee of Young Achievement Australia, NADOW, and the Committee for Economic Development of Australia.

**Dr Malvin L Eutick** is involved in the evaluation and promotion of commercial opportunities for innovative biomedical and other high technology companies for Technology Investment Management. Previously he was General Manager of the Australian and New Zealand biotechnology operations of Swedish 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.

**Mr John G Fink** was born in Melbourne and educated in Sydney. He is currently on the Board of Management and consultant to Universal Press and a director of the Australian arm of Singapore Press Holdings - Times Enterprises. He is also on the Board of Management and consultant to the Paper Converting Group. He has held many senior positions including Marketing Director and later Director of Australian Consolidated Press, Managing Director of Golden Press, Managing Director of Murray Leisure Group, Managing Director Video Tape Corporation, Deputy Managing Director Victorian Broadcasting Network, and National Sales Manager GTV 9 Melbourne.



**Prof Alistair Gilmour** obtained his Doctorate from Monash University in 1970 for research on an estuarine fish population. While with the Ministry for Conservation in Victoria he led the marine biological component of the Ministry research in the Port Phillip Bay, Western Port Bay and Gippsland Lakes regional environmental studies. In 1980 he was appointed Executive Officer of the Great Barrier Reef Marine Park Authority up until 1985 when he was appointed to the Chair in Environmental Studies at Macquarie University. He is a member of the Genetic Manipulation Advisory Committee of the Commonwealth Government, the Environmental Advisory Panel of the Australian Tourism Industry Association, the NSW Clean Waters Advisory Committee and the Technical Advisory Committee to the SPCC. He is a trustee and Chairman of the Scientific Advisory Committee of the World Wildlife Fund of Australia. His research interests are in coastal management, marine parks, and in environmental management in general, with special interest in environmental impact assessment and environmental mediation. He was elected a Fellow of the Australian Academy of Technological Sciences and Engineering in 1977 and of the Institute of Biology (UK) in 1986.

**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 for Australia's Bicentennial celebrations. The author of fifteen books on Australian and American history and politics, he now works as a consultant to the environment movement and is 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.

**Dr Judy Messer** has a sociology degree from Macquarie University and a PhD from the university of NSW. Dr Messer has been involved in research, tutoring and lecturing at both the University of NSW and Sydney University. Her PhD thesis dealt with the ecological and sociological implications of structural change in agriculture. Dr Messer is Chairperson of the Nature Conservation Council of NSW which is the umbrella body for seventy nine environmental organisations. She is also a member of the Western Lands Advisory Council. Dr Messer is particularly interested in the maintenance of biological diversity and conservation of natural ecosystems and remnant native vegetation.

**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 currently on the publishing committee of the Royal Flying Doctor Service.

**Trustees are appointed under the Australian Museum Trust Act: No 95, 1975, with subsequent amendments. Appointments are for a term of three years. Operations and procedures of the Trust are as in the above Act. The Trust meets every two months and the Director of the Australian Museum is Secretary to the Trust.**



# DIVISION OF ANTHROPOLOGY

**A**ustralia is situated in one of the culturally most diverse regions of the world. Through its research, publications, exhibitions and other public programme activities, the Division of Anthropology seeks to increase knowledge and understanding of these cultures. A major divisional theme is that of working with indigenous peoples in Australia and neighbouring regions to reinforce and promote their cultural identities. The strength of the Division's collections focuses on Aboriginal Australia and the islands of the Western Pacific and South-East Asia. Smaller, but important, collections from the Americas, Africa and parts of mainland Asia are used to introduce Australians to cultures lying beyond their immediate region.

## Highlights

The collection management teams successfully moved the Aboriginal ethnographic collections from the Rushcutters Bay store rooms to new and refurbished on-site storage.

Members of the Pacific collection management team assisted the National Cultural Centre of Vanuatu with the registration and cataloguing of its collections.

Exhibition of the Museum's Arctic collection at the Macleay Museum, University of Sydney, arranged by Beth Hise and Zoe Wakelin-King.

Continuing negotiations with the Murrawon Initiated Men's Council of north coast New South Wales regarding the care and disposal of secret/sacred items and human remains from their areas now housed in the Australian Museum.

## Research

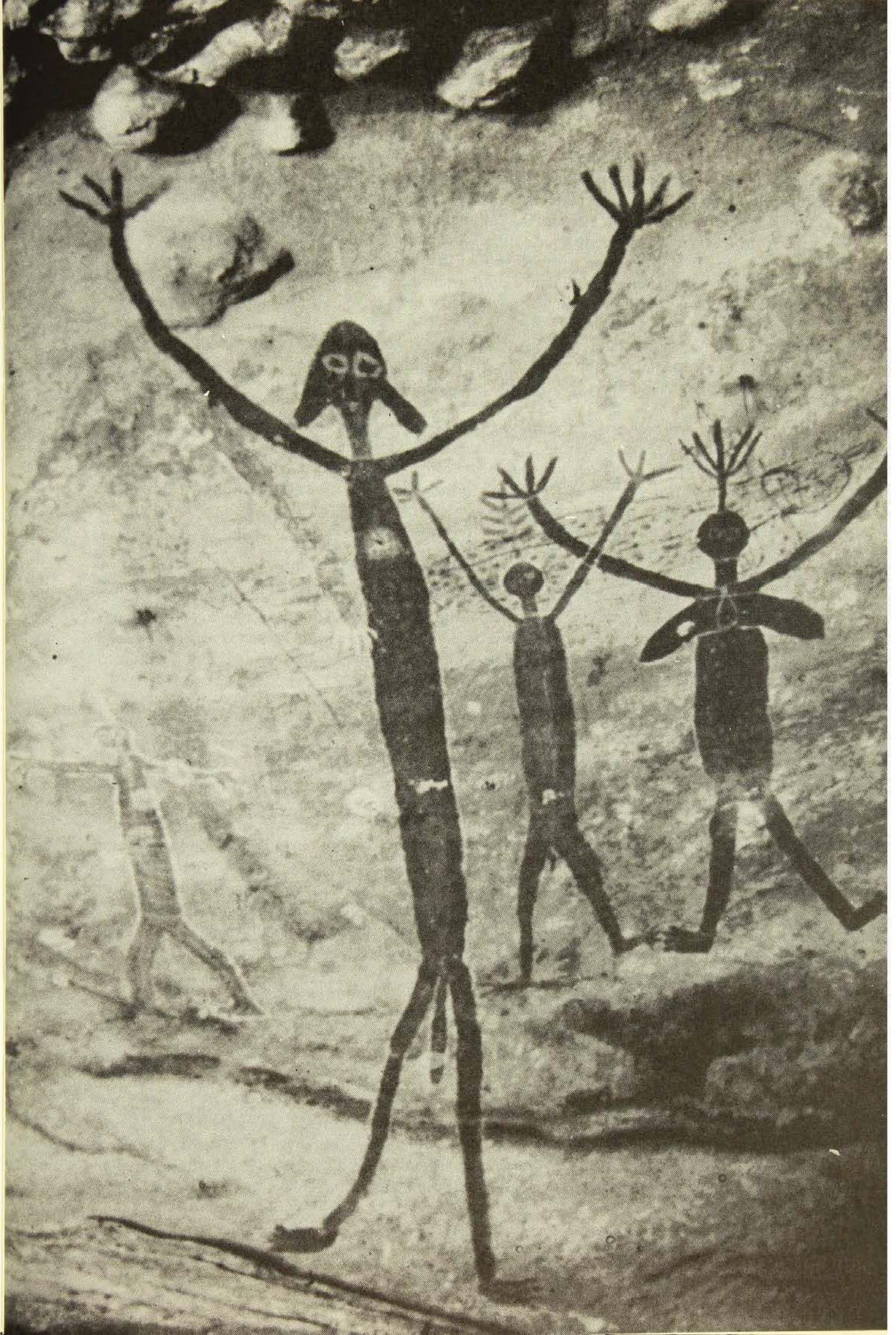
Val Attenbrow completed the first stage of her Port Jackson Archaeological Project, a review of the status of archaeological sites in the catchment area. Despite 200 years of European landscape modification, a surprisingly large number of sites survive, including some not previously recorded. Plans to initiate Stage 2, involving limited excavations at selected sites, have been deferred until later in 1990.

The project has enormous potential and importance for understanding Aboriginal usage of the Port Jackson area, as well as providing governments, commercial interests and developers, private property owners and Aboriginal people with information essential to preserving and protecting Aboriginal heritage areas in the Port Jackson area.

Attenbrow also spent six weeks with the Earthwatch 'Lightning Brothers' project excavating in the Menngye-ya rock shelter near Ingaladdi, N.T., to study the prehistory of the area and its rock art. The excavations retrieved a rich suite of more than 7,500 stone artefacts which are presently being analysed. Pieces of ochre probably used in producing the rock art were found.

Stan Florek completed the fieldwork component of his archaeological project in the Lake Eyre Basin and the first stage of the analysis of the finds.







Betty Meehan worked with Rhys Jones, Tom Loy and Richard Gillespie of the Australian National University, Earl Nelson of the University of California, Berkeley, Christopher Chippendale of Cambridge University, and members of the Wagiman and Nanggiwumerri Aboriginal communities in the Northern Territory to set up a rock art project at Laurie Creek in the Northern Territory. This project is supported by a grant from the Australian Institute of Aboriginal and Torres Strait Islander Studies, Canberra. The initial results include a radiocarbon date of c.20,000 years ago for some of the art. The date was on a sample of ochre which had been mixed with human blood.

Meehan continued her collaborative research with Dr Neville White, University of Western Australia, and completed with him the editing of a volume of papers on demography from the 5th Conference on Hunter Gatherer Societies held in Darwin in 1988.

Kate Khan's main research activity for the year was on the preparation of the first part of her project on the W.E. Roth collection of Aboriginal artefacts from North East Queensland. During a visit to the Rockhampton area Carol Gartside was able to discuss the project, especially the identification and description of many items, as well as the format of the proposed publication, with relevant Aboriginal people. Khan also returned to the Western Desert of central Australia to continue her study of the material culture of the region, and purchased 58 artefacts and paintings.

Fieldwork in the Talasea section of the joint Australian Museum - La Trobe University archaeological project in West New Britain, Papua New Guinea, concentrated on obsidian sources and sites on Garua and Boduna Islands, and at Walindi Plantation, about 25km south of Talasea. This project is supported by the Australian Research Council. A standard regional sequence of former land surfaces and volcanic ashes can be traced throughout the region from Bitokara Mission (excavated in 1988) to Walindi.

The 1989 field team of Jim Specht, Neville Baker, Richard Fullagar (Australian Research Council Post-doctoral Fellow) and Robin Torrence (Australian Museum Research Associate) was greatly expanded by the addition of five TAMS volunteers, Glenn Summerhayes of La Trobe University, Francois Wadra of the University of Papua New Guinea, and Wilfred Oltomo of the PNG National Museum and Art Gallery. Laboratory analyses are now underway to describe the obsidian tool production technologies of the last 4,000 years and to describe the pottery from more than 20 sites around Talasea. Fullagar's analyses of use residues on some of the obsidian tools indicates their extensive use in plant working.

Fullagar and Torrence completed their study of obsidian technology on Lou Island, PNG. Specht spent six weeks as visiting Research Fellow in the Department of Prehistory, Australian National University in Canberra, where he revised the text of his doctoral thesis for publication.

Beth Hise commenced archival research to document the Museum's valuable North West coast American Indian collections.

### **Collection Management**

The relocation of all of the Australian Aboriginal ethnographic collections from the Rushcutters Bay storage areas to new and refurbished on-site store rooms was completed. About half of the Pacific collections have now been moved from the Old School Building on the corner of William and Yurong Streets, and parts of the African and Asian collections were brought back from Rushcutters Bay. For the first time in the Museum's history, by the end of 1990 all of the collections will be housed in



quality storage conditions and will be easily accessible for research and public programme activities.

More importantly, for the first time the Aboriginal storage areas allow the secret and sacred items of Aboriginal Australia to be accommodated in a separate, respectful area with restricted access.

The moving of more than 100,000 items, many of them extremely fragile, has required considerable skill in the coordination of moving artefacts and relocating shelving. It is an indication of the high level of professionalism and dedication of the collection management teams that the task has progressed so well. This is due entirely to the competent leadership of Lissant Bolton and Zoe Wakelin-King, and the support they received from Jane Bible, Sue Thomsett and up to fifteen other people engaged at various times to carry out the move.

Physical relocation is only one part of the collection move process. Collection inventories, storage shelf lists, and artefact documentation checking and improvement are time-consuming but essential adjunct activities, and much remains to be completed in 1990-91.

During the year the Division completed the transfer to the Australian Museum of the University of Sydney Pacific collection formerly housed in the National Museum of Australia, Canberra. The registration and documentation of this large collection was greatly advanced by Nan Goodsell. This collection, made by many famous anthropologists such as Sir Raymond Firth, Camilla Wedgewood and the late Professor Ian Hogbin, has never been thoroughly researched. This task will be a major challenge for the Division in the next few years.

The Aboriginal collections were increased by the acquisition of two brass breast plates from New South Wales, a bark-style painting on canvas (the first in our collection), and several paintings by Aboriginal women. The latter acquisition reflects our policy to increase the representation of female artists in our collections.

Work on organising the Australian Aboriginal archaeological collections was undertaken by Florek after their move to the Yurong Street Annexe. The materials excavated after 1960 and their related documentation are now fully accessible. The materials from earlier surface collections and excavations still remain to be organised.

The Division received two major donations under the federal government's Tax Incentives for the Arts scheme. Mrs J. Moriarty donated Pacific Islands artefacts, and James Hardie Industries donated about 100 prehistoric and recent traditional pots from the Philippines.

Production of catalogues and guides to collections is one way of making them more accessible to the public and to the peoples whose societies produced them. The Division has several such projects underway at present covering the New South Wales and W.E.Roth North East Queensland ethnographic collections, the North American and Greenland Arctic collections, and the Peruvian pottery collection.

Tjokorda Raka Kerthyasa of Ubud, Bali, assisted the Division in purchasing a set of gender wayang xylophones used to accompany Balinese shadow plays. These will be available for music students and will be used to accompany demonstration performance using the Museum's set of Balinese puppets.

Meehan visited museums in the United Kingdom (Liverpool, Oxford, Cambridge and Cardiff) and



Europe (Vienna) to record Aboriginal material in their collections and to examine their exhibition styles and public programmes.

### **Public Programmes**

The year marked the first time in a decade when the Division was not involved in the production of semi-permanent or major temporary exhibitions.

In a new kind of venture for the Division, Beth Hise organised, largely in her own time, a small exhibition of the Division's Arctic collection in the Macleay Museum at the University of Sydney. The use of such a venue creates opportunities for exposing our collections to different audiences, as well as giving us access to the kind of smaller-scale display space that is currently difficult to obtain on the main Museum site.

The African collections received a welcome boost through a donation of \$5,000 from Mr William Bowmore of Newcastle, to assist the preparation of an exhibition featuring many of the Museum's seldom-seen African items. These include masks and figures donated by Mr Bowmore in 1979.

Meehan and Khan served on the project team for the Maningrida weaving exhibition to be presented at the Museum in late 1990.

The Division provided five activities for the Museum's Open Day in May, 1990. These included talks by Kate Khan about Aboriginal culture in the Aboriginal Gallery; tours of the collection storage areas by Alex Mattea, Alex Szalay and Craig Sadlier; a performance by a gamelan orchestra in the Rituals Gallery, organised by Zoe Wakelin-King; and introductions to the West New Britain archaeological project by Jim Specht and Richard Fullagar.

The Division commented on the report by the NSW Ministerial Task Force on Aboriginal Heritage and Culture, presented to government in 1989. It also made a submission to the Commissioners of Enquiry for RTA F5-Castlereagh Freeway on its likely effects on archaeological sites, and commented on several NPWS Plans of Management in relation to Aboriginal sites.

Members of the Division participated in several conferences during the year. Carol Gartside, Acting Aboriginal Liaison Officer, attended a special World Archaeological Congress meeting in Vermillion, South Dakota, on the relationship between archaeologists and the skeletal remains of indigenous peoples. This meeting produced a major statement of principles concerning the excavation of, research into and reburial of human remains.

Lissant Bolton and Carol Gartside presented papers to the 11th Conference of Museum Anthropologists at the University of Canberra, and Meehan chaired the session dealing with human skeletal remains and secret/sacred items.

Neville Baker presented a paper on the West New Britain research, jointly authored with Jim Specht, Richard Fullagar and Robin Torrence, at the Australian Archaeological Association Annual Conference held in Mildura. Attenbrow and Florek also presented papers at the same conference, on the Port Jackson Archaeological Project and on stone tools from the Mound Springs campsites at Marree, South Australia, respectively.

Betty Meehan received the honour of being invited to present the keynote address at the 6th



Conference on Hunting and Gathering Societies in Fairbanks, Alaska, U.S.A. She also presented a paper at the Australasian Society for Human Biology in Canberra, and lectured to Architecture students in the University of Sydney.

Phillip Gordon spoke on a panel discussion about a coordinated national policy for museums in a symposium on Issues in Multicultural Heritage Management at the University of Canberra.

Robin Torrence presented a paper jointly authored with Specht and Fullagar at the British Association for the Advancement of Science meeting held in Sheffield, U.K. This paper dealt with the impact of volcanic events on human history in West New Britain, Papua New Guinea.

Richard Fullagar delivered a paper, co-authored with Specht, Torrence and Baker, and W. Ambrose (ANU) and R. Bird (ANSTO), at the 9th Australian Institute of Nuclear Sciences and Engineering conference at the Australian Nuclear Science and Technology Organisation.

Specht, Fullagar and Torrence presented research seminars at the University of Papua New Guinea, Australian National University, University of Wollongong, and at the Australian Museum. Torrence also gave a seminar at North-Western University, Illinois, U.S.A., and Cambridge University, U.K.

Attenbrow, Gartside, Gordon, Khan and Meehan gave talks on Aboriginal culture at training sessions for the Museum Guides, and Khan and Meehan to a group from the Young Presidents' Association of America.

Kate Khan addressed Museum Studies Diploma students at the University of Sydney on "Research on Collections"; lectured in National Art Week on "Western Desert Art"; participated in Discovery Room activities on central desert sand drawings; and was interviewed on ABC Radio about Aboriginal art.

Attenbrow gave a seminar at the Museum and a talk to the North Shore Historical Society about her Port Jackson research project, and presented a paper to the Australian Association of Consulting Archaeologists' Workshop on test excavations in rockshelters.

The Division had considerable involvement with TAMS. In July, 1989, Specht took a group of five volunteers to West New Britain to work on an archaeological site on Walindi Plantation. Attenbrow led TAMS members on a tour of Aboriginal sites along the foreshore of Hunter's Hill. Hise and Wakelin-King gave talks on Inuit and Indonesian cultures.

Meehan and Attenbrow served as Editors for the journal *Australian Archaeology*, of which Fullagar is also one of the book review Editors. Specht served on the Oceania Publications Committee of the University of Sydney.

Specht, Attenbrow and Torrence were all appointed Research Associates of the Department of Anthropology at the University of Sydney.

Florek assisted the Arabana community at Marree S.A. in upgrading the archaeological display in their Visitors Centre, and gave seminars at the Australian Museum and the University of Sydney.

Meehan and Attenbrow served as co-supervisors for several post-graduate students in Sydney, Canberra and Melbourne, and Meehan acted as an external examiner for three post-graduate theses.



## **Liaison Activities**

Activities in the Aboriginal liaison area are too numerous to mention all of them. In keeping with the Division's commitment to assisting communities with heritage matters, Gartside and Gordon visited Aboriginal communities throughout the State. The Division provided assistance of various kinds to Aboriginal museum projects in Brewarrina and Armidale, to the Moree Plains Art Gallery, and to the Moree Aboriginal History project.

Representatives of Aboriginal communities in Kempsey, Wallaga Lake, and the Murrawon Initiated Men's Council of northern New South Wales visited the Museum to discuss various heritage issues. The Murrawon group had extended discussions with the Division and the Deputy Director about the return of human skeletal remains and secret/sacred items from their areas. These issues were particularly highlighted by the report of the Aboriginal Heritage Task Force, on which Gordon was a member in previous years, and will receive a high priority in 1990-91.

Frank Gurrmanamana and Jack Riala of Maningrida visited the Division with Dr L. Hiatt, University of Sydney, to identify secret and sacred items in the collections from those areas.

Mrs Josetta Orsto, Mrs Reppie Orsto, Mrs Fatima Kantiller and Mrs Donna Burak, of the Pularumpi Women's Centre, Melville Island, N.T., visited to see material from their area.

As part of her Port Jackson Archaeological Project, Val Attenbrow has liaised closely with the Metropolitan, Daruk, Gadangara and La Perouse Local Aboriginal Land Councils. She addressed each Council about the purpose and significance of her research, and worked on the project, both in the field and in the laboratory, with several Council members.

Lissant Bolton and Nan Goodsell visited Port Vila to assist the Vanuatu National Cultural Centre establish a registration and documentation system for its artefact collections. This was the first occasion that the Division has been involved in such a venture outside of Australia.

Partly as a result of this, Specht and Gordon joined members of other Divisions in discussions with the Unesco Office for the Pacific States about the Museum's possible involvement in the training of Pacific Island's museum personnel.

Jane Bible took leave to work in the Lord Howe Island Museum, also setting up a registration system for its varied historical collections.

The Division provided work-experience training to Baiva Ivuyo and Geno Wari of the National Museum and Art Gallery of Papua New Guinea.

## **Staff Matters**

The Division welcomed two new Associates during the year. Dr Jennifer Lindsay, Cultural Attache to the Australian Embassy in Jakarta, Republic of Indonesia, was appointed an Associate in recognition of her contribution to the Museum's Indonesian cultural performance activities. Dr Robin Torrence was appointed a Research Associate in recognition of her close involvement with and contribution to the West New Britain archaeological research project.

Betty Meehan was appointed Senior Research Scientist.



The resilience of the Division was tested during the year by many staff changes. Betty Meehan left in June, 1990, to take up a position in the National Museum of Australia, Canberra. Divisional Typist Jan Howarth found a less hectic work environment in the Attorney-General's Department, and Sue Thomsett departed temporarily on maternity leave. Carol Gartside returned to the National Parks and Wildlife Service of N.S.W., and Phillip Gordon resumed his position as Aboriginal Liaison Officer after a period of management training with the ABC. Jane Bible completed her term as Acting Aboriginal Collection Manager, and Jim Specht was absent on long-service leave for nearly five months. Glenda Mayhans, Ken Cutmore and Karen Wilson also resigned during the year.

### Visitors

Among the many visitors to the Division were:

Ms Kathy Berrin, San Francisco Fine Art Museum, U.S.A.  
Dr Niko Besnier, Yale University, U.S.A.  
Mr Luk Bouters, Unesco Office for the Pacific States, Apia,  
Western Samoa  
Dr Gabriel Casal and Mr Wilfredo Ronquillo, National Museum of  
the Philippines  
Dr A. Cherniak, PRAVDA, U.S.S.R.  
Dr Janet Davidson, National Museum of New Zealand  
Mr Christopher Desconte, University of Auckland, New Zealand  
Dr Robin Frost, New York University, U.S.A.  
Mr Arapata Hakiwai, National Museum of New Zealand  
Professor Tom Harding, University of California at Santa  
Barbara, U.S.A.  
Mr Baiva Ivuyo and Mr Geno Wari, National Museum and Art  
Gallery, Papua New Guinea  
Dr Jean Kennedy, University of Papua New Guinea  
Dr George MacDonald, Canadian Museum of Civilisation, Ottawa,  
Canada  
Mr Julio Mercader, Madrid University, Spain  
Mr Douglas Newton, Metropolitan Museum of Art, New York,  
U.S.A.  
Dr B. Scheps, Museum fuer Voelkerkunde, Leipzig, Germany  
Mr Eric Silverman, University of Minnesota, U.S.A.  
Ms Pamela Swadling, National Museum and Art Gallery, Papua New  
Guinea  
Dr John Terrell and Dr Rob Welsch, the Field Museum of  
Natural History, Chicago, U.S.A.  
Dato Shahrum Yub, National Museum of Malaysia

### Donations

We gratefully acknowledge donations of artefacts from Mrs J. Moriarty, James Hardie Industries, Mrs M.V. Aston, Sir James and Lady Rowland, Mr and Mrs G.H. Lees, Mrs Hirst, Ms P. Watson, Ms L. Nardi, Mrs Freeman, Mr L. Lucas, Mrs M. Sutton, Mr P. Colman, The Department of Prime Minister and Cabinet, Ms P. McDonald, Ms M. Mackenzie, Mrs Z. Kerr, Mr N.W. Longmore, A.V. Jopling, D. Hull.



## **Future Plans**

The first priority for 1990-91 will be to re-establish stability of staffing following the many changes that occurred in 1989-90 and will occur with Lissant Bolton's departure in August, 1990 to study in the U.K. for three years. During 1990-91 the temporary staff engaged to assist with the collection move will complete their time with the Division, and the staff numbers will return to a figure closer to its normal operating level. The main activities of the Division will be:

A major review of policies and procedures relating to every aspect of collection development, management, use and disposal.

Transfer of the Aboriginal skeletal collection into a new 'Keeping Place' within the Museum.

Assessments of the Aboriginal skeletal and secret-sacred collections, and negotiations about their future ownership.

Planning for the computerisation of collection management.

Reviews of Divisional activities in the Public Programmes area, particularly forward-planning for exhibitions.

Establishment of an Aboriginal Advisory Committee.

Development of an Aboriginal Family History Project for N.S.W. based on data gathered by Dr Norman Tindale.

Setting up a new Anthropology research laboratory.

Excavation of selected shell middens in Stage II of the Port Jackson Archaeological Project.

Presentation of an African exhibition at the Macleay Museum, University of Sydney, and the Newcastle Regional Museum.



# E A R T H   S C I E N C E S

**C**ollections of minerals, rocks, meteorites and fossils are cared for and opened up to scientists, educators and community interests. Australian and overseas materials are well represented, continually improved, and includes important parts of Australia's geological heritage.

Present research in particular examines Australia's volcanic record, its minerals, gemstones and underlying causes. Research on Australia's fossil record concentrates on fish and brachiopods of the Palaeozoic Era and reptiles of the Mesozoic Era.

The relevance of the collections is communicated through scientific and popular publications and media news. Geological information is provided on request, important geological sites are monitored and matters of geological concern are promoted.

## Highlights

The Colleen McCulloch *Chasmosaurus* dinosaur.  
The new Gem Room, Planet of Minerals Gallery.  
Purchase of the Hindu Kush gem mineral suite.  
R.O. Chalmers delivers the 1989 J.J. Johnson Memorial Lecture.

## Mineralogy and Petrology Section

### Research

Dr Lin Sutherland's research programme on the causes of volcanism in Australia's past received a new twist with the fatal Newcastle Earthquake in December 1989. Some results had pointed to Newcastle being on a line of instability. In Australia, some previously recognised zones of earthquake risk lie over volcanic 'hot spots'. The media, with newspaper, radio and TV interviews, kept Dr Sutherland busy with about 30 interviews in a week or so after the Newcastle Earthquake. Australians realised that their land was not immune to such disasters. His research is now directed to investigate more closely the links between Australia's potential volcanic sites and earthquakes.

Dr Sutherland attended two large geological meetings in the USA. These were the International Volcanological Meeting in Santa Fe in late June and the International Geological Congress in Washington, D.C. in July 1989. At the Santa Fe proceedings he gave a paper on global aspects of Australia's hot spot volcanism, as a contribution to mass extinctions in the fossil record and a means of testing earth expansion. During the Washington IGC he attended a training course on Earth Science Exhibits at the Smithsonian Natural History Museum and appraised the Inside Active Volcanoes Exhibit. During his American and Canadian tour he also met the scientific staff and viewed the quarters and exhibits at the San Diego Museum, California, the Desert Museum, Arizona, the Natural History Museum, Albuquerque, New Mexico, the American Museum of Natural History, New York, the National Museum of Canada, Ottawa, and the Royal Ontario Museum, Toronto, Canada.

A number of significant accounts of the volcanic research were published in books and journals



during the year. This included several chapters in a volume on Intraplate Volcanism in Eastern Australia and New Zealand, published by Cambridge University Press and the Australian Academy of Science in November 1989. A presidential address appeared in the papers of the Royal Society of New South Wales on the Demise of the Dinosaurs - by cosmic clout or volcanic vapours. The research on Australian gemstones included a breakthrough paper on the origin of sapphires in Mineralogical Magazine in March 1990, as a joint publication with workers from Macquarie University and Australian National University. The preliminary results on the age of formation of gem zircons in east Australia, with A.N.U., were presented at the 10th Australian Geology Convention in Hobart in February 1990.

Oliver Chalmers, a Research Associate of the Section was honoured by being asked to deliver the 1989 Jim Johnson Memorial Lecture to the Mineralogical Society of South Australia in Adelaide. The topic was meteorites.

### **Exhibits**

The new Gem Room of the Planet of Minerals Gallery was finished and officially opened on 29 August, 1989. The display used fibre optic lighting to show off the Museum's best gemstones in the form of crystals, opal rough and cut stones. A short article on the Gem Room was published in the Feb-April 1990 issue of Muse magazine. The gem material was organised by Gayle Webb, the Museum's gemmologist. She also arranged a temporary display of the Museum's carved and ornamental minerals in the Museum Library. Some of these beautiful pieces were purchased by the Museum as early as 1878 and are now prized antiques as well as masterpieces of lapidary skill.

### **Museum and Community Activities**

Ross Pogson, the Mineral Section's Collection Manager, assisted the Malacology section with X-ray analysis of crystalline alteration products. He also identified several school rock and mineral collections and demonstrated mineral identification techniques to the Mineralogical Society of New South Wales. With Erica Hepburn, volunteer, he ran a 'Meet the Scientist' session in the Discovery Room on meteorites and concretions. He attended the Mineralogical Society's 1990 Seminar in Melbourne on minerals of oxidised zones and the Future Directions conference at the Australian Museum.

Gayle Webb gave a talk on gemstone inclusions to the Mineralogical Society of N.S.W. As part of the September Earth Week program she gave a lunch hour talk to the public on gemstones. She ran a gem identification session for the International Museum Week Open Day with Sue Boele, volunteer. She also assisted with gem and mineral purchases for resale at the Museum Shop.

Lin Sutherland, assisted by Gayle Webb, helped lead a TAMS trip to northern New South Wales and Queensland. The group looked at the New England gems and granites and the sandstone gorge country around Cania and Carnarvon in central Queensland.

### **Field Trips**

Material for the Museum's mineral and rock holdings was collected on excursions associated with a number of geological conferences. Lin Sutherland obtained a range of volcanic rocks and ore specimens on an International Volcanological Association excursion through Arizona and New Mexico in June 1989. Specimens came from the Silver Bell mine, Tucson Range and Chiricahua



Mountains, Arizona, and the Ash Peak silver mine, Geronimo volcanic field and Kilbourne Hole volcano, New Mexico. Ross Pogson collected a suite of zeolite and calcite specimens from Bundoora, Victoria, during the Mineral Society's Seminar at Melbourne.

Rocks and zircon samples were collected from the Rockhampton and Anakie volcanic fields in central Queensland. The field party consisted of Lin Sutherland, Ross Pogson and Jane Barron from the Museum, and Alan Robertson from the Geological Survey of Queensland. The mineral staff, with Armstrong Osborne from the Education Section, and volunteers spent a day at Mt Wilson in the Blue Mountains. They collected zircons from Zircon Creek for age dating.

### **Collections**

Mr Ross Pogson settled into his new role as collection manager. Computerised collection databases were set up for gemstones and meteorites in the collections, to facilitate auditing and collection management. The iron meteorites were curated to arrest corrosion, with help of temporary assistance using university students.

### **Donations included:**

Superb polished slabs of spherulitic rhyolite from the Mt Hay thunder egg deposit in Queensland;  
Secondary minerals from the Elura Mine, Cobar, N.S.W.;  
Colour graded cut diamonds from Argyle Mines, W.A.;  
South Australian minerals from a Mineral Society member;  
A piece of nephrite jade from a New Zealander;  
A suite of rare minerals under the Taxation Incentive Scheme.

Purchases from the Museum Trust funds included:

A commissioned carving of South Australian black jade of a pair of feather tailed gliders for the Gem Room;  
Crystallised gold from the Stewart Town goldfield, N.S.W.;  
Crystal geodes of vivianite and celestite from the U.S.S.R.;  
A gem beryl crystal group and cut beryl from U.S.S.R.;  
Suites from Pakistan and Afghanistan gem deposits, including aquamarine, beryl, tourmaline, spodumene, sphene, garnet and ruby;  
Display slices of iron meteorites from Chile, Mexico and Morocco.

Exchanges were made with several private collectors and a number of overseas institutions. These included:

Tiara Observatory, Colorado, U.S.A. (meteorites);  
Natural History Museum of Bulgaria, (sphalerite and galena);  
Royal Ontario Museum, Toronto, Canada (blue zircon);  
Geology Department, University of Auckland (zeolites).

Requests for research materials were met from:

Royal Museum of Scotland, Edinburgh (X-ray studies of nickel and uranium minerals);  
Geology Department, Auckland University, New Zealand (Raman spectroscopy of aluminium hydroxides);



Monash University (electron spin resonance of beryl);  
University of Queensland (neutron bombardment of tourmalines);  
University of Technology, Sydney (X-ray studies of thorianite and monazite).

A gift was made to the Geology Department University of Tasmania, Hobart (fluorescent minerals for the R.J. Ford memorial display).

Loans were arranged with a variety of organisations including:

Siding Spring Observatory, N.S.W. (meteorite casts);  
Australia Post (Antarctic rocks for the Australia/U.S.S.R. stamp issue display);  
Westpac (photos of Western Australian crystallised gold for 'Westpac Issues' magazine).

## Palaeontology Section

### Research

Dr Alex Ritchie spent 2 months at the Australian National University, Canberra. He worked with Dr Gavin Young, Bureau of Mineral Resources and two Chinese colleagues, Dr Zhang Guorui (Academy of Sciences, Beijing and Australian Museum Visiting Fellow) and Dr Wang Shitao (Institute of Geology, Beijing and Queensland Museum Visiting Fellow). Their research on ancient armoured fossil fishes reveals links between China and Australia 350 million years ago.

### Exhibits

As Scientific Officer for "Dinosaurs Alive" Dr Ritchie managed to supplement the exhibition with dinosaur skeletons and skull replicas, increasing its scientific and educational content. The Australian authoress, Colleen McCulloch, Norfolk Island, generously presented to the Museum a superb complete skeleton replica of *Chasmosaurus*, a 70 million year old horned dinosaur from western Canada. This is a major addition to the Museum's growing range of permanent dinosaur specimens. Other acquisitions include skulls of the meat-eating dinosaur, *Allosaurus*, and the horned dinosaur, *Centrosaurus*, and a skeleton of the small plant-eating dinosaur, *Hypsilophodon*.

Specimens loaned to the exhibition included a skeleton replica of *Muttaburrasaurus*, a large dinosaur from central Queensland (National Museum of Australia, Canberra); recent discoveries of opalised dinosaur bones from northern N.S.W. (Mr Bob Foster, Lightning Ridge); a life-size *Coelophysis* model and skull of the duck-bill dinosaur, *Anatosaurus* (Dr Chris Tassell, Queen Victoria Museum, Launceston); a life-size model of *Hypsilophodon* (Dr Pat Rich, Monash University).

A large petrified tree, donated to the Museum by Rozelle Hospital now provides a novel touch specimen/bench seat in Education's Dinosaur Room.

### Museum and Community Activities

Dr Ritchie co-ordinated and gave two lectures in a 6 part series on 'Evolution' for the W.E.A. and two other lectures on 'Dinosaurs - Reptiles of the Mind', also for W.E.A. to accompany 'Dinosaurs Alive'. Robert Jones led a TAMS excursion to collect Permian fossils at Mulbring, near Cessnock.

In June 1990, the Earth Science Division loaned Antarctic material to Australia Post for display in the



G.P.O., Sydney for the launch of joint Australia/U.S.S.R. stamps on Antarctic cooperation. They included 30 rock specimens from Mawson's 1911-14 Expedition and fossil fish specimens from Southern Victoria Land, Antarctica collected by Dr Ritchie in 1970-71. A highlight of the launch was the presence of Mr Harold Fletcher, former Curator of Fossils, and last surviving member of Mawson's 1929-31 expeditions.

### Field Work

In June 1990 Robert Jones (Palaeontology) and Paul Willis (University of N.S.W.) visited northern Queensland to search for Cretaceous marine reptiles and fish (near Richmond and Hughenden) and Miocene-Pliocene mammal-reptile-bird remains (Riversleigh). One aim of the trip was to excavate and recover a fossil crocodile skeleton (found two years earlier) from solid limestone at Riversleigh.

Alex Ritchie visited Coonabarabran in New South Wales in October 1989 to arrange possible exhibit of the Tambar Springs *Diprotodon* in the Town's new Visitor Centre.

### Collections

The *Diprotodon* skeleton from Tambar Springs, northern N.S.W. found in 1979, was finally cleaned, repaired and consolidated by Rod Moloney, seconded to Palaeontology for two weeks from the Museum's Preparation section.

The fossil collections increased by 2290 registered specimens including Cambrian brachiopods from Broken Hill (Dr J Roberts, University of N.S.W.); Carboniferous marine invertebrates from Hunter Valley (University of Sydney); Permo-Triassic plants (Mr H Fetzer, Fossil Club of N.S.W.); Miocene marsupial and bird remains from Alcoota, Northern Territory (Paul Willis, University of N.S.W.); fossil plants (Andrew Rozefeld, Queensland Museum).

In May 1990 the Department of Geology, University of Newcastle, N.S.W. transferred most of its fossil collection to the Museum. This important study and research material, filling 185 boxes, comes mainly from Hunter Valley localities either poorly represented, or unrepresented, in the Museum's collection.

### Future Plans

A major book on the gemstones of the southern Continents 'Gems of the Southern Cross' has been completed ready for publication by Reed Books in 1991. The script, written by Lin Sutherland, explains the formation of the varied gemstones in the Gondwana continents, Australia, India - Sri Lanka, Africa - Malagasy and South America. A final section describes where to see gemstones around the world, in museums, crown jewel collections, universities, mines, private shows, and outdoor places and unexpected venues. The photography by Jim Frazier, Australian Museum associate and celebrated photographer and film maker, is largely based on the Australian Museum gem collection.

Return of Earth Science sections to renovated premises in the sub basement area, after a long delayed and difficult confinement in disjointed quarters. Further consolidation with an appointment to the new unfilled invertebrate palaeontologist position.



## **Significant Visitors**

### **Mineralogy Section**

Mr P. Filmer-Sankey, Newcastle Regional Museum, N.S.W.  
Dr C. Guillemin, School of Mines Museum, Paris, France  
Dr K. Rodgers, Geology Department, University of Auckland, New Zealand  
Dr N. Sobolev, U.S.S.R. Academy of Sciences, Novosibirsk, U.S.S.R.

### **Palaeontology Section**

Dr S.M. Andrews, Royal Museum of Scotland, Edinburgh  
Dr Mike Bassett, National Museum of Wales, Cardiff  
Dr Hans Baudel, Geologisches - Palaeontologists Institute, Hamburg, West Germany  
Dr Richard Emlet, University of Southern California, Los Angeles, U.S.A.  
Dr Zhang Guorui, Academy of Science, Beijing, China  
Mr Chris Mays, 'Dinamation', California, U.S.A.  
Dr Wang Shitao, Institute of Geological Sciences, Beijing, China  
Mr Rene Vandervelde, Calgary, Canada  
Mr Rene Trudel, Calgary, Canada



# ENVIRONMENTAL SCIENCE



his Division has been newly created to reflect the importance attached to the environment. It has a Terrestrial and Marine Section.

## Goals

1. To carry out research directly relevant to current and anticipated environmental issues.
2. To carry out basic ecological research leading to increased understanding of ecological distributions and processes.
3. To enhance environmental awareness and management through the provision of advice, submissions and comment to Government, the public, Museum Divisions and the media.

## Highlights

Dr Graham Pyke was awarded an ARC Grant of \$170,000 over 3 years. This has enabled his research project on the Distribution, Abundance and Movements of Honeyeaters to include Dr Richard Major as a Research Associate. Dr Major will contribute important expertise to the project, especially in terms of the nature and extent of nest predation and its effect on recruitment into the population.

The Section became the home base for the Australian Bird Count project. This is a collaborative project involving the Australian Museum, the Royal Australasian Ornithologists Union, and over 500 amateur bird-watchers throughout Australia. It will provide information on seasonal movements and changes in abundance of Australian birds across a wide range of habitats. This information is essential for sound conservation and management of our avifauna. The project is coordinated by Dr Stephen Ambrose.

Dr Graham Pyke and Mr Paul O'Connor completed a detailed report on Conservation in the S.E. Forests of N.S.W. In this report they reviewed the vast amount of relevant literature and, based on this review, arrived at conclusions and recommendations to Government. It is a good example of the Museum's ability to act as an "honest broker" in providing unbiased assessments of environmental issues.

Dr Graham Pyke was awarded a Canadian Commonwealth Research Fellowship for one year commencing in April, 1990. This Fellowship will enable him to develop collaborative research with colleagues at Simon Fraser University in Vancouver.

Dr Alan Jones and Ms Anna Murray attended an international conference in Maine, U.S.A. and delivered a paper on their research into the ecology of beach amphipods (small crustaceans - no common name). They also completed the field work (two years) for the distributional phase of the project.



## **Terrestrial Ecology**

Dr Graham Pyke, Mr Greg Gowing, Ms Michelle Christy, Dr Richard Major and Mr Paul O'Connor, continued work on the abundance, nesting and movements of honeyeaters in heathland in Brisbane Water National Park and completed another summer field season of research on the pollination ecology of Christmas Bells at Barren Grounds Nature Reserve, near Jamberoo. These research programs will continue in the coming year.

## **Community Activities**

Dr Graham Pyke was a member of the Research Committee of the Royal Australasian Ornithologists' Union, the New South Wales National Parks and Wildlife Advisory Council, the NSW Government Non-Indigenous Animals Advisory Committee, and the NSW Government Committee on Aviculture and the Bird Trade.

## **Marine Ecology**

### **Research**

Dr Alan Jones and Ms Anna Murray are continuing their investigation of sandy beaches in bays and lagoons of the Sydney region. Despite the value of these beaches and their vulnerability to pollution and other human impacts, virtually nothing is known about their ecology. In order to rectify this, two abundant invertebrate species (amphipod crustaceans) have been chosen for study. A novel sampling design was developed to accommodate their tidally-related movements and two years' data have been collected.

Analysis and writing-up of data is continuing from a long-term study of the Hawkesbury benthic community. While much of this project's results have been published, several papers remain to be completed.

### **Environmental Activities**

Dr Jones made a substantial commitment to various environmental activities during the year. These include involvements with the Discovery Room and Marine Hall, the preparation of submissions concerning coastal management and subsequent attendance at government hearings, comment on various environmental impact statements, advice to State Government departments and community groups, and involvement with the print and electronic media.

### **Meetings and Committees**

Dr Jones and Ms Murray attended the VIIth International Amphipod Colloquium in Maine, U.S.A. and delivered a paper on their beach amphipod work. Dr Jones also gave papers to the Nepean-Hawkesbury Environmental Management Seminar and the AMSA (NSW)/CAWS seminar concerning estuarine management, chaired a session of the Development and Waterways Seminar and addressed various local conservation groups.

He has served as a councillor to:

The National Trust Coastal Conservation Committee;  
The Coast and Wetlands Society;



The Management Committee of the Centre for Environmental Toxicology (UTS and SPCC); and  
The Friends of Dee Why Lagoon.

### **Future Plans**

#### **Research**

Current research will continue and new projects will be developed.

Dr Pyke plans to commence a new project on the effects of the introduced honeybee on native wildlife. This project will involve collaboration with Dr Rob Whelan from the University of Wollongong and will produce information that is much needed by land managers throughout Australia.

Dr Jones plans to develop field experiments to investigate the effects of pollution and disturbance. As well, collaboration with Dr John Chapman of the Centre for Environmental Toxicology is planned to study the effects of polluted sediments on amphipods.

#### **Environmental Services**

Demand for environmental advice from the public, Government, industry and the media is likely to grow. Meeting this demand will occupy increasing amounts of time by Divisional staff.



# EVOLUTIONARY BIOLOGY UNIT

**T**his has been the second full year of operation of the Unit. Most of the techniques which were in the process of implementation in 1988-89 are now in routine use, allowing the Unit to service the Museum's requirements for biochemistry, histology and electron microscopy. These approaches have been applied to a number of collaborative studies involving the identification of species and/or the relationships between species in animals as diverse as mammals, fish, spiders and snails. Extensive additions have been made to the frozen tissue collection which, as well as being used to support the present research of the Unit, constitutes a valuable library of the genetic resources of a wide range of wildlife.

## Highlights

Establishment of a DNA sequencing and database analysis capacity.  
Investigations of advances in SEM technology by Geoff Avern during fieldwork in London (at the Natural History Museum), Cambridge and Munich.  
Operation of the new laboratories on a routine basis.

## Scientific Services

### Electron Microscopy

This year has seen continued growth in both the utilisation of the scanning electron microscope (SEM) and in the range of ancillary equipment in the laboratory. Notable additions here are a high quality stereomicroscope and a critical point dryer, which are both invaluable aids to specimen preparation. The laboratory continues to make large contributions to projects on molluscs, spiders and insects, and has assisted research on fish, reptiles, mammals, minerals, anthropology and materials conservation. During the year, SEM photographs have appeared in many scientific publications (including the forthcoming second edition of CSIRO's "Insects of Australia"), in a Photoart section of "Australian Natural History" and, as large display posters, in a new exhibit at the Perth Zoo.

### Histology

This laboratory aids the investigation of the structure of animals by cutting successive thin slices of material from tissue samples which have been embedded in a supporting medium. These slices are then stained to reveal different constituents of the tissue, which can subsequently be identified by microscopic examination. During 1989-90, the laboratory has provided facilities for research on snails, fish and insects. As well, a series of experiments has been performed to assess the merits of different types of material as embedding media.

### Protein Electrophoresis

This biochemical technique is used to separate proteins, on the basis of their relative electric charge, by placing samples from multiple individuals side-by-side on an inert gel, passing an electric current through the gel and then staining it so that the position of any given type of protein is revealed as a coloured band deposited as an insoluble by-product of its chemical action. Proteins serving the



same function in different organisms differ in their relative charges. These differences can be used, among a variety of applications, to estimate how closely related species are and to ascertain how many species there are in a collection of individuals of similar appearance. Electrophoretic studies were carried out during the year on various snails, gemfish, New Guinean mammals and a genus of spiders (*Badumna*) which includes the common house spider.

### **Molecular Biology**

Molecular biology is the study of genes (made from DNA) and gene products (proteins). The Unit is concentrating on two types of information which can be gained from a study of molecular biology. The first, "restriction fragment length polymorphism", was described in the 1988-89 report. This compares the sizes of similar parts of genes in different species. The second is "nucleic acid sequencing". Nucleic acids are made up an indefinitely long series of bases. There are four different bases which may occupy any given position in this series. However, the actual sequence of bases which is found for a gene is what confers the specificity on the DNA. During the year, the Unit has, with the generous support of Ken and Yasuko Myer, been able to purchase the equipment which allows DNA sequencing to be carried out. This equipment can also interface with a CD-ROM drive which allows comparison of sequences determined in this laboratory with those entered onto a database containing nearly all published sequences. This is a very flexible system which will be highly informative in investigations of the relationships between species, and particularly so in those cases where the animals under study are very distinct.

### **Future Plans**

Establish a photomicroscopy facility in the SEM laboratory.

Investigate computer-imaging and image analysis systems for interfacing with the SEM.

Continue expansion of the frozen tissue collection and computerise the data relating to the specimens it contains.

Make routine use of the DNA sequencing/analysis capability of the Unit.



# INVERTEBRATE ZOOLOGY

**I**nvertebrates (animals which, like insects, worms and snails, have no backbones) are the subject of a special charter just released by the European Council. It is pointed out that they outnumber all other animal species by more than 30 to one. The biomass of soil invertebrates alone may reach a tonne per hectare, and between 9 and 10 million tonnes of marine molluscs are fished every year. Invertebrates are very significant in natural food chains, in pollination and seed dispersal of plants, in agriculture and pest control, in medicine, in industry, and in genetic science. They are essential for maintaining soil fertility and many have great aesthetic value. The threat of imminent extinction to many invertebrate species is causing concern. We at the Museum regard study of Australia's very unusual invertebrate fauna as a matter of urgency.

## Highlights

The Invertebrate Division benefited from a substantial purchase of computer equipment (urgently required to facilitate collection management and research). This included a new collection management 386 computer with TITAN software and several P.C.'s and lap top machines. The research 386 computer in Environmental Science was transferred back to Invertebrate Zoology. A laser printer was purchased for Malacology/Entomology.

The I.R. Bock/Latrobe University collection of Drosophilidae (ferment flies) was donated to the Museum through a recommendation of Shane McEvey. It includes c. 5500 flies representing over 200 identified species and many types. Combined with the existing collection, it constitutes the major collection of this family in Australia.

## Research

### Entomology and Arachnology - Insects, Spiders and their allies

Cribellate spider research has concentrated on the primitive circumtropical spider family Filistatidae and southern Australian desid spiders. This was aided by the opportunity to examine type and general collections at several European institutions during September 1989. A revision of the Pacific region filistatid fauna is in progress. Species and population variation in candida group spiders (Desidae) has been studied in association with the Evolutionary Biology Unit. Minor projects included work on Tasmanian World Heritage Area spiders and a cooperative study of lead pollution in spider webs in the Grand Arch, Jenolan Caves.

Dr Glenn Hunt has continued his research into Australian harvestmen (Opiliones) supported by an Australian Biological Resources Study grant. His publication on *Hickmanoxyomma*, a new genus of cave adapted harvestmen from Tasmania, is being used by scientists evaluating World Heritage areas in Tasmania. Dr Hunt is now working on cave harvestmen from N.S.W. and a new genus in Tasmania which includes the first blind cave harvestmen for our continent. A cladistic study on a new subfamily of harvestmen previously unknown in Australia is in press, as is his work on harvestmen from the Kimberley.

Fly research continues to be the main thrust of entomological research in the Museum. Shane



McEvey has taken up a research associateship to study Australasian drosophilid flies, after two years' research at Centre National de la Recherche Scientifique, France. He is also describing new Afrotropical species in the drosophilid genera: *Drosophila*, *Zygothrica*, *Phorticella*, *Lissocephala*, *Paraleucophenga* and *Leucophenga* in collaboration with D. Grimaldi (New York), G. Bachli (Zurich), M. Chassagnard, D. Lachaise and L. Tsacas (Paris).

Dan Bickel's recently completed work on long-legged flies (Dolichopodidae) included descriptions of three newly discovered genera and 160 new species. David McAlpine has completed a study of the strange nocturnal ctenostylid flies. He demonstrated that these rare circumtropical insects belong in a family to themselves, not close to other known nocturnal flies. With Donald Colgan of the Evolutionary Biology unit, he has co-operated in planning a program to test current ideas on the phylogeny and higher classification of acalyptrate flies using DNA studies. Much material has already been collected for this work. He has also investigated the phylogeny and relationships of Diopsidae, a family of tropical flies with eyes often on long stalks. Gunther Theischinger (Research Associate) is currently revising the Australian crane fly fauna. He is also co-authoring a book on Australian dragonflies and has co-authored the Alderfly chapter for *Handbuch der Zoologie* (Germany).

Gerry Cassis completed two volumes of the Zoological Catalogue of Australia on the Heteroptera (bugs), which are now being reviewed. His manuscripts are in preparation for the lacebug subfamily Cantacaderinae and the earwig family Chelisochidae. A cladistic and systematic study of the mirid bug genus *Fingulus* has been completed with Dr G. Stonedahl of CAB Institute of Entomology.

Max Moulds (Research Associate) has continued his work on the systematics of cicadas. His new book *Australian Cicadas*, which provides the first comprehensive treatment of these popular insects since 1904, recently won the G.P. Whitley Award for the best Australian natural history book of the year.

Courtenay Smithers (Research Associate) has published his key to families and genera of the Psocids of the world. He is currently working on collections of Psocids from Canada, Christmas Island and North Western Australia. Revisionary work on Ascalaphids (ant lion relatives) is also in progress.

### **Malacology - Marine and Freshwater Snails and Sea-slugs**

Winston Ponder's research projects on freshwater snails received a big boost this year with the acquiring of \$95,500 in research grants. These included two new grants, both in collaboration with Don Colgan, one from ARC for a study of the genetics and taxonomy of a radiation of aquatic snails in Dalhousie Springs in northern South Australia. The other grant, from the endangered species program, funds a study of the genetics and taxonomy of small populations of freshwater snails that appear to have in situ in arid-zone springs. They are also examining similar snails at Wilson's Promontory, Victoria.

A major part of the grant-supported program on various groups of small, problematic marine snails is nearing completion with the final field work for that segment being carried out in southern NSW in November and Victoria in February.

The high quality of Bill Rudman's research on the evolution and biology of opisthobranch molluscs, (sea-slugs), has been recognised by the award to him of a DSc degree by the University of Auckland.



## Marine Invertebrates - including Worms and Crustaceans

Pat Hutchings has continued her investigations of the wetlands and sub tidal bottom-dwelling animals of Jervis Bay, as part of a much wider project that will form the basis of an EIS for the Royal Australian Navy's proposed relocation or partial relocation to the Bay. Dr Hutchings is funded by a sub contract from CSIRO, Division of Fisheries which has the main contract with the Navy. In addition a long term monitoring program may be initiated after this baseline study is completed in 1992. Sampling is carried out at three monthly intervals and involves counting snails in the mangroves, and salt marsh, coring by SCUBA in the seagrass beds and taking grab samples in the non vegetated sediments. The value of this contract over 2 1/2 years is about \$170,000. Dr Hutchings received funding from ABRS to undertake a revision of Australian seamice (Aphroditidae) and working with technician Jane McRae has virtually completed the first paper in which eight new species of seamice are described. These worms which can reach 10-15 cm in length appear to be fairly common in deeper Australian waters.

Work continued on the two major projects of the Crustacea section: the taxonomy and relationships of lysianassoid amphipods, and the ecology and distribution of scavenging crustaceans.

Dr Jim Lowry and Ms Helen Stoddart drew together many of their ideas on lysianassoid relationships which have been emerging from work over the last four years. A radical proposal for reclassification of the family was presented by Lowry at the Seventh International Colloquium on Amphipoda in Maine, USA. So far the proposal has been well received by the scientific community. Stephen Keable's analyses of data from Lizard Island are producing a very interesting story about how the scavenging crustaceans divide up the available habitat. The project on scavenging crustaceans was expanded with a trip by Jim Lowry to the Christensen Research Institute at Madang, Papua New Guinea. A surprising variety of scavengers were caught in a series of traps set down to depths of 500 m.

## Students and Invertebrates Research

Two students co-supervised by Dr Pat Hutchings and enrolled at Sydney University have been awarded Smithsonian Fellowships, Chris Glasby taking up his Fellowship in February 1990 and Greg Rouse who will be taking his up in February 1991. Both will be working with Dr Fauchald in the Worm Section at the United States National Museum in Washington DC. John Martin has studied larval kelp flies (Coelopidae) with David McAlpine in connection with his TAFE Photomicrography course.

## Field work

Dan Bickel has made significant field collections of two-winged flies (Diptera) during his visit to New Zealand.

David McAlpine and John Martin made collections of kelp flies in southern New South Wales and eastern Victoria to obtain laboratory cultures and larvae. D. McAlpine made collections of a number of fly families in rain forests of northern New South Wales for DNA study.

Michael Gray made a trip to Tasmania and southern Victoria to collect spiders of the *Badumna candida* group.



Field work for Winston Ponder's freshwater snail programs was carried out in Wilson's Promontory in February, and in northern South Australia in April-May. Both field parties included several staff members and volunteers. Ian Loch and Philip Colman collected terrestrial molluscs on the northwestern slopes of New South Wales in April-May, 1990.

### Collections

The research collections of invertebrates have continued to grow. The Titan data base for the arachnid collection has increased by 3000 entries. Approximately 85,000 specimens were added to the insect collection, 19,000 lots to the molluscan collection, and 3600 lots of other marine invertebrates were registered and added to the collections.

The rate of use of collections by researchers, both overseas and in Australia, remains high. The volume of molluscan material sent on loan (33,201 specimens) was over twice the previous highest figures. Invertebrate loan consignments include: insects and arachnids 70, molluscs 72, other marine invertebrates 91.

Overseas visitors using the collections or seeking information on insects and arachnids include: Dr N. Degallier (Brazil), Dr R. Leech (Canada), Dr K. Ogata (Japan), Dr P. Johns, Mr R. Didham (New Zealand), Dr D. Lumsdaine (UK - insect sounds), Dr J. McIver, Dr C. Davis, Dr J. Stimson (USA). There were 10 overseas visitors using the mollusc collections. Dr J.L. Barnard (Smithsonian Institution, USA) visited the Crustacea section.

Major donations have included the Vera Swan collection of marine molluscs with library. Michael Gray has secured an agreement with Dr J. Hickman of Hobart for the important Hickman Tasmanian spider collection to come to this museum. Donations of molluscs were received from Mr O. Griffiths (Mauritius), Mr R. Varman and TAMS (Norfolk Island), Mr V. Kessner (Western Australia), Mr M. Shea (Europe), and Mr S. Johnson (Marshall Islands). Major insect donations were received from: Dr J.R. Bock and La Trobe University (drosophilid flies), Mr G. Hangay (788 identified lucanid beetles), Mr R. de Keyser (1900 beetles and flies from Southeast Asia), Mr R. Lachlan (350 foreign insects), Dr S. McEvey (a significant collection of foreign flies, including two undescribed families), Mr and Mrs M. Moulds (2600 lacewings, stick insects, wasps, and other insects), Mr N. Rodd (300 wasps and flies), A. Smith (over 30,000 specimens from pit traps), Mr G. Williams (over 40,000 specimens from Malaise traps, including many undescribed species).

There has been much progress with the spider collections. With the assistance of Tom Williams the family of Jumping Spiders (Salticidae) has now been fully computerised and updated in accordance with Dr. Zabka's research two years ago. Tom also assisted Lynne Albertson with the relocation of the Millipede and Velvet Worm collections, enabling the spider types to be positioned in a separate collection space in accordance with collection policy and disaster management ideals.

Entomology staff, with the help of Associates and Volunteers, have completed the rehousing of a large portion of the lacewing collection, the cicadas and portions of the fly collection. Work has begun on the very large task of rehousing the Pacific Island/Papua New Guinea collection which will make this collection easily accessible for identifications and to research workers.

Rehousing of the Entomology library has been completed and cataloguing of the books is nearing completion.



Shane McEvey (Research Associate) is preparing a catalogue of all drosophilid flies in the Australian Museum collection, and is updating that part of the collection, registering types (including those received from the School of Public Health and Tropical medicine), and compiling a database.

Lynne Albertson was employed for three weeks part time to help in sorting of malaise trap insect catches. Staff members continue to support other sections within the Museum, especially Materials Conservation, in pest identification, and Community Relations.

Geoff Holloway suffered a serious stroke on 22 January 1990 and remains hospitalised. Max Moulds currently fills the position on a temporary basis.

The Malacology staff acknowledge the cooperation of New South Wales National Parks and Wildlife Service, and New South Wales Department of Forestry.

With the help of temporary staff, the Marine Invertebrate section completed the enormous task of sorting the samples collected during the cruises on RV "Franklin" in 1987 and 1989 to Bass Strait and northern Queensland waters.

### **Services to the Community and Science**

Invertebrate Zoology personnel arranged and staffed a number of educational exhibits in their areas for Open Day. Many visitors expressed interest and appreciation. Division staff also participated in other public programs including Museum Guides training, Workers Educational Association seminars and tours, the Discovery Room "Meet the Scientists" program and gallery programs. They also supervised a large number of Work Experience students.

Michael Gray acted as Divisional Head during part of 1989 and took over this position from Winston Ponder in 1990. He has continued to serve as Treasurer of Linnean Society of N.S.W. and is a member of the Jenolan Caves Scientific Advisory Committee.

Dr Ponder is consulting as a technical editor for the Fauna of Australia volume on Mollusca. Dr Cassis is concerned in organising a volume on Australian biogeography, with contributions from Museum staff and invited persons. Ian Loch and Phil Colman continue to co-edit the newsletter of the Malacological Society of Australia, Australian Shell News.

Jim Lowry spent a month at the Natural History Museum, Paris, at the invitation of their Crustacea Section, identifying amphipods collected by French MUSORSTOM expeditions to the Phillippines and New Caledonia.

Shane McEvey is preparing a book comprising H.E. Paterson's work on species and speciation. David McAlpine has reported on significant insects and plants of Girrahween Park (near Earlwood) for Friends of Wolli Creek, who are attempting to have this bushland permanently reserved.

The Division is assisting in setting up a commercial framework for carrying out contract work utilising our identification and environmental expertise. Several contract projects are already in progress. Malacology staff have carried out consultancy work for CSIRO, Perth; Jervis Bay Survey; Ecology Lab Pty Ltd. Entomology staff have identified material for Australian Customs in connection with policing the CITES Agreement.

### **Workshops, Lectures, Symposia**

Winston Ponder and Gerrard Clark attended the International Malacological Symposium held in



Tubingen, West Germany in August where both delivered papers, and Dr Ponder visited the British Museum (Nat. Hist.) and several museums in the USA, the latter visits assisted by a grant from the Smithsonian Institution.

Recently a workshop was organised by The Great Barrier Reef Marine Park Authority on the effects of trawling on inter-reefal areas of the Great Barrier Reef. Pat Hutchings was asked to prepare a review on the effects of trawling on epibenthic populations in such inter-reefal areas. The Workshop Proceedings were published as a special issue of Australian Journal of Marine and Freshwater Research, and will enable GBRMPA to formulate management plans for such areas which constitute significant amounts of the Great Barrier Reef Marine Park. Dr Hutchings attended the 3rd International Polychaete Conference in Los Angeles, USA in August 1989, the first having been held in Sydney in 1983. She gave a paper as well as organising a pre Conference Workshop on Polychaete Taxonomy. While in the States she visited the Smithsonian Institution in Washington as a Visiting Fellow and examined type material. She also visited Friday Harbour Marine Laboratory in Washington and gave a lecture to a Polychaete Graduate Workshop being organised by the laboratory, part of The University of Washington. In December 1989, Dr Hutchings attended a scientific meeting of The International Society for Reef Studies in Marseille, France and was elected Treasurer of this Society which publishes the journal Coral Reef.

Jim Lowry attended the Seventh International Colloquium on Amphipoda in Maine, USA. Mike Gray attended the 11th International Congress of Arachnology in Finland in 1989, presenting a paper on generic relationships in the family Filistatidae. Dr Hunt also attended the Congress in Finland where he gave a poster presentation on the structure of breathing tube openings in harvestmen. Gerry Cassis helped arrange workshops and bimonthly meetings of the Sydney based systematics discussion group "Coopers and Cladistics". Workshops were presented by Drs D. Colless, A. Kluge and R. Page.

### **Future Plans**

Immediate plans for the division include the appointment of two new Scientific Officers in the fields of Marine Invertebrate Zoology and Entomology respectively. This will strengthen the present research and information base in these crucial fields.

Systematic research in the Division, while retaining a strong environmental relevance, is to move further into the field of phylogenetic evolutionary studies in Malacology, Arachnology and Entomology. Some of these studies will be carried out jointly with the Evolutionary Biology Unit. David McAlpine and Donald Colgan are planning a new approach to the phylogeny of the higher Diptera (two-winged flies), and McAlpine has just received an invitation from a Canadian group to contribute studies of 45 families of Diptera to a major projected work on the phylogenetic relationships of the Diptera (two-winged flies).

Collection managers plan the continual updating and upgrading of collections in line with current taxonomic revisions, often in co-operation with leading taxonomic researchers.

The acquisition of the important Hickman Tasmanian arachnid collection will increase our representation from that region.

Commercialisation opportunities using the divisions taxonomic expertise are being exploited and sought.



# VERTEBRATE ZOOLOGY

**T**he purpose of the Vertebrate Zoology Section is to conduct research and provide information in the systematics, ecology and behaviour of Australasian vertebrates (fishes, amphibians, reptiles, birds and mammals) and their relatives. The Section is also responsible for maintaining and enhancing the collections of these animal groups.

## Highlights

.Publication of three books: "The Mammals of New Guinea"; "Larvae of Indo-Pacific Shorefishes", and "The Biology and Evolution of Australian Lizards".

.Establishment of the survey and conservation programme for Southwest Pacific mammals as a result of a grant from the Winifred Scott Foundation.

.Move by the Ichthyology Section to a new lab and the completion of the computerisation of the fish collection.

## HERPETOLOGY

### Highlights

.Publication of book on the "Biology and Evolution of Australian Lizards".

### Research

Allen Greer's research dealt primarily with the taxonomy of skink lizards, the ecology of dragon lizards, and limb-reduction in lizards and snakes in general.

Four manuscripts derived from earlier work by Ross Sadlier were reviewed and accepted for publication.

### Collection

Notable collection acquisitions have been: 1000 specimens from Western Australia from A. Greer's field work; 300 from Dr Craig James' (Sydney University) study site near Alice Springs; 200 from R. Sadlier's field trip in New Caledonia; and 250 from various trips to New Guinea, Solomon Islands and Vanuatu by researchers funded by T. Flannery's Scott Foundation Grant.

R. Sadlier collaborated with the Centre for Resource and Environmental Studies at ANU on a mapping project of rainforest-dependent reptile species of eastern Australia, providing specimen verification and associated data for all the species involved.

### Visitors

Professor Arnold Kluge from the University of Michigan, USA worked extensively on the sections boid snake collection over a three month period.







## **Field Work**

A. Greer led a six-week field expedition to western Australia to collect specimens for his limb-reduction studies and for his and Dr Roger Thorpe's study in geographic variation along wet/dry clines. The trip also added many lizard specimens to the general collections.

R. Sadlier (courtesy of the Winifred Scott Foundation Grant) collected in New Caledonia for 3 weeks in the least known southern areas of the island as part of an ongoing research interest in that region.

## **Visiting Fellow**

Dr Roger Thorpe of the University of Aberdeen was Visiting Fellow in the Museum for the period 25 October - 4 December. During his stay he gave a five-day course on multivariate methods which was attended by 14 Museum Staff and Research Associates; he also advised five staff on their special needs, gave a Museum seminar and accompanied A. Greer on his field trip to Western Australia.

## **Community and Museum Activities**

A. Greer's community activities involved: lectures to TAFE herpetology students; talks to Salmon Gums Primary School and the Longueville Cub Scout troop; radio interviews on cane toads, crocodilians, sea snakes and the importation of fauna; scientific advice to Australian Geographic, Reader's Digest, The Sydney Morning Herald and The Australian.

A. Greer's Museum activities included: chairmanship of the Animal Care and Ethics Committee and the Peter Rankin Trust Fund for Herpetology; associate editorship of The Records of the Australian Museum; work on the Discovery Space and Skeleton Galleries and organisation of the Museum contaminated and toxic waste procedures (with R. Springthorpe), and writing for ANH.

A. Greer also identified 280 items for Australian Customs (of which 74 or 26.7% were endangered species) and approximately 13,000 snakes skins for a commercial importer (of which approximately 23% were endangered).

R. Sadlier conducted an open lab presentation to the ACT Herpetological Society.

Herpetology hosted both a gallery (A. Greer) and a laboratory (R. Sadlier) display to the public on Museum open day.

Herpetology also supervised five work-experience students P. Bedwin, M. Campbell-Smith, A. Grandquist, D. Harrington and L. Walton.

## **Future Plans**

Allen Greer hopes to begin the research and writing of a book on "The Biology and Evolution of Australian Snakes."

## **Visitors to Herpetology**

Dr A. Allison from the Bishop Museum to discuss scincid lizards.

Ms J. Covacevich from the Queensland Museum to work on typhlopoid snakes.



Dr S. Donnellan from the South Australian Museum to discuss New Guinea herpetology.  
Dr G. Ingram from the Queensland Museum to work on typhlopoid snakes.  
Dr A. Kluge from the University of Michigan to work on boid snakes.  
Mr M. McCoy from the Solomon Islands to discuss scincoid lizards.  
Mr J. Webb from Sydney University to examine typhlopoid snakes.

## ICHTHYOLOGY

### Highlights

The Section had a major influx of visitors in connection with the Third International Conference on Indo-Pacific Fishes which was held in Wellington.

The Section has moved into new offices in the Yurong St building.

The previously unknown male whalefish of the family Cetomimidae has been discovered.

All collection data are now computerized after 15 years of work, and loaded onto a new 386 computer.

"Larvae of Indo-Pacific Shorefishes", a major book on the larvae of marine fishes was published.

### Research

Doug Hoese continued his research of the systematics of gobioid fishes. Two major papers were completed on freshwater species from New Guinea and marine species from southern Australia. Much of his research concentrated on the freshwater species of New Guinea, where a major radiation of fishes has been discovered.

Jeff Leis continued his research on the taxonomy, systematics and ecology of larval fishes. He completed a major review paper on larval biology of coral reef fishes and completed the first year of Sydney surf zone sampling. This latter project, which attracted considerable media attention, is being undertaken with S. Reader and others, and will determine what types of larvae utilise surf zones as nurseries.

Jeff was awarded a Commonwealth Department of Industry, Technology and Commerce grant for further collaborative research with French scientists, and had a collaborative ARC grant renewed for the fourth year.

John Paxton continued his studies on deep sea whalefishes with support from an ARC grant. A synopsis of the family Cetomimidae describing four new genera and species was published, as was a summary of this rare family in ANH. John Paxton and Mandy Beshaw have discovered the previously unknown male whalefish of the family Cetomimidae. Sectioning of the gonads of more than 100 specimens revealed seven males, all less than 50mm long.

Drs. Nikolai Parin and John Paxton completed a review of the gemfishes of eastern Australia. Four species of this commercially important group of fishes are now known from the east coast, where only one species was previously assumed by fisheries biologists.



## **Collection**

### **Specimens**

126 loans and exchanges of fishes were sent out (1178 lots and 3487 specimens). Approximately 3000 lots (12,000 specimens) were registered/changed: the collection now contains 100,811 lots and over 413,000 specimens. The backlog of over 1200 *Kapala* lots has been registered using trust funding. Several hundred stuffed and mounted fishes were rehoused. Relabelling of the drum collection has begun. The 2 year collection top-up programme was completed. Lighting in the annexe collection area has been improved.

### **Computerisation**

The entire collection is now computerised and all databases are now up and running on a new 386 computer. A manual was written for the computer field registration system. The package was sent to the Soviet Academy of Oceanology for trialling aboard their research vessels. The system was used on one field trip. A program was written to output a listing of specimens housed in drums. A program was written to output shelf labels for the collection. A one line printout of the entire collection has been produced and edited. All print commands and control commands have been simplified. Computer cabling has been installed from the fish computer room to the spirit house where data retrieval is now possible. A new Xenix supported cartridge tape drive was purchased.

Loan forms are now printed on 3-part computer paper resulting in significant time savings. Letters informing borrowers of overdue loans are now computer generated. Titan databases were written for specimens loaned to Fish Section scientists. A menu driven database has been written for addresses using Dbase.

### **Acknowledgement of cooperation/donations**

Dr H. Bath donated a collection of Mediterranean blennies. Mr K. Graham, Mr K. Rowling and Mr C. Moore of NSW State Fisheries donated fishes collected on FRV *Kapala* and at the fish markets. Ms G. Newton of the Bureau of Rural Resources donated a large collection of trawled fishes from South Australian waters. Mr J. Glover of the South Australian Museum donated whalefishes from the Great Australian Bight. Dr W. Ivantsoff of Macquarie University presented an important collection of atherinid fishes.

The assistance of Mr E. Fujii of Tokai Fisheries, Dr K. Matsuura of the National Science Museum, Tokyo and Dr M. Miya of the Chiba Institute and Museum is gratefully acknowledged.

### **Fieldwork**

A. Graham, J. Leis, S. Reader and T. Trnski and others sampled four Sydney beaches on a regular basis for larval fishes.

J. Leis and T. Trnski spent 2 weeks on the RV *Sunbird* in the Coral Sea collecting larval and adult fishes.

M. McGrouther travelled to Wewak, PNG to obtain a large collection of fishes from the Sepik River system.



## **Conferences**

D. Hoese, J. Leis and J. Paxton attended the Australian Society for Fish Biology annual conference and workshop on introduced fishes on Magnetic Island, Townsville. Leis and Paxton both presented two papers.

A. Gill, D. Hoese, J. Leis and J. Paxton participated in the Indo-Pacific Fish Conference in Wellington, New Zealand. All participants presented papers.

J. Leis and D. Hoese attended the American Society of Ichthyologists and Herpetologists meetings; both presented invited papers at the Symposium on Percomorph Phylogeny.

D. Brown and M. McGrouther attended the IBM computer conference held at the Museum.

## **Travel**

J. Leis examined larval fishes at the National Museum, Fisheries Division and Oceanographic Centre in Wellington, New Zealand, at the Museum of Comparative Zoology at Harvard University and at the Marine Science Laboratory at Charleston, South Carolina. Two weeks were spent collaborating on larval fish research with French scientists at the University of Perpignan.

J. Leis and J. Paxton spent time at James Cook University in Townsville after the fish conference, lecturing and conducting research, respectively.

D. Hoese travelled to the Northern Territory and Hobart for research on gobiid fishes and visited the Museum of Comparative Zoology and the Smithsonian Institution.

J. Paxton examined whalefishes at Tokai Fisheries, National Science Museum, Tokyo and the Chiba Institute and Museum in Japan.

## **Community and Museum activities**

J. Leis gave a major input of time to the Lizard Island Research Station - management, fellowships etc, and participated in a Discovery Space planning group and Museum Open Day. Seminars were presented at the University of Sydney and University of Perpignan in France.

M. McGrouther attended a two day Titan administrators course in Melbourne, was in a Discovery Space planning group and the 2 day follow up workshop, an advanced Dbase III course, attended a time management workshop, was appraised as collection manager and sat on the collection management appraisal for marine invertebrates and malacology.

J. Paxton gave lectures at James Cook and Sydney Universities, three fishing clubs, the National Science Museum and Chiba Institute and Museum in Japan, Lord Howe Island and to the NSW Fisheries Inspectors Course. Information was also given to newspapers and radio.

S. Reader gave a Seaweed demonstration, participated in the Museum Open Day, and attended a DOS course.

T. Trnski gave a Seaweed demonstration, and now edits the Australian Ichthyoplankton Newsletter.



## **Future plans**

Research on larval fishes will concentrate on systematics of lutjanids and ecology of reef fish larvae. Research on gobiids will concentrate on systematics. Research on whale fishes will concentrate on reproductive biology and osteology.

Over the last 2 years the Section has saved the museum approximately \$5000 by arranging the manufacture of a mould to make plastic inserts for Australian specimen jars, and thus avoiding the importation of jars from Japan. We aim to organise the production of inserts for 2 litre jars which are used widely throughout our collection.

## **Visitors to Ichthyology**

The Section has been visited by 21 international visitors, including the following:

Ms C. Baldwin from the Virginia Institute of Marine Science to examine larval anthiins.

Dr G. Burgess from the Florida State Museum to examine sharks.

Dr B. Collette from the US National Museum of Natural History to examine tunas and long toms.

Dr T. Iwamoto from the California Academy of Sciences (CAS) to examine deep sea rattails.

Dr D. Johnson from the US National Museum of Natural History to examine larval fishes.

Mr R. Lavenberg from the LA County Museum to examine deep sea swallowers.

Mr R. Mooi from the Royal Ontario Museum to examine prettyfins.

Dr J. McEachran from the Texas A&M University to examine sharks and rays.

Dr J. Nielsen from the Zoological Museum University of Copenhagen to examine cusk eels.

Dr B. Seret from the National Museum of Natural History, Paris, to examine sharks and rays.

Drs V. Springer and J. Williams from the US National Museum of Natural History to examine blennies.

Dr J. Tyler from the US National Museum of Natural History to examine triodontids and larval monacanthids.

### **Students:**

A. Gill - submitted his PhD thesis to the University of New England - D. Hoese supervisor

S. Rodwell - July work experience student

J. Hoops - August work experience student

Behind the scenes tours and talks for two groups of WEA students.

12 students from the University of Technology taken on tour and discussion.

## **MAMMALOLOGY**

### **Highlights**

.Establishment of the survey and conservation programme for south-west Pacific mammals.

.Progress on the conservation of Scott's Tree-kangaroo.

.Discovery of five new bat species and a new subspecies of tree-kangaroo.



## Research

Tim Flannery's book 'The Mammals of New Guinea' was published in February 1990. His research into the pademelons (genus *Thylogale*) of New Guinea has revealed that four species rather than two, as previously thought, exist. Research into extinction in the Pacific continues with the discovery of a richly fossiliferous area in the mountains of Irian Jaya. It contains the remains of previously unknown giant marsupials and may shed further light on the reasons for their extinction.

The establishment of the south-west Pacific survey has resulted already in many exciting discoveries, including five new species of bats, a new subspecies of tree-kangaroo, and the collection of much information on previously poorly-known species.

## Field Work

T. Flannery travelled to PNG in February to continue work on the conservation of Scott's Tree-kangaroo. A film crew accompanied him. They intend to make a documentary on his work. Expeditions by staff were undertaken to the Solomon Islands, Vanuatu, and Fiji as part of the south-west Pacific faunal survey.

Harry Parnaby, now working on the Pacific programme, carried out an extensive bat collecting trip to the Northern Territory and Western Australia in Sept./Oct. 1989. This work has added valuable information to our knowledge of the bat fauna of the Kimberley and the Pilbara region.

Dr Bill Dawbin (Research Associate) continued his work on the songs of Humpback Whales. The scope and significance of this research was considerably enhanced by additional information, including recording and photographs gathered by Dr Dawbin while on a four week coastal survey from Darwin around the west coast of Western Australia south to southern South Australia.

Linda Gibson assisted the staff of the Victorian NPWS with their field work in southeastern NSW looking for the rare and endangered Long-footed Potaroo. The first trip in June 1989 found conclusive proof (in the form of hair samples on a "hair tube") of the existence of this mammal in NSW.

As part of a study of the Sugar Glider and Squirrel Glider in NSW Linda Gibson carried out a trapping programme in Limeburnes Creek Nature Reserve in Northern NSW. This work is looking at the taxonomic and genetic relationships of these two species and was carried out with the assistance of researchers from the University of New England.

A three week vertebrate collecting trip was carried out by Linda Gibson in Vanuatu as part of the research funded by the Scott Grant.

## Collection

Approximately 1600 specimens were registered and incorporated into the research collection. The most notable acquisitions again were those from the Melanesian area, cetaceans and four species of Western Australian small mammals previously unrepresented in the collection. An exchange program with the British Museum (Natural History) enabled us to obtain specimens of now extinct rodents from Christmas Island and two extinct marsupial species, the Desert Rat-Kangaroo (*Caloprymnus campestris*) and the Lesser Bilby (*Macrotis leucura*).



Overcrowded conditions in the main spirit collection area precipitated the transfer of all large wet spirit specimens stored in polydrums to the tank store area. Part of the physical move involved a reorganisation of this rapidly growing part of the collection.

The four month shutdown of the collection computer has seriously delayed the incorporation of new specimen data into this system and hampered the section's ability to respond to the increasing demand by outside individuals and organisations for data printouts.

### **Conferences**

T. Flannery attended the 4th South Pacific Conference on Nature Conservation and Protected areas, hosted by the South Pacific Regional Environment Programme (SPREP) and held in Vanuatu in September 1989.

L. Gibson attended a conference on Wildlife Management held by the Australasian Society for Wildlife Management, held in Victoria in December. She also attended the Annual General Meeting and Scientific Meeting of the Australian Mammal Society held in February in Canberra and an International conference on bats held in Sydney in July 1989.

### **Community and Museum Activities**

T. Flannery was the scientist on the skeleton gallery project team. He gave lectures to 3rd year students at the Universities of Sydney, New South Wales and Wollongong, and lectured for a CAE course on evolution.

L. Gibson's general community and Museum activities included membership of the National Trusts Coastal Conservation Committee; participation in meetings of the Wildlife Rehabilitation Forum, held at Taronga Zoo, and participation on the project team for the "Endangered Species" display held in the Museum. L. Gibson also identified over 200 items for the Australian Customs Service and is a member of the Museum seminar committee.

### **Future Plans**

Contingent upon continuing support from the Winifred Scott estate, T. Flannery will begin work on the survey and conservation of southwestern Pacific mammals in Fiji, New Caledonia and Vanuatu.

T. Flannery will begin research on a book on The "Mammals of the Pacific Islands".

### **Visitors**

Dr C. Kemper from the South Australian Museum to work on marine mammals.

Ms J. Dixon from the Museum of Victoria for general discussions.

Prof J. Diamond from the University of California, Los Angeles to discuss the zoogeography of Southwest Pacific mammals.

Prof I. Hume from Sydney University to work on the digestive physiology of ringtail possums.

Dr C. Dickman from Sydney University to work on dasyurid distributions in NSW.

Mr C. Norris from Oxford University to work on the biochemical systematics of phalangerids.



## ORNITHOLOGY

### Research

Walter Boles continued his work on the Tertiary avifauna from Riversleigh, Queensland. He submitted a manuscript on the revision of *Dromaius gidju*, a small relative of the emus and cassowaries, which described new fossil material and proposed a new generic name. This paper will appear in the conference proceedings of the Society of Avian Paleontology and Evolution.

W. Boles also completed manuscripts on two other Riversleigh finds. One is a peculiar bird of prey with extraordinary mobility of the ankle joint, which presumably permitted the bird to forage in hollows and other unusual situations. The other is an early parrot, represented by the upper bill. By comparing this fossil with the bills of many modern parrots, he was able to identify it as a cockatoo—the oldest known in the world—and Australia's oldest parrot (about 20 million years old). He also found that it is possible to identify most of the major groups of parrots in the world on the basis of the upper bill alone. Several other manuscripts on fossil birds near completion.

W. Boles was invited to present a paper at the XX International Ornithological Congress summarising the role of the fossil record in understanding the origins and radiations of Australasian birds. This paper will also appear in the proceedings of the Congress.

A guide to ageing and sexing Australian birds was compiled by W. Boles for the Australian Bird and Bat Banding Scheme, covering more than 170 species. Mr Terry Lindsey, an Associate of the Museum, provided illustrations for the guide. This is now in the final production stages before publication.

Several smaller manuscripts on non-fossil birds and preparation techniques were submitted.

### Collections

Collection management activities were unfortunately all too frequently disrupted and delayed by problems outside the section's control. Consequently, a number of the curatorial goals planned for this year were not achieved. The slow replacement of the database computer and loss of the database manager meant that associated activities were not completed. An integrated program of moving, reorganising and relabelling specimens was dependent on space being made available at the Rushcutters Bay offsite storage. Other noteworthy curatorial achievements were made. Ms Lynne Albertson assisted with the relabelling and housing of the skeleton collection. Terry Lindsey registered about 25% of the recently acquired Bettington-Hyem Egg Collection. The first batch of new specimen cabinets was purchased and will be brought into the system when new offsite storage has been arranged. The spirit polydrums have (at long last) been moved out of the skin collection and working area; as part of the move, an inventory has been prepared, the specimens rehoused, and the alcohol renewed.

Large numbers of specimens were received from NSW National Parks and Wildlife Service and Taronga Zoological Park and through public and professional donations. Valuable collections were received from Museum workers in Papua New Guinea, Solomon Islands, Vanuatu and New Caledonia, including a number of species previously unrepresented.



## Field Work

W. Boles and T. Lindsey spent two weeks in the Pilliga Scrub and Mt Kaputar National Park in north central NSW. A range of valuable specimens was obtained from areas previously not represented in the Museum's collections. W. Boles invited T. Lindsey to accompany him because the lack of sectional staff necessitates involvement of outside persons before field work is possible. W. Boles and Mr Wayne Longmore, an Associate of the Museum, joined R. Sadler of the Herpetology Section for ten days collecting birds and reptiles in New Caledonia.

## Community and Museum Activities

W. Boles completed his second year as editor of *Corella*, journal of the Australian Bird Study Association. He continues on the Taxonomic Advisory Committee of the Royal Australasian Ornithologists Union, and assisted with a range of enquiries, consultations and public programs. He gave talks on his fossil work to several ornithological societies. He served on the Museum's disaster recovery team and provided information for the skeleton gallery.

These non-collection management, non-research activities now take up as much time as collection management and research.

## Future plans

Devote more time to research on fossil birds.

Attend international conference and present invited paper on fossils.

Move collections into new offsite storage.

Pursue integrated curatorial program associated with collection moves.

## Visitors

Dr C. Fisher from the Liverpool Museum to research the history of John Gilbert, early Australian ornithologist/collector, and to look for specimens obtained by same.

Dr M. Tarburton (unaffiliated ornithologist) to measure swifts (Apodidae) for the Handbook of Australian and New Zealand Birds.

Messrs I. Mason/J. Wombey from the CSIRO Division of Wildlife and Ecology to measure birds for taxonomic studies by Dr R. Schodde.

Dr P. Fullagar and Mr Chris Davey from the CSIRO Division of Wildlife and Ecology to look at geographic variation in Gould's Petrel *Pterodroma leucoptera* to determine if extra-limital breeding populations occur in Australia as vagrants.

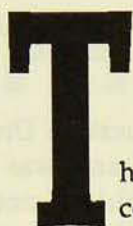
Mr S. Edwards from the University of California, Berkeley to study population genetics of the Grey-crowned Babbler *Pomatostomus temporalis* across its Australian and New Guinean range.

Dr A. Keast from Queens University for general discussions.

Mr H. Ehmann to pursue an enquiry into the functional significance of the swollen cere region of the Night Parrot *Geopsittacus occidentalis*, particularly in regard to the presence of a salt gland.



# COMMUNITY RELATIONS



he Museum's public profile continued to increase this year through the combined actions of Community Relations.

The role of Community Relations is to present the Museum as a place for enjoyable learning experiences and a leading centre for scientific research. Several new exhibitions proved to be very popular and information regarding our natural environment and cultural heritage continued to be sought by both media and the general public.

## **Australian Natural History**

The past year has seen ANH magazine grow from strength to strength. For the third consecutive year, ANH has won the Royal Zoological Society's Whitley Award for Best Periodical. The magazine also shared first place in the Media & Education category of the 1990 Australian Heritage Awards.

Production of the magazine has been improved through the purchase of additional computer equipment and the facility to typeset directly from computer disk has further streamlined the process.

The current format has been met with great enthusiasm from subscribers and with a new subscriber database and subscriptions hotline, circulation is simpler and more efficient.

## **Future Plans**

Further computerisation and the implementation of marketing priorities should ensure a strong future for ANH.

## **Museum Shops**

The shops returned a high level of profit during the last financial year, with the quality of products and their presentation being a significant factor.

For exhibitions such as "Dinosaurs Alive" and "Taonga Maori" related merchandise was introduced. The large number of visitors to "Dinosaurs Alive" resulted in record shop sales for the period.

During the past year the original policy of launching books in the shop was resumed. Barbara Leigh's 'Hands of Time' and Mary White's 'Muttaborrasaurus' were both launched at the Museum.

## **Public Relations and Promotions**

The Museum's changing profile was reinforced throughout the year, through the combined efforts of the Public Relations and Promotions sections.

The temporary exhibition space, which opened as part of the 1988 extensions, has provided a venue



for large and small exhibitions which have given the excitement of new challenges to Public Relations and Promotions.

Apart from achieving record media coverage, together with the Education Division the section established on-going relations with the Sydney Maori community and was involved in the organisation of Sydney's first Dinosaur Picnic. This successful and popular event will be repeated in the future.

### **Records of the Australian Museum**

During the past year Records Volume 41 Numbers 2 and 3, Volume 42 Numbers 1 and 2, Supplements 11 and 12 and Technical Report 2 were published, representing a total of 706 pages. The issues contained 15 zoological papers, two palaeontological papers, eight anthropological papers, two zoological monographs and one zoological key. Australian Museum scientists published almost one third of the papers and the rest were by Australian and overseas scientists.

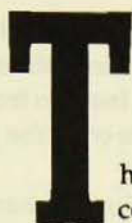
Volume 41 Number 3 was dedicated to anthropological studies primarily associated with the Lapita-period burial ground at Rakival Village, on Watom Island. These papers included analyses of skeletal remains and discussions of burial practices, and represent a major contribution to the understanding of the Lapita people and their culture.

Many new taxa were described including one new subfamily, seven new genera, 38 new species and two new subspecies. Other published papers in Records included sperm morphology in barnacles (Dr Jim Healy, University of Queensland and Prof Don Anderson, University of Sydney), amphipoda from the Cook Islands (Dr Alan Myers, University of Cork) and a new species of devonian trilobite (Dr Tony Wright, University of Wollongong and W. Haas, Institut fur Palaontologie, West Germany).

The Supplement series contained two major fish revisions. Dr John Gunn (CSIRO, Hobart) revised the Australian carangids (trevally, mackerel), recognising 63 species in 23 genera. Dr Ed Murdy (Smithsonian Institution) submitted a revision and cladistic analysis on a subfamily of gobies, recognising 34 species in ten genera.



# C O R P O R A T E   S E R V I C E S



he FINANCE Section is responsible for the general financial and accounting services of the Museum.

The year has been one of consolidation and achievement with full accrual accounting being adopted for annual reports and the payment of creditors being more timely. Opportunities were also given to most of the staff to improve their skills level by training courses and by acting in other positions.

The Section is now moving towards acquiring and using new accounting computer software that is compatible with accrual accounting and will assist in providing more meaningful management information.

Management of the Museum's vehicle fleet, ordering and issuing of stores items, and the printing of general stationary items, continued to be effectively undertaken through the Museum Store.

## HOUSE SERVICES

Electronic monitoring of fire detection and security system surveillance systems were upgraded, including the installation of computerised Closed Circuit Television Cameras in the Galleries. A consultant undertook a review of cleaning and following discussions with cleaning staff and unions, revised cleaning arrangements are being undertaken on a trial basis.

## HUMAN RESOURCE SERVICES

The most significant achievement this year was the purchase of a computerised Human Resource and payroll package, which has allowed us to set up an in-house salaries function. The Museum will be paying staff from the first payday in July 1990. Leave records and information will also be entered into the system from the end of 1990. The Museum is one of the first government organisations to fully use this system.

Other uses of the system, such as job evaluation and training cost statistics, will be investigated. We will also be reviewing and improving reports on salary costs to provide Project Managers with accurate, timely and understandable information.

The staff development program has continued, with emphasis on management, Public Contact Skills, and Communication Skills training. Special courses were held in Media Training, presented by Chris Nash of University of Technology, and Stress Management. In March an intensive two week program of basic computer and word processing training was held in the Museum, organised in conjunction with the Network Manager. Eighty-two Museum staff were trained in MS-DOS, WordPerfect (introduction and advanced), and WordPerfect Office. It is anticipated that this training will be expanded.

## PHOTOGRAPHY

The Photography Section provides a comprehensive photographic service to all Museum Divisions. Material held in the section includes original colour transparency and black and white images for



galleries, research, publications, collection documentation and publicity. The Section also provides an image library service, drawing on a large collection of archival and recent photographs of fauna, the environment and indigenous peoples of Australia and the Pacific. Income from image sales to publishers and researchers has continued to grow, with a 40% increase over the previous year.

This year's activities were dominated by a refit of the Section. The studio, office and storage spaces were expanded through the construction of a mezzanine, and the studio and darkroom spaces were rationalised. Full services were maintained from temporary spaces within the Museum for a period of six months. The past six months has seen an improvement in the quality and output of work, as well as staff morale, as space utilisation has been maximised and dedicated work areas determined.

This was also the first full year of operation of a computerised internal job control system, successfully providing a method of monitoring work flow, an accurate assessment of output, and financial reporting.

Other achievements have been:

The introduction of a computer based image registration system, and phasing out of the use of manual registers. This achieves the dual aims of providing legible records, and a fast method of image retrieval by subject description.

Use of a specialised low-contrast duplicating film for gallery documentation, always a problem due to the types of lighting often used.

A method of producing archivally stable 25mm negatives and positives from lantern slides in the NPIAW collection, identified as being of scientific significance.

The Section's knowledge and experience in photography conservation was further increased by Ric Bolzan's attendance at a five day intensive workshop.

With the addition of Dennis Cousins, the Section now has four volunteers performing a valuable service by assisting with cataloguing and other collection-based tasks.

## PROPERTY SERVICES

Preparations were undertaken for the handing over of responsibility to the Museum for the ongoing maintenance of the Museum building complex on 1 July 1990. Until this date, funding and control of maintenance has been with the Department of Public Works. Ongoing negotiations have been held with the Ministry for the Arts and Public Works Department to ensure that appropriate resources are provided to the Museum in order that the building can be maintained to a satisfactory standard.



# EDUCATION DIVISION

**T**he Education Division supports the Museum's stated mission through programs that communicate its ideas, concerns, scientific knowledge and research interests to the community.

It conducts activities within the Museum, in rural areas and through its publishing program. Those activities are designed to meet the needs of visitors, schools, tertiary students and adult learners.

The emphasis is towards making the Museum an exciting and relevant experience for people who visit our exhibitions.

## Highlights

Extended programs for visitors.

Professional conference on Future Directions in Computer Use for museums and cultural organisations.

Move into commercial activity.

Programs for schools, teachers and tertiary students.

Open Day, holiday programs and a Dinosaur Picnic.

W.E.A. lecture program.

Innovative developments for the Discovery Space.

Highly successful "Museum on the Road" season.

## Programs

### Education Programs

Our program has broadened in the past year to include a much greater emphasis on inservice and training for teacher and tertiary groups with staff being involved in running and organising seminars and courses. Environmental and science education have been the focus of many of these. Staff were frequently involved as advisors or presenters in courses and seminars. The Division also ran a two-day conference, sponsored by I.B.M. on the use of computer technology in museums and other cultural institutions.

During the last year some 95,000 students visited the Museum through our Schools Program, (including visits to special exhibitions). The 'Dinosaur' and 'Investigating Animals' rooms were completed and with the 'Aboriginal Australia' room, we now have three very successful activity rooms. Senior classes created a heavy demand on staff for lessons on Evolution with the 'Tracks through Time' gallery providing an invaluable resource for these students.



EDUCATION DIVISION

All our programs are supported strongly by volunteer staff who make a major and essential contribution.

An environmental competition for schools was initiated by the Federal Government as part of its Programs of National Significance. The Australian Museum and the ABC are working with DEET to promote and run this national competition. The national judging and display of entries will be held at the Museum.

A pilot program which has converted the Education library collections onto the Australian Bibliographic Network has been completed. The entire collection has been recatalogued and is accessible through microfiche.

Education staff were involved in exhibitions - Ancient Macedonia, Taonga Maori, Dinosaurs Alive and Prohibited, and have an ongoing commitment to the new Skeleton gallery and Discovery Space project teams.

The Wandervan program ended in December 1989. Substitute activities have been developed.

#### **Education Products and Services**

In February of this year each school in NSW received a poster of calendar events at the Museum. Due to the successful contact with schools over 300 teachers attended Open Night in April.

Over the next two years we plan to extend our commercially based products and services. We have organised the writing of support materials for the Museum galleries and at present we are liaising with publishing companies to produce new products.

Together with Community Relations we have created a package of tours of the Museum for inbound tour groups. In August this year we will have a return visit of 800 students from Bunri High School, Japan, a successful yearly event.

#### **Resource Services**

This year, for the first time, we have four Museum On The Road exhibitions in country N.S.W. and one in the Metropolitan area. They are 'Arid Australia', 'Mammals in Australia', 'Aboriginal Australia', 'Papua New Guinea - The Abelam People', and 'Life in the Sea'. Together with staff from Exhibition Division we have also redesigned the train exhibition 'What on Earth?' into a MOTR format. It is currently on display at the Newcastle Regional Museum and next year will form the basis of our Regional Galleries program.

In the past year we have concentrated on exhibiting in small country towns that are often not serviced in this way. Despite this, over 200,000 people visited these exhibitions, a 30% increase on last year. Our evaluation shows that in smaller country centres a much greater proportion of the population attends the exhibitions than do so when we visit larger centres. Almost 900 teachers attended inservice sessions run by our Education Officers.

During this year we have been busy repairing and replacing the loan cases damaged in the fire that occurred early in 1989. We now have a full complement of boxes again with a fireproof compactus storage system in place. Despite the fire, our re-organised program made over 450 loans of specimen



cases to schools throughout N.S.W. This was a major increase on the previous year. Some 600 classes also used our large "hands-on" boxes that accompany Museum on the Road. A new series of boxes on molluscs is being developed and a box completed on human evolution for senior high school.

The renovated preparation area was completed early in 1990. Since then new interactives have been produced for the Dinosaur, Aboriginal and Australian Animals activity rooms. The new school program has led to a greater involvement of preparation staff in design and building of activity centres.

### **Visitor Services**

During 1990 a co-ordinated and expanded program of holiday, weekend and special events activities was conducted. The large scale January school holiday program was a great success and attracted over 38,000 visitors to the wide range of activities - tours, films, performances, workshops, activity sessions, talks and demonstrations involving both Museum staff and community groups. This program was closely evaluated, and the results have been used to develop activities for subsequent holiday programs.

A program of six lecture series and fieldtrips has been successfully trialled with W.E.A. in 1990. It is planned to expand the number of lecture series, fieldtrips and workshops conducted by Museum staff next year.

During this financial year the Museum Guides joined the Education Section and this has given a new flexibility to gallery programming. The new volunteer intake is undergoing an extensive training session and will soon join the fully trained professional team of 50 Education volunteers.

To celebrate the opening of "Dinosaurs Alive", the Education Division together with Community Relations organised a childrens' Dinosaur Picnic in Hyde Park. This attracted over 5,000 people with performers, musicians, competitions and kids activities entertaining the crowds. The response to "Dinosaurs Alive" was overwhelming with over 161,000 people visiting the exhibition in the first three months.

As part of Museums Week '90 the Museum held an Open Day focussing on our environmental research and services. Over 10,700 visitors enjoyed the "behind the scenes" tours and gallery activities run by scientific staff, the talks and tours, performances and children's activities. Because of its success it is planned to include an Open Day as an annual focus of Museums' Week.

The Discovery Room has been successfully operating for four years now, and this year attracted over 4,500 booked school students, plus many more visitors on weekends and holidays. The Room closes in December 1990, to make way for the new expanded environmental Discovery Space.

### **Professional and Community Activities**

Staff have continued their traditional involvement with professional associations and activities.

Greg Ebeling, Alan Watterson, and Anne Skates have made sound contributions to tertiary training and state curriculum development activities. Carolyn MacLulich was elected to the position of Treasurer of the Museum Education Association of N.S.W. in January 1990.



Greg Ebeling, David Millar and Alan Watterson have participated in community fairs and celebrations this year - taking the Museum out to the streets. These days have drawn large crowds of people and are seen to be an important way of communicating our message.

### Future Plans

Major projects in hand are the Discovery Space, the Investigation Centre, and a new Museum on the Road exhibition.

We are investigating new models for the Museum in a Box program in order to further extend its use to country schools.

The holiday, weekend, adult education, special event programs are being expanded to take account of our wider audience.

The role of our volunteers and explainers in the galleries is being extended to provide a wider range of experiences for visitors.

### Figures at a glance 1989-1990

Program	Users
Daily Tours and Gallery Interpretation	93,000 visitors
Museum On The Road	210,000 visitors
Open Day	10,722 visitors
Dinosaurs Picnic	4,869 visitors to "Dinosaurs Alive"
School visits	95,000 students
Teachers and tertiary students	1,281 participants
Special Tours and events	16,000 visitors
Wandervan	3,210 participants
Work experience	126 students
Museum-in-a-Box	31,500 students
School Holiday Visits	January 52,700 visitors April 66,460 visitors



# EXHIBITION DIVISION

**T**he Exhibition Division is responsible for providing stimulating exhibitions that give visitors an understanding of the natural environment and their cultural heritage.

This division also shares the responsibility for maintaining pleasant facilities of high standard for all visitors.

## Highlights

- .Taonga Maori
- .Prohibited
- .Dinosaurs Alive
- .Museum Snack Bar
- .What On Earth?
- .Designers group formed

### **Taonga Maori, Treasures of the New Zealand Maori people**

Taonga Maori opened at a special dawn ceremony on Sunday October 1st, 1989. Apart from the many new and exciting developments brought by this exhibition, the managerial role taken by the Division was a first.

The subtle, low key ambience created in the exhibition presentation hides a very practical and well engineered travelling exhibition system, designed by Bodo Matzick for ease of transportation and simplicity of installation.

Taonga Maori was possibly one of the largest exhibitions by volume to tour Australia. The three State tour was organised entirely by the Museum, using in-house expertise under the direction of Ross Clendinning, Exhibitions Touring Manager. The exhibition closed in Sydney on January 7th, 1990 and proceeded to Melbourne then Brisbane, concluding on July 15th 1990.

### **Prohibited - The Wildlife Trade**

With a fanfare of lively television coverage this exhibition opened on February 11th and was on show until March 11th, 1990. Wildlife specimens, grotesque objects and macabre manufactured articles were displayed in conjunction with the Australian Customs Service. Glenn Ferguson was the Project Manager.

### **Dinosaurs Alive**

Eight robotic dinosaurs, emitting terrifying roars enthralled a quarter of a million visitors from April 1st to an extended closing date of August 12th, 1990. On loan from the National Science and Technology Centre in Canberra, the animated replicas were augmented by skeletal material from the Museum's collections, and from other sources. The project was managed by Bodo Matzick and associated graphic materials were designed by the Exhibition Division.



### **The New Snack Bar Facility**

A diversity of food outlets was made possible by the opening of the new Snack Bar in March 1990. The facility extends the range of services available and makes a welcome forty seat addition to visitor requirements.

### **"What on Earth"**

With the termination of NSW Government support for the Australian Museum Train the contents of this popular extension service were remounted into a travelling exhibit to join the Museum on the Road (MOTR) program. The exhibition was re-cased in specially designed freighter boxes, which form part of the exhibition presentation. It commenced at the Newcastle Regional Museum for twelve months, before touring to other regional centres.

### **Designers' Group**

The Australian Museum was host for the first "Designers for Heritage" meeting on 18th May, 1990. Thirty designers, from the State's heritage institutions met to form a professional group that will extend communication and ideas between institutions. A second meeting was held in June, when a committee was elected to further the aims of the group during the year.

### **Future Plans**

- .New Skeleton Gallery opening September 1990
- .New Discovery Space opening December 1990
- .Planning another MOTR exhibition
- .Marine and Terrestrial Environment exhibitions
- .Exciting travelling exhibition program
- .Major changes due to Structural Efficiency Program

### **Significant Visitors**

George MacDonald - Director, Museum of Civilisation, Canada  
Leslie Patten - Royal Ontario Museum, Canada  
Ralph Applebaum - Applebaum & Associates, New York, USA.  
Phillip Cox - Phillip Cox & Associates, Melbourne, Vic.



# INFORMATION SCIENCE

**T**he Information Science Division, established at the end of June 1989, links in an interactive manner, the broad areas of Information, Management and Technology. In practical terms, it links both the Library and the Computing Section within the context of the full range of museum operations, and thus with the full resources of these operations.

Information must be identified, obtained or accessed, processed, stored, retrieved, manipulated, analysed, costed, packaged, presented and disseminated, and it is within this division that we attempt to do this with the specialised information data bases and other information resources both created and accessed by the Museum.

Together, both sections are working towards the development of other data bases, services and products to meet the needs of the Museum and its constituents.

## Highlights

- .Completion of Computer Aided Records Management (CARMS) Project
- .Stabilisation and enhancement of Local Area Network
- .Preservation programme priorities completed
- .Archives and Rare Books - preservation and documentation developments
- .CARMS project completed
- .Developments in data base searching
- .Cataloguing developments on the Australian Bibliographic Network

## Archives and Rare Books

The first stage of our preservation programme for Archives and Rare Books has been completed. Fifty-six volumes of the Museum's letterbooks, dating from 1837, have been microfiched, before further physical deterioration takes place. The microfiche copies will be available for general use. In addition, acid free phase boxes have been constructed for about 60 items from the library's main collection of Rare Books, and from the Ornithology, Mammalogy, Malacology and Mineralogy Sectional Libraries.

Other developments in Archives include:

All of the Archives backlog has been accessioned and the material is now fully accessible.

The 3rd edition of the Archives Guide has been prepared and is ready for publication. This will be updated by annual supplements.



There has been a large increase in the amount of material being donated to the Archives. This is partly due to the relocation of sections within the Museum, but perhaps also due to the greater awareness among staff of the importance of the Archives as a result of the records surveys project undertaken by Library staff in the Scientific and Administrative Divisions.

While the overall use of the archives remained about the same during 1989-90, there was a large increase in the number of visitors using the archives and in the number of mail queries. This is largely the result of the distribution of the Archives Guide and the generally higher profile of the archives and library.

### **Records Management**

During the latter part of 1989, responsibility of the Administrative Records of the Museum was transferred to the Library. A Records Manager / Archivist was employed to bring the Central Records System to a fully operational Information Service, using the automated records management system CARMS, already on the Museums' Local Area Network. This project was completed, along with full documentation and training in May, 1990. The further development and maintenance of this data base is an ongoing priority.

### **Data Base Searching**

During the last year there has been an increased demand for data base searching. (We are able to access over 600 local and overseas data bases). From an average of one search request per week, we are now doing two data base searches per week. In addition, for some staff members, search profiles are electronically saved and regular updates (in hard copy and on disk) are provided. From 1989, data base searches are available, for a fee, to non-Museum staff researchers.

### **Cataloguing**

The Education Section Library has been completely re-catalogued onto the Australian Bibliographic Network, and the section now has a microfiche library catalogue.

The services offered by the Australian Bibliographic Network have been exploited fully, with it being heavily used for bibliographic searches and document supply.

## **COMPUTING SECTION**

### **Local Area Network enhanced and stabilised**

#### **Training for users**

The Local Area Network in the Museum was finally stabilised after a longterm series of problems which had started to undermine confidence in the System. As well, the system was enhanced and may now be described as a 3 COM 3+ Open, LAN Manager network. As part of the overall enhancement programme, a number of XT's on the network were replaced by AT's, and a more sophisticated laser printing facility added to the system. The network was also extended to new areas of the Museum - e.g. Staff Office and Finance. There are 50 network stations, all of whom can



share information and the word processing, electronic mail, and data base facilities offered by the network.

### **Training**

In conjunction with the Staff Development and Training Section, courses in DOS, Word Perfect and Network use were run for Museum staff. Sixty staff attended these courses, which will be run as part of an on-going programme.

### **FUTURE PLANS FOR THE DIVISION**

Development of a Museology data base

Development of an Environmental Current Awareness Programme for staff, which will monitor trends and issues of community concern

Development of the Museums' Management Information System

Development of new collection related data bases



# LIZARD ISLAND RESEARCH STATION

**T**he Lizard Island Research Station is a facility dedicated to supporting research into all aspects of the biology, geology, hydrology, history, management and conservation of the Great Barrier Reef.

Accommodation for up to 16 people, boats, diving equipment, a running seawater system and air conditioned laboratories are available on the reef to support scientists and students with research and educational interests in the tropical marine environment. The station's 14 metre catamaran plies the waters north to Papua New Guinea and south to Gladstone, assisting in a variety of research programs.

## Research Activities

Geologists visited the Station to conduct studies on beach rock sediments, growth and distribution of oolitic sediments and the controls on deposition of hybrid arenites.

## Lizard Island Fellowship

This year saw the 8th Lizard Island Doctoral Fellowship awarded to Campbell Davies of the Department of Marine Biology, James Cook University, Townsville. His project title is "The use of mark-release-recapture methods to study the demography of large reef fish on the Great Barrier Reef". Campbell's work concerns commercially valuable fish species such as coral trout and emperors, and will provide data needed for effective management of these resources.

## Volunteers

We would like to thank the following people who volunteered their time to help improve the facilities of the station and to assist with scientific research.

S. Bassham (USA), H. Brown (USA), A. Cerneaz (Aust.), K. Diele (W. Germany), A. Hannig (W. Germany), O. Hansen (Denmark), R. Heykes (W. Germany), J. Lutze (W. Germany), L. McCann (USA), M. Meekan (Aust.), C. Mohn (W. Germany), U. Meischner (W. Germany), D. Quamme (Canada), S. Uthicke (W. Germany) and M. Witt (W. Germany).

Their assistance, equivalent to over 300 full-time work days, has made the station a better place in which to work and live.

## Tours

The station tours remained popular, attracting over 2000 people during the year. Most of the visitors were passengers from the MV *Noel Buxton*, MV *Queen of the Isles* and MV *Spoil Sport* with others coming from the MV *Nimrod*, the Lizard Island Lodge, yachties and campers.

## Future Developments

- .Increase scientific research and the educational use of the station
- .Improve safety standards through the replacement of the oldest dinghies
- .Improve scuba filling facilities
- .Build a well-ventilated wet lab
- .Expand accommodation available for users







# MATERIALS CONSERVATION

**T**he 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.

## Highlights

- .Taonga Maori Exhibition opened
- .Museum Disaster Plan prepared
- .New permanent staff

## Taonga Maori

The Division has been actively involved in the production of this exhibition from its conception to its arrival in the Museum and its relocation at the Melbourne and Brisbane venues. Staff have worked with the New Zealand, Melbourne and Brisbane conservation teams to courier, pack, condition report and assist in placing the items on exhibition. Four members of staff have been involved with this most exciting project.

## Museum Disaster Plan

A Museum Disaster Plan has been developed and implemented to assist in the rapid recovery, treatment and protection of the Museum's collections in the event of a natural or man-made disaster. A number of training sessions on salvaging wet or waterlogged material have been conducted for the benefit of collection managers. Stores of emergency equipment and supplies have been obtained.

## Research on Atmosphere Fumigation

Research is continuing on the use of low oxygen atmospheres as a fumigation technique for the control of insect infestations. Studies on a number of common museum pests - drugstore beetle, carpet beetle, clothes moth and cigarette beetle have yielded promising results. Pilot studies have commenced using Ageless, a commercial oxygen scavenger, as a practical means of generating low oxygen atmospheres for the treatment of museum objects.

## Research on Painted Artefacts

Research has commenced on the development of new consolidative techniques for the treatment of powdery pigments on Aboriginal painted wooden objects. The painted surface on many Aboriginal artefacts in the Museum's collections has become powdery with the subsequent loss of considerable surface detail. Little information exists regarding the technology and conservation of Aboriginal artefacts exhibiting this phenomena. Experimentation has aimed at determining the most suitable



adhesive for consolidating the powdery pigment without damaging or altering its physical appearance.

### **Anthropology Relocation**

The move of the Anthropology collections into the new storage areas is nearing completion. The Division has been manufacturing transport and storage systems for the safe relocation of the artefacts. This year alone the support systems for over 1000 artefacts were constructed.

### **Conservation of Collections**

Treatment has commenced on a number of rare Marind Anim objects from Irian Jaya. The ornate costume pieces are prepared from sago spath with resin holding intricate seed designs. Treatments are being researched to find an effective adhesion method for the seed/resin system.

Treatment has been carried out on a group of recently acquired, painted Aboriginal objects which were affected by mould growth. This treatment has generated information about acrylic painted surfaces and has led to an investigation into new cleaning methods, particularly the use of enzymes for the removal of mould debris and its associated staining.

Work has also commenced on the Lake Nitchie necklace found in association with an Aboriginal burial site at Lake Nitchie, NSW. The necklace consists of 159 Tasmanian devil teeth, many of which are badly deteriorated and require a new support system for storage.

Volunteers have completed the conservation of six items of convict clothing that are now on permanent loan to the Port Arthur Museum, Tasmania.

### **General**

Sue Walston retired from the Australian Museum after serving 20 years as Head of the Materials Conservation Division. Mark Gilberg, Karen Coote and David Horton-James shared the duties of Acting Head. Three new permanent members of staff, Colin Macgregor, Graeme Scott and Penny Edmonds, were appointed bringing the Division for the first time to its full complement of staff. Margaret McCord joined the Division as visiting conservator for one year. She was previously Head of Organics Conservation at the British Museum. Sue Gatenby was awarded a scholarship by Esso Australia to attend a course on the Consolidation of Ethnographic Painted Objects at the Getty Conservation Institute in Los Angeles. The employment of Alex Roach, a certified pest control operator, has greatly added to the Division's ability to provide a suitable pest control service for all collections. Graeme Scott and Sue Gatenby are currently enrolled as Masters students at Canberra University in the Conservation department.

### **Future Plans**

- .Complete computerisation of records
- .Publish results of controlled atmosphere fumigation research
- .Assess environmental storage conditions of natural history collections
- .Publish interim report on the conservation of resinous material
- .Lecture and consult as part of the Museum's fund raising program



# NATIONAL PHOTOGRAPHIC INDEX

## OF AUSTRALIAN WILDLIFE

**T**he N.P.I.A.W. is an expanding archive of colour photographs of the mammals, birds, reptiles and frogs of Australia, maintained as a reference to supplement the Museum's collection of preserved specimens, as a source of illustrations for publishers and authors, and as the basis of richly illustrated books produced by the Index itself. An Historical Collection curates a large collection of glass negatives and lantern slides, mainly of birds.

### Highlights

The final text of an encyclopaedia, *The Complete Collection of Australian Animals*, by R. Strahan, T. Lindsey, H. Ehmann and M. Tyler, was delivered to the publisher. Volume I, Mammals and Birds is due to be published in 1991; Volume II, Reptiles and Frogs, in 1992.

Nearly 800 photographs were provided to newspapers, magazines, television channels and book publishers.

The number of photographs of reptiles and frogs in the collection exceeded 6,000.

Most activity during the year was associated with the preparation of material for publication, provision of photographs to publishers, and searching for rare photographs of the last 5% of species required to complete the coverage of the collection, which now comprises more than 30,000 transparencies. A collection of photographs of Australian environments has been started.

The Historical Section, staffed entirely by volunteers, has been largely involved with cataloguing the collection. Mr E.L. Carthew, Honorary Archivist and head of the Section, has been appointed an Associate of the Australian Museum.



# THE AUSTRALIAN MUSEUM SOCIETY

**T**he purpose of the Australian Museum Society is to promote a greater knowledge of and concern for the environment, to encourage a community interest and involvement in the work of the Museum and to use its influence in assisting the development of the Museum.

## TAMS AND THE ENVIRONMENT

Environmental science has never been so important or of such concern as at the present. The Society, through its Science Super Series lecture program, brought to Australia some of the world's foremost environmentalists to address its members and the public. Professor Paul Ehrlich and Dr Sergei Kapitza both spoke to capacity audiences in Sydney.

In addition to this international series, the Society's lecture program again emphasised its commitment to environmental consciousness, and included some of Australia's most eminent scientists and environmentalists whose lectures took such provocative titles as 'The Dangerous Game of Greenhouse', 'Environmental Responsibility and the Silent Scientist', and 'Living in a Warmer Australia'.

The Society also undertook a co-operative venture with the Museum in the Environment 90 exhibition at Darling Harbour, the focus of which was the Museum's current environmental research program.

## TAMS TOURS THE WORLD

The Society's tours program, both overseas and local, continued to be very much in demand. The most popular tours were the archaeological dig in West New Britain, a Borneo tour, and perhaps the most spectacularly successful, a wildlife tour of Zimbabwe and Botswana. Unfortunately, the pilots' strike forced the cancellation of the Frazer Island Whale Watch, but Carnarvon Gorge and Lake Eyre were two excellent tours affording members the opportunity to discover remote areas of Australia, and the Society once again took a small group to the Australian Museum's Lizard Island Research Station on the Great Barrier Reef.

## HIGHER LEVELS OF MEMBERSHIP

The Society's corporate membership program expanded to include breakfasts and cocktail parties designed to introduce the executives of major companies to the Museum. Many companies have responded positively, so that the Circles of Natural History continued to develop.

## THE WORLD FEDERATION OF FRIENDS OF MUSEUMS

The Society was represented at the VII International Congress of the World Federation of Friends of Museums, held in Cordoba, Spain, thus furthering its valuable association with this international body.



## MEMBERSHIP INCREASES

Membership again increased to a satisfactory 7,000, assisted by a direct mail program which targeted dentists and the legal profession, and media advertising in both local and national newspapers. An increased and diversified program led to the employment of an additional staff member.

## VOLUNTEER ASSISTANCE

The Volunteer Co-ordinator selected and placed, in almost every department of the Museum, well over 200 volunteers, without whose assistance the work of many departments would suffer.

## THE FUTURE

Both a market research survey and long-term corporate plan will assist the future development of the Society.



# F I N A N C E S

## AUDITOR - GENERAL'S CERTIFICATE

### AUSTRALIAN MUSEUM TRUST

The accounts of the Australian Museum Trust for the year ended 30 June 1990 have been audited in accordance with Section 34 of the Public Finance and Audit Act 1983.

The previous audit opinion referred to the non inclusion of the Museum's collections, land and buildings (with the exception of recent additions) and the employer's liability for superannuation. The current year's financial statements and notes thereto satisfactorily address these issues.

In my opinion, the balance sheet, income and expenditure statement and funds statement, read in conjunction with the notes thereto, comply with Section 41B of the Act and exhibit a true and fair view of the financial position at 30 June 1990 and the transactions for the year then ended.



**K.J. Robson, FCPA**  
Auditor - General of New South Wales

Sydney  
19 October 1990



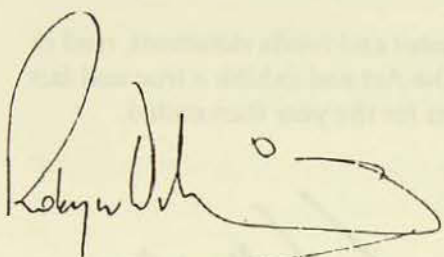
**AUSTRALIAN MUSEUM TRUST**

**STATEMENT IN ACCORDANCE WITH SECTION 41B(1)(f)**

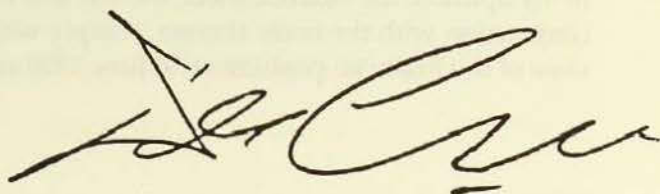
**OF PUBLIC FINANCE AND AUDIT ACT, 1983**

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 1990
- b. The financial statements have been prepared in accordance with the provisions of the Public Finance and Audit Act, 1983 and the Public Finance and Audit (Statutory Bodies) Regulation 1985 and the Treasurer's Directions; and
- c. We are not aware of any circumstances which would render any particulars included in the financial statements to be misleading or inaccurate.



**R WILLIAMS**  
**PRESIDENT OF THE TRUST**  
August 1990



**D J G GRIFFIN**  
**SECRETARY OF THE TRUST**  
August 1990



**AUSTRALIAN MUSEUM TRUST**  
**BALANCE SHEET**  
**30 JUNE 1990**

1989 \$		NOTE 1	1990 \$
	<b>CURRENT ASSETS</b>		
100,869	Cash on hand and at Bank		594,483
676,833	Receivables	9.1	124,849
181,924	Inventories	9.2	207,562
<u>91,062</u>	Investments	9.3	<u>119,130</u>
<u>1,050,688</u>	<b>TOTAL CURRENT ASSETS</b>		<u>1,046,024</u>
	<b>NON CURRENT ASSETS</b>		
17,098,121	Property	10.1	32,732,010
862,030	Plant and Equipment	10.2	1,004,555
1,690,865	Deferred costs - Exhibitions	10.3	1,463,186
1,416,197	Employee Leave Entitlements	10.4	1,622,740
	Owing by State Treasurer		
	Collections, Works of Art,	10.5	1
	Specimens and Other Acquisitoins		
<u>21,067,213</u>	<b>TOTAL NON CURRENT ASSETS</b>		<u>36,822,492</u>
<u>22,117,901</u>	<b>TOTAL ASSETS</b>		<u>37,868,516</u>
	<b>CURRENT LIABILITIES</b>		
679,390	Creditors and Accrued Charges		502,981
159,728	Bank Overdraft		7,029
<u>56,433</u>	Grants Received in Advance	11.1	<u>278,324</u>
<u>895,551</u>	<b>TOTAL CURRENT LIABILITIES</b>		<u>788,334</u>
	<b>NON CURRENT LIABILITIES</b>		
1,416,197	Employees Leave Entitlements	12.1	1,622,740
75,000	Advance - State Treasurer		2,000
	Treasury Loan		<u>200,000</u>
<u>1,491,197</u>	<b>TOTAL NON CURRENT LIABILITIES</b>		<u>1,824,740</u>
<u>2,386,748</u>	<b>TOTAL LIABILITIES</b>		<u>2,613,074</u>
<u>19,731,153</u>	<b>NET ASSETS</b>		<u>35,255,442</u>
	<b>CAPITAL AND RETAINED EARNINGS</b>		
19,817,081	Assets Acquired Free of Capital Liability	13.1	35,322,381
<u>- 85,928</u>	Accumulated Deficiency	13.2	<u>- 66,939</u>
<u>19,731,153</u>	<b>TOTAL CAPITAL &amp; RETAINED EARNINGS</b>		<u>35,255,442</u>



**AUSTRALIAN MUSEUM TRUST  
INCOME AND EXPENDITURE STATEMENT  
FOR THE YEAR ENDED 30 JUNE 1990**

1989 Total		Note	Consolidated Fund	1990 General Purposes Fund	Specific Purposes Fund	Total
		1	\$	\$	\$	\$
<b>INCOME</b>						
	State Government	2				
10,142,904	Recurrent Services		10,518,414			10,518,414
300,000	Endowment			200,000		200,000
350,000	Subsidy			350,000		350,000
38,208	Bicentennial	3			304,602	304,602
282,735	Trading Operations - Shop	4.1				
834,199	Trading Operations - Other	4.2		448,865	190,687	639,552
885,640	Other	5		150,359	683,840	834,199
	Net Income from:					
2,351	Museum Foundation	6			402,729	402,729
69,551	Australian Museum Society	7			38,259	38,259
1,509	Peter Rankin Fund				-135	-135
<b>12,249,129</b>	<b>TOTAL INCOME</b>		<b>10,518,414</b>	<b>1,502,725</b>	<b>1,619,982</b>	<b>13,641,121</b>
<b>EXPENDITURE</b>						
3,757,740	Administration & General		4,379,783	207,503	2,213	4,589,499
1,097,662	Community Relations		611,257	482,845	137,168	1,231,270
730,532	Education		600,572	100,851	3,223	704,646
	Exhibitions					
1,075,669	General		891,782	1,789	691,169	1,167,745
85,217	Amortisation			157,283		157,283
4,990,776	Scientific Research/Collections		4,055,450	249,490	862,805	5,167,745
166,065	Depreciation	8	177,964	7,082		185,046
10,139	Doubtful Depts			1,903		1,903
<b>11,913,800</b>	<b>TOTAL EXPENDITURE</b>		<b>10,716,808</b>	<b>1,208,746</b>	<b>1,696,578</b>	<b>13,622,132</b>
335,329	Operating Surplus ( - Deficiency) for year		-198,394	+293,979	-76,596	+18,989



**AUSTRALIAN MUSEUM TRUST**  
**STATEMENT OF SOURCE AND APPLICATION OF FUNDS**  
**FOR THE YEAR ENDED 30 JUNE 1990**

<b>SOURCE OF FUNDS</b>	<b>\$</b>	<b>\$</b>
<b>FUNDS FROM OPERATIONS (A)</b>		
<b>Inflow of funds from operations</b>		
Australain Government	304, 602	
Trading Shops	353, 501	
Trading Other	639, 552	
Other	834, 199	
Fund Raising	952, 729	
The Australian Museum Society	38, 259	
Peter Rankin Fund	<u>-135</u>	3, 122, 707
Less outflow of Funds from operations Expended in operations		<u>13, 277, 900</u>
		-10, 155, 193
<b>FUND FROM GOVERNMENT</b>		
<b>Parlimentary appropriations</b>		
Recurrent	10, 518, 414	
Capital works	<u>885, 466</u>	11, 403, 880
<b>REDUCTION IN ASSETS</b>		
Receivables	<u>550, 081</u>	550, 081
<b>INCREASE IN LIABILITIES</b>		
Overdraft	2, 394	
Treasury Loan	200, 000	
Grants in Advance	221, 891	
Employee Leave Entitlement	<u>206, 543</u>	630, 828
<b>TOTAL</b>		<u>2, 429, 596</u>
<b>APPLICATION OF FUNDS</b>		
<b>INCREASE IN ASSETS</b>		
Cash on Hand or at Bank	648, 707	
Inventories	25, 638	
Investments	28, 068	
Property	824, 798	
Plant & Equipment	244, 791	
Deferred costs Exhibitions	201, 642	
Owing by State Treasury	<u>206, 543</u>	2, 180, 187
<b>REDUCTION IN LIABILITIES</b>		
Ceditors	<u>176, 409</u>	176, 409
<b>REDUCTION IN CAPITAL</b>		
State Treasurers Advance	<u>73, 000</u>	73, 000
<b>TOTAL</b>		<u>2, 429, 596</u>
(A) Reconciliation of operating results with funds from operations as follows:		
<b>OPERATING DEFICIT</b>		18, 989
Add Depreciation	185, 046	
Amortisation of Exhibitions	157, 283	
Provision of Doubtful Depts	<u>1,903</u>	344, 232
		363, 221
Deduct Consolidated Fund Appropriations		<u>-10, 518, 414</u>
<b>FUNDS FROM OPERATIONS</b>		<u>-10, 155, 193</u>



**AUSTRALIAN MUSEUM TRUST - NOTES TO AND  
FORMING PART OF THE FINANCIAL STATEMENTS  
FOR THE YEAR ENDED 30 JUNE 1990**

**1. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES**

**1.1 Basis of Presentation**

These statements have been prepared in accordance with full accrual accounting principles. The value of the Museum's collections has been brought to account at a nominal sum for notation purposes, while liability for employee superannuation has not been brought to account as it is a direct liability of the Superannuation Board and State Treasury.

With these exceptions the statements comply in all material respect with the Accounting Standards and Disclosure Requirements of the Australian 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 in accordance with 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 Valuer General's valuation as at 30 June 1990.

**1.2 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. Funds that have similar characteristics have been combined into fund groups for purposes of budgeting and preparation of the Income and Expenditure Statement. The Balance Sheet records the combined assets and liabilities of the fund groups but preserves (by appropriate notes) the identity of specific and general purpose fund balances retained at year end.

**1.3 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.

**1.4 Insurance**

As at 1 July 1989, Government policy changed in respect to insurance practices for inner budget sector organisations when a 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.



### 1.5 Annual and Extended Leave

Provision has been made for the estimated total liability for both accrued extended leave and annual leave for all employees at 30 June 1990. In respect of extended leave this provision allows for the full amount payable to all employees with an entitlement based on five (5) or more years of service.

### 1.6 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, 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.

## 2. CONSOLIDATED FUND APPROPRIATIONS

Funds are provided by the State under allocations voted to the Ministry for the Arts and provided to the Museum to promote knowledge about the natural environment of Australia with particular emphasis on the natural sciences of biology, anthropology and geology. Allocations together with actual funds expended are recorded at page 366 of the Treasurer's Public Accounts for 1989-90. In summary, expenditure against the amounts provided inclusive of supplementary allocations by the Treasurer for the past two years was:

	1989/90	1988/89
	\$	\$
Recurrent Services	11,312,304	10,525,888
Capital Works & Services	<u>1,143,996</u>	<u>2,773,047</u>
	<u>12,456,300</u>	<u>13,298,935</u>

Within the sum provided by the State for 1989/90 were amounts of \$200,000 as an Annual Endowment in terms of Section 14 of the Australian Museum Trust Act, 1975 and an amount of \$350,000 as a special subsidy for sponsorship funds raised by the Trust. The special subsidy received from the Consolidated Fund was limited to a maximum of \$350,000 in accordance with Government policy. Endowment and subsidy accounting transactions are recorded through the Trust's General Purposes Fund. A reconciliation between the Consolidated Fund payments to the Trust as recorded in the Treasurer's Public Accounts for 1989/90 and figures in the Trust's Income and Expenditure Statement is recorded at note 14 herein.



### 3. OTHER GOVERNMENT GRANTS

The Australian Government provided grants for specific scientific and other purposes of an aggregate of \$421,247 during 1989/90. Movements with respect to those funds and balances held at the beginning of the year to 30 June 1990 were:

	1989/90	1988/89
	\$	\$
Opening Balance	56,433	78,051
Received 1989/90	<u>421,247</u>	<u>232,665</u>
	<u>477,680</u>	<u>310,716</u>
Transfers to Operations Income 1989/90	<u>304,602</u>	<u>254,283</u>
Closing Balance *	<u>173,078</u>	<u>56,433</u>

\* Closing Balance is reflected in the Balance Sheet Liability, Grants Received in Advance.

### 4. TRADING OPERATIONS

#### 4.1 Shop Trading Account

		1989/90	1988/89
	\$	\$	\$
Sales		860,225	761,507
Less: Cost of Sales:			
Opening Stock	181,924		
Purchases	<u>532,362</u>		
	714,286		
Less Closing Stock	<u>207,562</u>	<u>506,724</u>	<u>455,793</u>
<b>Gross Profit</b>		<b><u>353,501</u></b>	<b><u>305,714</u></b>

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

Direct Wages of \$164,213 and measurable overheads of \$20,680 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 Income and Expenditure Statement.

#### 4.2 The Museum's other Trading Operations generated the following amount of gross income:

	\$
Australian Natural History	322,903
Gallery Income	254,391
Restaurant Activities	22,564
Sale of Brochures/Guides	24,416
Sale of Films	9,252
Miscellaneous	<u>6,026</u>
	<b><u>639,552</u></b>



## 5. OTHER

### 5.1 Private Grants, Dominations and Sponsorship

An aggregate of \$1,585,249 was received from private sources for scientific research and exhibitions etc. Movements with respect to funds received in 1989/90 and balances held at the beginning of the year were:

	1989/90	1988/89
	\$	\$
Opening Balance	-83,344	29,580
Received 1989/90	1,585,249	488,991
	<u>1,501,905</u>	<u>518,571</u>
Expenditure capitalised or transferred to		
Operations Income 1989/90	<u>1,396,659</u>	<u>601,915</u>
Closing Balance	<u>105,246</u>	<u>83,344</u>

Income and expenditure adjustments of \$712,819 reduce the Operational Income item of \$1,396,659 to \$683,840 as shown in the Income and Expenditure Statement.

## 6. 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.

INCOME	\$	\$
Donations	383,033	
Interest	<u>24,274</u>	<u>407,307</u>
EXPENDITURE		
Government Charges	130	
Printing	<u>4,448</u>	<u>4,578</u>
NET INCOME		<u>402,729</u>

## 7. THE AUSTRALIAN MUSEUM SOCIETY (TAMS)

The Society was established for the purpose of fostering interest amongst the general public in natural history and the work carried out by the Trust.

	\$	\$
Subscriptions	190,785	
Merchandise	3,325	
Functions	199,095	
Donations	4,770	
Other	<u>56,390</u>	<u>454,365</u>
Merchandising	3,007	
Functions	177,702	
Salaries	94,782	
Working Expenses	<u>140,615</u>	<u>416,106</u>
NET INCOME TO TRUST		<u>38,259</u>



## 8. DEPRECIATION

Depreciation was provided on the following items:

	1989/90	1988/89
	\$	\$
Plant and Equipment	177,964	158,983
Building	<u>7,082</u>	<u>7,082</u>
	185,406	166,065

For methods of depreciation used see note 1.6.

## 9. CURRENT ASSETS

### 9.1 Receivables

At an aggregate value of \$124,849 recorded at balance date comprised:

	1989/90	1988/89
	\$	\$
Debtors	25,231	27,208
Less Provision for Doubtful Debts	<u>1,903</u>	<u>10,139</u>
	23,328	17,069
Accrued Income	<u>101,521</u>	<u>659,764</u>
	<u>124,849</u>	<u>676,833</u>

Within the figure of \$101,521 (\$659,764 in 1988/89) for accrued income is an amount of \$61,461 (\$563,881 in 1988/89) recoverable from the Consolidated Fund in 1990/91. The amount represents the net of accrued charges brought to account at 30 June 1990 for goods and services at a cost of \$96,415 (\$595,418 in 1988/89) and rent paid in advance \$34,954 (\$31,527 in 1988/89). Bad Debts to the value of \$2,151 have been written off this year.

### 9.2 Inventories

The value recorded at 30 June 1990 of \$207,562 (\$181,924 in 1988/89) represented stock in trade held by the Museum's shop outlets. Stocks were brought to account at the lower of average cost price or market value.

### 9.3 Investments

Investments recorded at cost comprised:	Cost	Face Value
	\$	\$
Bank Term Deposit	119,130	119,130



## 10. NON-CURRENT ASSETS

### 10.1 Property

The value recorded in the Balance Sheet covers the following Trust property:

	\$
Museum Complex - College and William St, Sydney (at valuation)	30,000,000
Museum Complex - Yurong and William St, Sydney (at valuation)	2,500,000
Lizard Island Research Station Buildings (at cost)	<u>232,010</u>
	<u>32,732,010</u>

The Museum Complex in Sydney was valued by the Valuer General as at 15 June 1990. No allowance for depreciation has been made. 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. Buildings erected at an aggregate cost of \$283,291 between the years 1973 and 1989 were brought to account at an adjusted value of \$246,174 at 1 July, 1988 to take into account cost less accumulated depreciation.

A depreciation charge of \$7,082 against operations was brought to account in 1989/90.

### 10.2 Plant & Equipment

The book values are summarised following:

	1989/90	1988/89
Adjusted Capital Value Brought to Account at 1 July 1989	\$ 862,030	\$ 722,271
Movements for 1989/90	<u>320,519</u>	<u>298,742</u>
	1,182,549	1,021,013
Less Depreciation 1989/90	<u>177,964</u>	<u>158,983</u>
Book Value at 30 June 1990	<u>1,004,585</u>	<u>862,030</u>

In relation to items costing less than \$500, they are fully expensed in the year of acquisition as indicated in the accounting policy referred to in note 1.6.

### 10.3 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 1989/90 is summarised following:

	1988/90	1988/89
Adjusted book value at 30 June 1990 of Exhibitions Operational at 1 July 1988	\$ 874,411	\$ 1,146,448
Written down value of Exhibitions since 1 July 1988	544,417	—
Capitalisation of Exhibitions developed in 1989/90	<u>201,642</u>	<u>629,634</u>
	1,620,470	1,776,082
Deduct Value Amortised against Operations 1989/90	<u>157,283</u>	<u>85,217</u>
Book Value of Exhibitions	<u>1,463,187</u>	<u>1,690,865</u>

#### 10.4 Employee Entitlements - Owing by State Treasurer

The amount brought to account of \$1,622,740 (\$1,416,197 in 1988/89) represents the past service costs for Trust employee leave entitlements. As mentioned in note 12.1, those costs are funded by the State Treasurer on benefit emergence.

#### 10.5 Collections, Works of Art, Specimens and Other Acquisitions

Because of the intrinsic value of the vast majority of acquisitions of the character referred to and in accordance with policies generally followed by similar museums in North America the Trust does not value its collections for Balance Sheet purposes, which are accordingly shown at a nominal value of \$1. 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
1985/86	132
1986/87	80
1987/88	69
1988/89	65
1989/90	50

See also comment under note 10.3 concerning Exhibitions and note 1.4 regarding Insurance. The Trust's Collections were valued in 1981 by the museum at \$76 million for insurance purposes.



## 11. CURRENT LIABILITIES

### 11.1 Grants Received in Advance

The balance of \$278,324 (\$56,443 in 1988/89) recorded at 30 June, 1990 related to moneys held in the Specific Purposes Fund on account of Australian Government funded projects totalling \$173,078 and private grants and sponsorship for specific purposes totalling \$105,246.

Fund accounting arrangements are summarised at Note 1.2.

## 12. NON-CURRENT LIABILITIES

### 12.1 Employee Leave Entitlements

The assessed liability brought to account at 30 June, 1990 comprised:

	1989/90	1988/89
	\$	\$
Accrued Extended Leave	1,007,841	860,463
Accrued Annual Leave	<u>614,899</u>	<u>555,734</u>
	<u>1,622,740</u>	<u>1,416,197</u>

Assessment of the liabilities as recorded was based upon:

- Long Service Leave represents liability for the total value of leave accrued but not taken by employees with five or more years' service. Effective for the year ended 30 June 1989 an on-cost of 2.2 % on gross salaries and wages is charged against operations and paid to the State Treasurer towards funding the liability on benefit emergence.
- Annual Leave payments with respect to leave taken during the year are 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 1990.

## 13. CAPITAL & RETAINED EARNINGS

### 13.1 Assets Acquired Free of Capital Liability

The amount brought to account at 30 June 1990 represents the capitalisation of property, plant and equipment and exhibition assets totalling \$35,284,289 acquired by the Trust free of capital liability.

### 13.2 Accumulated Funds

	1989/90	1988/89
	\$	\$
Balance at July 1989	-85,928	-421,257
Surplus for Year	<u>18,989</u>	<u>335,329</u>
Balance at 30 June 1990	<u>-66,939</u>	<u>-85,928</u>



14. **Reconciliation Trust Income and Expenditure Statement and Treasurer's Consolidated Fund Payments**

	1989/90	1988/89
Consolidated Fund Payments to Trust for Recurrent Expenditure	\$ 11,631,502	\$ 10,525,888
<b>Add:</b> Accrued Expenditure not reflected in Treasurer's Accounts	<u>96,415</u>	<u>595,417</u>
	11,727,917	11,121,305
<b>Deduct:</b> Rent Paid in Advance	34,954	31,537
Previous Year Accruals	563,881	—
Plant and Equipment Capitalised	<u>60,668</u>	<u>296,864</u>
	<u>11,068,414</u>	<u>10,792,904</u>
Income recorded in Consolidated Fund Section of Income & Expenditure Statement	10,518,414	10,142,904
Transfers from Consolidated Fund Income to General Purposes Fund Income	<u>550,000</u>	<u>650,000</u>
	<u>11,068,414</u>	<u>10,792,904</u>

15. **Audit Fee**

The fee for the audit of the Museum's accounts and records by the New South Wales Auditor-General's Office was \$21,000. The Auditor received no other benefits. The fee for the previous year's audit was increased by \$5,000 to \$23,000 after the 1989/90 Annual Accounts were published.

16. **Commitments for Goods and Services**

Goods and Services contracted for at 30 June 1990 not otherwise accounted for in the balance sheet totalled \$369,966.

17. **Outstanding Capital Commitments**

Capital Expenditure commitments at 30 June 1990 not otherwise accounted for in the balance sheet totalled \$625,088.

18. **Contingent Liabilities**

Claims outstanding from the Contractor for work undertaken in the construction of the new extension amount to \$2,525,986. The Public Works Department, as the constructing authority, is currently considering the justification for this claim.

19. **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:

Salary Processing, Legal Assistance, Industrial Relations, Building Maintenance, Recruitment Services.



## 20. Members Fees or Benefits, etc

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

## 21. 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 1990 (subject to adjustments) comprises:

	\$
Not later than 1 year	380,617
Later than 1 year and not later than 2 years	306,025
Later than 2 years and not later than 5 years	612,075
Later than 5 years	<u>75</u>
	<u>1,298,792</u>

## END OF AUDITED FINANCE STATEMENTS



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\* Denotes permanent or temporary position no longer occupied by this person \*\* Denotes part time employment

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S. Zantiotis

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DipEnvStud  
G. Jones  
E. Cameron BSc(Hons) MSc

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Deputy Director  
Assistant to Director  
Assistant to Deputy  
Director  
Corporate Promotions  
Manager  
Typist, Director's Office  
Research Assistant to  
Deputy Director

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F. Cox  
D. Cox  
S. Flint  
M. Gregorovic  
B. Hufton  
B. May

D. Schizas  
T. Vajda  
T. Wong  
J. Wong  
S. Wright

Acting Senior Accounts  
Clerk \*  
Payments Clerk  
Acting Mail Clerk \*  
Acting Finance Officer \*  
Acting Cashier \*  
Acting Finance Officer \*  
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Officer  
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Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner/  
Leading Hand  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner  
Attendant/Cleaner/  
Leading Hand

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Security Officer  
Security Officer  
Security Officer  
Security Officer  
Senior Security Officer  
Security Officer \*  
Security Officer  
Security Officer  
Security Officer  
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Security Officer  
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T. Mansour D. Mezaaber L. Narezzi  
P. O'Donovan M. Peredi M. Petrovska  
F. Ridley L. Slade J. Smith M. Surjan  
M. Thomson M. Vreugdenhil P. Willis S. Young

#### Education Volunteers

J. Anderson M. Beavis R. Biddle D. Blew  
S. Boele M. Copp A. Cossu V. Davis J. Farquar  
B. Forman L. Forman E. Geering E. Guinan  
J. Henwood P. Heuer M. Hughes J. Irani  
R. Johanson C. Johnston J. Kinsela M. Konstantaras  
L. Kovacs J. Lane M. Lawrie D. Lucas W. MacCallister  
D. MacPherson J. McDonald J. McDonald L. McHale  
D. Mellish B. McEwin E. Oakely G. Oldfield S. Pels  
A. Ponton M. Pyke R. Reid P. Rohl P. Sanderson  
F. Scheuermann B. Silver F. Sinn J. Smith J. Steenson  
J. Tendys M. Walton M. Webster C. Wood J. Yeomans

#### ENVIRONMENTAL SCIENCE DIVISION

##### Terrestrial Ecology Section

M. Christy BSc DipNatRes  
G. Gowing BSc(Hons)  
R. Major BSc(Hons) PhD  
P. O'Connor BSc  
G. Pyke BSc(Hons) PhD

Technical Officer  
Senior Technical Officer  
Research Associate  
Technical Officer  
Senior Research Scientist

##### Visiting Scientist

S. Ambrose BSc(Hons) PhD Coordinator, Australian Bird Count  
Project (employed by Royal Australasian Ornithologists Union)

#### Volunteers

C. Bath G. Bruce E. Christy B. Draper N. Frischknecht  
C. Hall H. Hall R. Hill R. Mulder K. Stern R. Chemke I. Chapman

#### Australian Bird Count

R. Hill K. Stern N. Maxwell M. Jackson G. Bruce  
H. Cznychwsi J. Bright A. Tanahui M. Pyke I. Chatsworth

#### Marine Ecology Section

A. R. Jones  
A. Murray  
V. Tziouimis

MSc PhD Research Scientist  
(Head of Division)  
BSc Technical Officer  
BSc(Hons) Technical Officer\*

#### Volunteers

R. Marsh K. Attwood V. Attwood R. Blick C. Blick  
V. Tziouimis F. Gascoigne C. Haywood J. Nelson  
J. Ling L. Stockdale J. Kuoni N. Nancarrow

#### Evolutionary Biology Unit

G. Avern BSc MSc Dip Ed Senior  
D. Colgan BSc BEd PhD  
L. Grover BSc  
G. Serkowski  
T. Terzis BSc  
J. Trimble BSc

Technical Officer  
Scientific Officer  
Technical Officer \*  
Technical Officer  
Technical Officer (from 9.4.90)  
Technical Officer (to 31.1.90)

#### EXHIBITION DIVISION

##### Design Section

R. Clendinning  
M. Cloyd  
  
G. Ferguson DipAppArt  
A. Gregg BA(VisArt)  
K. Gregg  
R. Joyner ADIA  
J. Mastrogianidis BA(VisArt)  
GradDipVisArt  
B. Matzick  
A. Richards DipVisArt  
R. Ross-Wilson  
R. Weakley

Project Manager  
Assistant to Head  
of Division  
Project Manager  
Designer  
Designer  
Head of Division  
Designer  
  
Project Manager  
Project Manager  
Project Manager  
Designer

##### Audio Visual Section

D. Beveridge Technician

##### Preparations Section

M. Bray  
M. Dingley  
G. Hangay Grad Dip Vis Art  
MCA  
J. Hood  
B. Horn  
C. Johnston  
O. Keywan  
T. Lang  
E. MacLeod DipArt  
R. Moloney  
T. Ralph  
R. Scott-Child  
A. Wang

Preparator  
Preparator  
Chief Preparator  
  
Preparator  
Preparator  
Preparator  
Preparator  
Preparator  
Preparator  
Preparator  
Preparator



## INFORMATION SCIENCE DIVISION

N. Bain  
G. Baker BA(LibSc) ALAA  
D. Beechey  
R. Blakemore  
C. Cantrell  
J. Dermand  
  
J. Dudman  
K. Fox  
M. Kumvaj BA DipLib  
I. McAllen  
  
A. McConochie  
M. Pettit  
M. Platt  
C. Pyne  
P. Young

Senior Library Technician  
Chief Librarian  
Data Base Manager \*  
Network Administrator  
Library Technician  
Assistant Library Technician\*  
Museum Assistant  
Assistant Library Technician  
Deputy Librarian  
Assistant Library Technician \*\*\*  
Senior Library Technician  
Typist \*\*  
Archivist \*  
Clerical Assistant  
Assistant Library Technician \*\*

### Volunteers

K. Blofeld S. Crabbe J. Fryer M. Leyden

## INVERTEBRATE ZOOLOGY DIVISION

### Arachnology Section

M. Gray MSc PhD  
  
C. Horseman  
G. Hunt PhD  
J. Thompson

Scientific Officer  
(Head of Division)  
Technical Officer  
Research Worker  
Technical Officer

### Volunteers

E. Balme G. Copp S. Crabbe A. Jones O. MacKee P. Swilca

### Entomology Section

D. Bickel PhD  
G. Cassis PhD  
B. Day  
G. Holloway MSc  
D. McAlpine MSc PhD  
M. Moulds TchC  
C. Urquhart BSc

Scientific Officer  
Visiting Fellow  
Technical Officer  
Technical Officer  
Principal Research Scientist  
Technical Officer  
Technical Officer \*

### Volunteers

G. Knowles S. McEvey S. Fellenburg M. Anderson B. Lormer C. Chadwick C. Jones

### Malacology Section

P. Burton  
G. Clark BAppSc  
P. Colman  
R. de Keyzer BSc  
A. Le Roi  
I. Loch  
  
A. Miller  
W. Ponder MSc PhD  
W. Rudman MSc PhD  
J. Waterhouse BSc

Technical Officer \*  
Technical Officer  
Technical Officer  
Technical Officer  
Senior Technical Officer  
(Collection Manager)  
Technical Officer  
Principal Research Scientist  
Principal Research Scientist  
Technical Officer

### Volunteers

I. Alcain F. Ashdown J. Beck J. Bennett F. Brown S. Bull P. Burton  
J. Daly D. Drake J. Fisher I. Glass T. Iredale A. Leroi E. LeStrange

L. Lovett, M. McKellar J. McLean D. Pearson H. Peterson H. Ronay R. Simmons R. Teakle J. Turner J. Wise

## Marine Invertebrates Section

L. Albertson BSc GradDipArt  
P. Berents PhD  
  
P. Hutchings PhD DSc  
S. Keable BSc  
J. Lowry MA PhD  
F. Mackillop  
J. Macrae  
A. Meza  
R. Paterson BSc  
R. Springthorpe BSc  
H. Stoddart BSc  
I. Chan

Technical Officer  
Senior Technical Officer  
(Collection Manager)  
Principal Research Scientist  
Technical Officer \*\*  
Senior Research Scientist  
Technical Officer  
Technical Officer  
Technical Officer  
Technical Officer  
Technical Officer  
Typist

### Volunteers

A. Sinclair H. Ward E. Silk C. Brown K. Attwood H. Broughton(deceased) T. Laundl

## LIZARD ISLAND RESEARCH STATION

### Reef Research Foundation Trust

Prof K.J.C. Back AO MSc PhD  
J.T. Baker OBE MSc PhD  
L.J.S. Barraclough  
Lord Catto of Cairncatto  
J. Creer  
Prof A.J. Gilmour PhD FTS  
A. Green BEc Lib  
N.G. Green Lib  
D.J.G. Griffin AM MSc PhD  
Sir R. Kirby AO Chairman  
Prof M.G. Pitman OBE MA PhD ScD FAA  
Sir John Proud BE FIMM  
R.E. Purves  
C.H. Warman  
Prof L.R. Webb FASSA  
R. Williams BSc(Hons)  
B. Wiesener

### Staff

Capt M. Jumelet  
M. Jumelet  
Dr B.L. Kojis  
Mr L. Pearce  
Ms M. Pearce  
Dr N.J. Quinn

Captain  
Crew  
Co-Director  
Maintenance Engineer  
Accom/Transport Officer  
Co-Director

## MATERIALS CONSERVATION DIVISION

A. Brokerhof BA MSc  
A. Coggins BSc(Hons)  
K. Coote BA BSc(Hons)  
G. Drummond BA BAppSc  
P. Edmonds BAppSc  
S. Gatenby BSc  
M. Gilberg MSc PhD  
D. Horton-James BSc  
M. Kelly  
C. MacGregor BSc DipArchCons

Technical Officer \*  
Technical Officer \*  
Conservator \*\*  
Conservator \*  
Conservator \*  
Conservator  
Scientific Officer  
Conservator  
Assistant Conservator  
Conservator



M. McCord NND DipEd  
ConsCerts FIIC  
C. Mott  
M. Pacheco  
A. Roach  
G. Scott BSc SocScConsCerts  
S. Walston DipCons FIIC  
S. Zounis BAppSc

Conservator  
Assistant Conservator \*  
Clerical Officer  
Assistant Conservator  
Conservator  
Head of Division  
Technical Officer \*

#### Volunteers

S. Galpin H. Joyes A. Lecoullier P. Ovenden N. Turner

#### NATIONAL PHOTOGRAPHIC INDEX OF AUSTRALIAN WILDLIFE

##### Management Committee

J. Broinowski CMG (Chairman)  
D.J.G. Griffin AM  
G. McKenzie  
V.N. Serventy AO

##### Staff

R. Strahan MSc FIBiol FAIBiol  
FRZS FANZAAS  
S. Bird  
B. Thode-Kuppershaus  
J. Nancarrow  
J. Coghlan  
Volunteers  
E. Carthew J. Disney J. Waterhouse A. Brown L. Lucas

Executive Officer  
Collections Manager  
Clerk \*  
Clerk (from 17 April 1990)  
Typist \*

##### Councillors

Robert Saunders (to 24.4.90) President  
Pamela Pearce (from 24.4.90) President  
Craig Williams (to 24.4.90) Vice-President  
John Twyford (from 24.4.90) Vice-President  
Barry Wilson Treasurer  
Irene Gorman (to 24.4.90)  
Caroline Greaves Underwood (from 24.4.90)  
BA(Hons)  
Judith Irani (from 24.4.90)  
Doug Nicholas BSc (Tech) EnvStud  
Bill Orme BSc BE (from 24.4.90)  
Pamela Pearce (to 24.4.90)  
John Twyford (to 24.4.90)  
Peter Van Velzen BE (from 24.4.90)  
Peter White MA PhD  
Hal Wootten QC (to 24.4.90)

##### Museum Staff Representatives to Council

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

#### THE AUSTRALIAN MUSEUM SOCIETY

##### Staff

Susan Bridie  
Diane Derenzie  
Danielle McMiles  
Frances Shinn  
Wendy Wilkins MA  
Execution Officer  
Manager,  
Corporate Membership  
Administration Assistant  
Book Keeper  
Project Officer

#### Volunteers

J. Cocks BA M. Jones H. Verge  
VERTEBRATE ZOOLOGY DIVISION

##### Herpetology Section

A. Greer PhD  
J. Nancarrow  
R. Sadler BSc  
G. Shea BVSc  
Senior Research Scientist  
Technical Officer \*\*  
Technical Officer  
(Collection Manager)  
Technical Officer \*\*

##### Volunteer

M. Milston

##### Ichthyology Section

M. Beshaw BSc(Hons)  
D. Brown BA  
A. Gill BSc(Hons)  
A. Graham BSc(Hons)  
D. Hoese BA PhD  
J. Leis BSc PhD  
M. McGrouther BSc(Hons)  
J. Paxton MSc PhD  
S. Reader BSc  
T. Trnski BSc  
P. Egger BSc(Hons)  
P. Laegdsgaard BSc (Hons)  
J. McGrouther BSc, MSc(Prelim)  
Dip.Ed.  
Research Assistant \*\*\*  
Technical Officer \*\*  
Technical Officer \*\*  
Technical Officer \*\*  
Senior Research Scientist  
Senior Research Scientist  
Technical Officer  
(Collection Manager)  
Research Scientist  
Technical Officer  
Technical Officer  
Technical Officer(Sci)  
Research Assistant \*\*  
Technical Officer(Sci)\*\*\*

##### Volunteers

R. Ainsworth A. Daniel M. Driver D. Emery S. McCune  
N. Milton J. Williams

##### Mammalogy Section

T. Ennis  
T. Flannery BSc PhD  
L. Gibson  
S. Ingleby BSc  
H. Parnaby PhD  
K. Swarbrick  
Technical Officer \*\*  
Research Scientist  
Technical Officer  
Scientific Officer  
(Southwest Pacific journal  
Survey)  
Scientific Officer  
(Southwest Pacific journal  
Survey)  
Technical Officer

##### Volunteers

M. Francis D. Brown A. McLeon Organisation for Research &  
Rescue of Cetaceans in Australia L. Lumsden P. German  
K. Swarbrick

##### Ornithology Section

W.E. Boles BSE  
T. Linsey  
L. Albeston  
K. Havansky  
Senior Technical Officer  
(Collection Manager)  
Temporary  
Temporary  
Typist

##### Volunteer

M. Tink



### Research Associates

His Imperial Highness Emperor Akihito  
M Archer PhD  
I Bennett AO MSc  
J B Burch PhD  
C E Chadwick BSc  
R O Chalmers ASTC  
W Dawbin DSc  
H J de S Disney MA  
B Egloff MA PhD  
B M England BSc DipGemmology  
F Evans  
H O Fletcher MSc  
J V Forshaw  
R L K Fullagar BA PhD  
B Goldman BSc PhD  
J D Hollis PhD  
K W Huffman BA DipEthnol  
P Kailola BSc (Hons)  
K C Khoo BSc (Hons)  
R J Lampert PhD FAHA  
J E Marlow BSc (Hons)  
F D McCarthy DipAnthrop Hon DSc (ANU) FAHA  
P M McDonald BSc MEd  
S F McEvey BSc PhD FRES  
G A Mengden BSc PhD  
M S Moulds TchC  
T R New ARCS DIC BSc PhD  
H Paxton PhD  
J Pickett MSc DPhilNat  
E C Pope MSc CMZS  
S F Rainer BSc MSc PhD  
G M Shea BVSc (Hons)  
R Shine BSc PhD DSc  
C N Smithers MSc PhD  
W Starck PhD  
N Tait PhD  
F H Talbot MSc PhD FLS FRZS FRSA  
G Theischinger  
A G Thorne BA MA(Hons) PhD  
I W B Thornton BSc PhD DSc  
R Torrence AB MA PhD  
M E White MSc  
J P White MA PhD  
M J Whitten BSc(Hons) BA PhD FTS  
G Williams  
R V S Wright MA  
J C Yaldwyn MSc PhD FMANZ

### Associates

K Atkinson  
B Bertram  
K Carnaby  
E Carthew  
T S Coldham BA FGAA  
N Coleman  
L Courtney-Haines  
G Daniels  
J A Frazier  
H Goodall  
A Healy  
J Henley BAppSc FGAA  
R Kuitert  
R B Lachlan BEd DipTeach FRES  
J A Lindsay MA PhD  
T R Lindsey  
N W Longmore  
D F McMichael CBE CBE MA PhD  
W McReaddie  
K Meguro  
D R Moore MA DipAnthrop  
R Morrison  
N W Rodd BSc  
A B Rose  
D J Scambler  
R Steene  
G Swan  
M Tuckson  
L Wilson

### Consultants

The following consultancies, costing less than \$30,000, were contracted by the Museum in 1989/90.

P. Shaw Photographic Conservator. Preliminary Treatment & Storage Recommendations for Australian Museum Photographic Collections.  
Studio & Art Services Pty Ltd. Exhibit manufacture.  
C.B.T. Solutions. Computer - Skeleton exhibition.  
Ian McGrath. Lighting - Skeleton exhibition.  
Gamkrelidze & Partners. Architectural design - Snack Bar.  
Thomson Gallagher Pty Ltd. Engineers.



