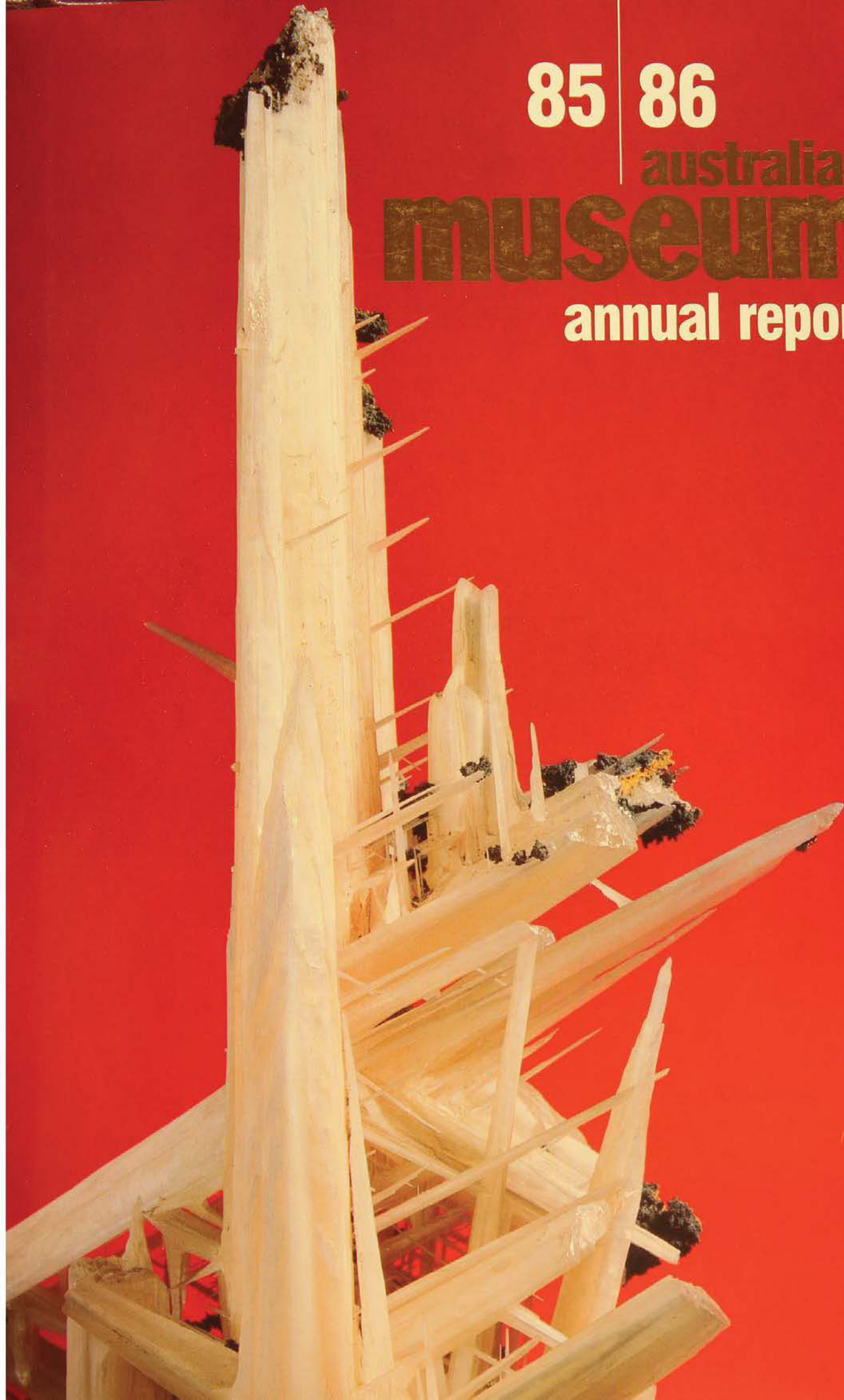


85 86

australian  
**museum**  
annual report



The Trust and staff of the Australian Museum have pleasure in thanking the following organisations and individuals who provided financial assistance through research grants or donations during the year.

## Benefactors

The Australian Museum Society  
Bayer Australian Ltd  
The Broken Hill Proprietary Company Ltd,  
Blue Circle Southern Cement Ltd  
Mr William Bowman (Newcastle NSW)  
Mr Peter Bridge (Carlisle WA)  
Bushell Trust  
Caltex Oil (Australia) Pty Ltd  
Castlemaine Tooheys Ltd  
Commonwealth Banking Corporation of  
Australia  
CSR Ltd  
Mr W.O. Cudlipp and Mrs P.B. Cudlipp  
Esso Australia Ltd  
IBM Australia Ltd

James N. Kirby Foundation  
Mr Henry Loomis (Washington USA)  
Mrs Jean McK Moriarty (Sydney NSW)  
Mr Stan G. Moriarty (Sydney NSW)  
Sir John Proud (Sydney NSW)  
Dick Smith Electronics Pty Ltd  
State Bank of New South Wales Ltd  
Suntory Ltd / Japan Foundation  
The Sydney County Council  
Unilever Australia Pty Ltd  
Utah Foundation  
Bernard Van Leer Foundation  
Dr Charles H. Warman (Sydney NSW)  
Westpac Banking Corporation Ltd

## Donors

Department of Science, Australian Government  
through:  
• Marine Science & Technologies Grants Scheme  
(MST)  
• Australian Research Grants Scheme (ARGS)  
• Queen's Fellowship

Department of Arts, Heritage and Environment,  
Australian Government, through the Australian  
Biological Research Study (ABRS) Scheme.

Department of Primary Industry, Australian  
Government through the Fishing Industry  
Research Trust Account (FIRTA) Scheme.

Department of Employment and Industrial  
Relations, Australian Government through the  
National Employment Scheme for Aborigines  
(N.E.S.A.)

The Lizard Island Reef Research Foundation  
Australian China Council  
Burns Philip & Co  
Mrs M.A. Melville  
Cleanaway  
Council of Australian Museum Directors  
Mr Ton Nunan  
M & M Whelon Trust Ltd

## Lizard Island Donors

CRA Services Ltd  
Ian Potter Foundation Ltd  
Philip Bushell Foundation  
R.H. & P.A. Smith  
Readers Digest Services Pty Ltd  
Mr G.J. O'Neil  
Mr B.W. Wiesener  
Mrs D. Packard

Alpha Research and Development Australia  
Pty Ltd  
Sir Laurence and Lady Muir  
Mr Peter Kendall / Far Nor Ag Pty Ltd  
The Consulate General, Government of the  
Federal Republic of Germany  
Rogers Fibreglass Pty Ltd

*Cover photograph  
Cerussite from the Proprietary Block 14 mine at Broken Hill, one of the finest specimens in the world.*



# The Australian Museum Trust

## Annual Report for the Year Ended 30 June 1986

President: R. Williams  
Deputy President: C. Bull, AM BSc  
Director: D. J. G. Griffin, MSc PhD  
Director Emeritus: J. W. Evans, MA ScD DSc

### Contents

	Page
Benefactors, Donors & Lizard Island Donors	1
A Museum for the Future	3
Highlights of the Year	4
Trustees of the Australian Museum	5-6
Scientific Review	6
Organisational Chart	6
President's Report	7-8
Director's Report	9-10
Anthropology Division	11-12
Earth Sciences Division	12-14
Invertebrate Zoology Division	14-18
Vertebrate Zoology Division	18-20
Community Relations	20-21
Financial Report	22-33
Education Division	34-35
Exhibition Division	36-39
Planet of Minerals	37-39
Administration	40
Staff Office	41
Equal Employment Opportunity	41
Materials Conservation Division	42
Library	43
Lizard Island Research Station	44
National Photographic Index of	
Australian Wildlife	45
The Australian Museum Society	46
Australian Museum Volunteers	47
Staff	48-50
Publications	51-53
Research Associates & Associates	54

# A Museum for the Future

## Mission

The mission of the Australian Museum is to increase and disseminate knowledge about and encourage understanding of, our natural environment and cultural heritage, especially in the Australian region. Acquisition and preservation of collections are central to the achievement of the mission.

## Philosophy

The Australian Museum intends to continue to grow and develop as an organisation based in Sydney providing services to the public principally throughout New South Wales, but with an active involvement in all of Australia and its neighbouring regions. We are determined to maintain our place as one of the world's major natural history museums.

In seeking to encourage others to understand and appreciate the world around us we shall continue scientific/scholarly studies generally relevant to the collections, pursue effective educational programs and exhibitions, where appropriate with others, and communicate with our audiences.

In acquiring and managing collections we will emphasise foreseeable opportunities for research and communication to the public. We also intend to preserve our collections and the information we have gained about them for the benefit of future generations.

We intend that all people may have access to the Museum and its facilities and the opportunity to share its accumulated knowledge.

We intend to focus our resources on distinct programs and projects: evaluation of the success of these programs will be a central feature of management.

In pursuing our objectives we will respect the rights and wishes of the people whose knowledge and material culture forms the basis of our cultural resources, not needlessly affect the environment and will consciously abide by legislation and conventions protecting wildlife and cultural heritage.

As a major institution established by government and attracting increasing public interest and participation and achieving high standards of performance, we will see greater financial support by government. We intend to be responsive to the fundamental policies of government.

We see financial and moral support for the Museum as a responsibility of the private citizen and the commercial sector, as well as of government. The Museum must be active in gaining and strengthening that support: we seek an obligation to account for that support and how it has advanced the Museum's objectives. We believe that it is also appropriate that the Museum undertake commercial enterprises relevant to its objectives; we seek to recover costs of services where the consumer has a capacity to pay.

We seek to be, and be seen as, a stimulating and responsive organisation to work in by providing appropriate career and personal development opportunities, and opportunities for individual staff to be involved in setting the Museum's objectives. Those responsible for managing programs will be delegated authority for allocation of staff and financial resources.

Above all, we intend that the Museum be seen by those who pay for it, those who use it and those who work in it, as progressive, entrepreneurial, relevant, contributing to the community, credible, friendly, reliable, ethical and exciting.

- The Australian Museum is recognised as one of the ten best natural history museums in the world.
- The Museum reaches more than one million people each year, including one adult in seven in metropolitan Sydney and just under half the Sydney adult population over five years.
- Just under half the visitors to the Museum are tourists from outside Sydney.
- Each year almost 100,000 children in school groups use the Museum and as many again visit our travelling displays.
- The Museum's collections are valued at over \$50M.
- In the last seven years we have completed eight new semi-permanent exhibitions. A new travelling exhibition has been completed every two years.





## Highlights of the Year

*The opening of Planet of Minerals, the new mineral gallery was a major highlight of the past year.*

- Completion and official opening of Planet of Minerals exhibition sponsored by the Utah Foundation and The Australian Museum Society.
- Volunteer Museum guiding program commenced.
- Blue Circle Southern Cement sponsored the Human Evolution exhibition for \$100,000.
- After three years of dedicated service Kristine Klugman completed her term as President of the Australian Museum trust.
- Robyn Williams, executive producer of the ABC's Science Show was elected as the new Trust President.
- Barry and Lois Goldman resigned after 10 years as Directors of Lizard Island Research Station.
- Scientific Review identifies a dramatic increase in the output of scientific research during the review period.
- Anthropology has increased its involvements in material culture and is now able to provide better documented collections due to the efforts of Betty Meehan who is dividing her time equally between work at the Museum and living with Aboriginal communities.



# Trustees

**Mr Robyn Williams** producer/presenter of the ABC Science Show since 1975. According to ABC surveys he is the most popular of all ABC announcers. The program drew most praise in public submissions to the Dix Committee.

First emigrated from England in 1964; returned to England, worked for a short time with the BBC as part-time television actor; returned to Australia in 1972 and engaged by the ABC; returned to England in 1974, then back to Australia in August 1975 to commence present career.

Has received a citation from the United Nations Peace Program for an article about science and scientists. Edited book published 1983 'The Best of the Science Show'. He is a regular contributor to the Museum's magazine 'Australian Natural History'. He joined the Trust in 1984 and was elected President in 1986.

**Mr Colin Bull** BSc, AM, was chairman of Directors at Johnson and Johnson Pty Ltd 1982-85. He is a Director of Manufacturers Mutual Insurance Company and of Clyde Industries. He has been a member of the NSW Manufacturing Industry Advisory Council, Chairman of the NSW Innovation Centre, Executive Member of the Grocery Manufacturers of Australia Ltd and was Chairman in 1974 of that group. He has been a Trustee of the Committee for Economic Development of Australia since 1975, Council Member of the Chamber of Manufacturers of NSW since 1979 and was President in 1981-82.

He is very interested in museums and was involved in fund raising for the Power House. He joined the Australian Museum Trust in 1985.

**Dr Telford James Conlon** PhD holds degrees in Chemistry from Sydney University and University College London and a PhD from the University of NSW. As well as being a tutor and a lecturer, more recently at the NSW Institute of Technology, Dr Conlon has been on the staff of the Minister for Science, The Hon W.L. Morrison, in 1973, a consultant to the Australian Government on Science Policy and on Australian Government Administration of Science in 1974-76, and a consultant to the Dept of Foreign Affairs in 1977. Dr Conlon is a Director of the Australian Institute of Political Science and was Chairman from 1979-80.

Dr Conlon is a Research Associate of the Neurobiology Unit at the Institute of Technology, a Company Director and the Chairman of Alanbrook Private Hospital.

Dr Conlon is interested in music, gliding and geology.

**Mr Richard Clark** born and educated in Western Australia, is General Manager, Corporate and Public Affairs for Caltex Australia Ltd. He has had assignments in most states including that of State Manager, Queensland and more recently of NSW. He is a Trustee of Young Achievement Australia and NADOW.

**Mrs Joyce Clague** has a most distinguished record of service. As a member of the Badjalong Language Group and a nurse involved in Aboriginal health programs in Central Australia, she became a leader in the northn Badjalang community with notable achievements in community welfare.

She is a member of the NSW Bicentenary Committee, was an Australian delegate to the World Council of Churches, and is chairperson of her regional Aboriginal Land Council. She established an Aboriginal Co-operative and an Aboriginal museum and cultural centre at Maclean.



*Mr Robyn Williams, President of the Australian Museum Trust*

**Professor Charles Throsby**, MSc, Agr, PhD Professor Throsby was born in 1939 and has been Professor of Economics at Macquarie University since 1974.

He was educated at the University of Sydney and the London School of Economics. From 1960-62 he was an Economics Research Officer with the NSW Department of Agriculture. He was a lecturer in Economics at the London School of Economics 1965-66, Principal Research Economist with the NSW Dept of Agriculture 1967-69, and Senior Lecturer in Economics, Macquarie University 1969-72. He was promoted to Associate Professor in 1973.

Professor Throsby is an internationally renowned expert on the economics of the arts industry and has consulted to numerous organisations worldwide. He was appointed to the Trust in 1985.

**John C. Fink** was born and educated in Sydney. He is currently Managing Director of Gregory's Scientific Publications and his many senior positions include; Director of Australian Consolidated Press Ltd (ACP), Managing Director of Golden Press Pty Ltd (book publishers), Managing Director Murray Leisure Group Ltd (magazine publishers, Gregory's Publishing Company and Kosciusko Alpine Resort) Managing Director Video Tape Corporation, Marketing Director ACP Ltd, Deputy Managing Director Victorian Broadcasting Network, Advertising Director ACP Ltd, National Sales Manager GTV Channel 9.

John has a keen interest in boating, is a member of the Royal Sydney Yacht Squadron, RAS, AJC Action for Autism and the Company Directors Association. He is married with two children.

**Mr Ernest G. McDonald** was born and educated in Sydney and is a Fellow of the Institution of Engineers, Australia. He has been with Civil & Civic Pty Ltd since 1959 and is currently Chairman as well as being Chairman of Lend Lease Superannuation Fund and Deputy Chairman of Lend Lease Foundation.

Ernest's interests are Australian travel and history and he is a veteran member of the Clovelly Surf Life Saving Club. He was appointed to the Trust in 1985.



**Professor Don Anderson** PhD(Lond), DSc(Lond), FRS, has lectured in Zoology at Sydney University since 1959, becoming a Reader in Biology in 1968. He was elected a Fellow of the prestigious Royal Society, London in recognition of his work on the development of marine animals in 1977. He became a Trustee of the Museum in 1982.

**Mrs Lorna McClelland** was an Interior Designer and has been interested in natural science and landscape for many years. She finds there is a progression from an interest in fossils, rocks and minerals to a concern for the environment and an appreciation of landscape. As wife of the Honourable Douglas McClelland, President of the Senate, she visits many overseas museums on her travels. She was appointed to the Trust in 1982.

The following Trustees completed their term of office during the year:

Professor Derek Anderson BSc, PhD, Ms Faith Bandler, Mrs Kristine Klugman, Mr John Landels, Mr Mike Little, Mrs Caroline Serventy OAM, BA.

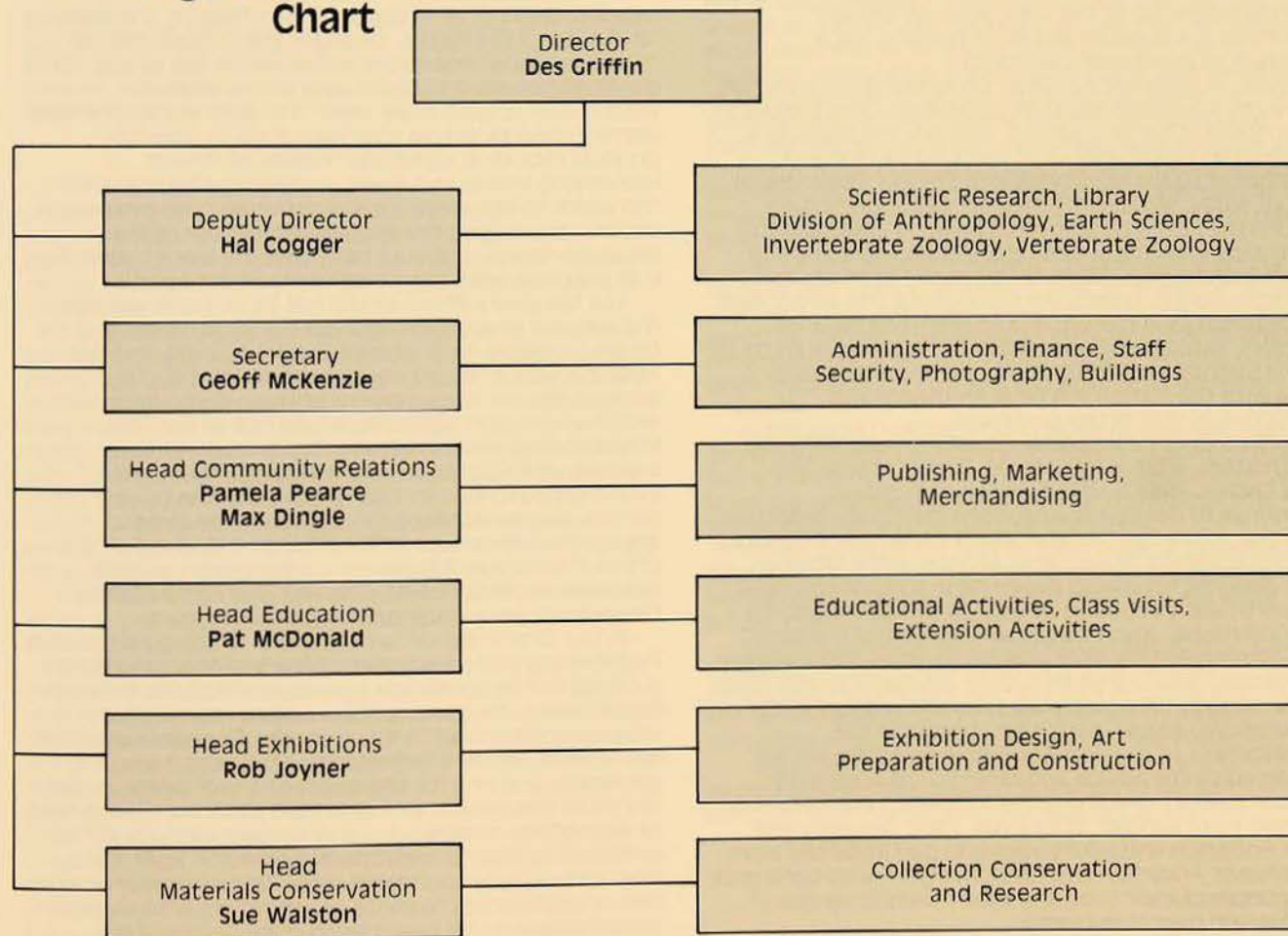
# Scientific Reviews

The Museum's Corporate Plan calls for periodic reviews of the performance of its various divisions or sections. During the year reviews were carried out of three scientific divisions — those of Anthropology, Invertebrate Zoology and Vertebrate Zoology.

In each case individual scientists were evaluated by a Review Group consisting of Deputy Director, Heads of Scientific Divisions, a Trustee, and an external specialist. A variety of criteria were used to assess individual performance, and addressed aspects of productivity, efficiency, management of people and programs, and research quality. A part of this exercise involved comparisons of overall performance between the Museum and a number of other museums, government departments and university departments undertaking comparable research.

For each of the divisions involved the Museum was found to be performing well above average and, in some areas (for example, in the quantity and quality of research publications) was higher than that for most organisations doing comparable work.

## Organization Chart





# President's Report

As Kristine Klugman filled the position of President of the Australian Museum Trust until April 21st, 1986, it is only fitting that her report be included.

I would like to thank Kristine for her dedication and enthusiasm for the Museum during her time as President and welcome the opportunity to follow her example.

**Robyn Williams**  
President

Change for the better, both evolutionary and revolutionary, highlighted what will probably be seen in the future as one of the Australian Museum's most significant years in 1985/86. The new building project and four major exhibitions, all coming to fruition for 1988, were officially endorsed by the Australian Bicentennial Authority. It is unlikely that any comparable set of works has ever been undertaken at the one time in the Museum's history, and it is to the eternal credit of the staff that they have managed and are managing to cope with these conceptual demands at the same time as suffering the dislocating effect of a building being regenerated around them. People are any organisation's strength, and the current year has demonstrated more deeply how well-endowed the Museum is in terms of human resources. My personal thanks, and those of all Trust members, go to the staff, without whose dedication the Museum would be nothing but a collection of inanimate specimens.

I must, in deference to their exceptional contribution — even by Australian Museum standards — pay tribute to Dr Barry and Mrs Lois Goldman, who left the Museum's service in May after almost 10 years as Director and Secretary of Lizard Island Research Station. Their virtual 24-hour-a-day, 365-days-of-the-year devotion to duty enabled the Research Station to develop immeasurably, particularly in terms of laboratory equipment and the research vessel, the "Sunbird". Both the Museum, and research science community throughout the world, owe the Goldman's full fathom five of gratitude. New co-directors, Barbara Kojis and Norman Quinn, have Ph.D's in Marine Science. I welcome them and hope that their terms with the station will be as enjoyable and productive as that of the Goldmans.

In the area of new people, I must formally welcome new trustees — Ernie MacDonald, David Throsby and Joyce Clague. Ernie brings a wealth of business experience to deepen and broaden the Trust's collective expertise, while David of Macquarie University, continues the long tradition of academic service to the Museum while bringing his special expertise in cultural economics. I am particularly proud to be able to formally welcome my good friend, Joyce Clague, an Assessor of the Land and Environment Court of NSW by position, and a woman of profound good sense by nature. An asset to the Trust she has already demonstrated calm and wisdom in her deliberations. Joyce's particular interest in the establishment of regional Aboriginal Museums will be supported by the advice and expertise of Australian Museum staff. I thank those trustees who retired during the year: Faith Bandler, Mike Little, Carol Serventy and Derek Anderson and acknowledge in particular the work of Professor Anderson and Carol Serventy, who both gave unstintingly of their time and their minds in service of the Museum over many years.

This past year, when projects on the drawing board seemed to multiply, a major achievement was the doubling of The Australian Museum Society (TAMS) membership. This outstanding success was the result of dedication and hard work by TAMS staff and an effective direct mail campaign. This strengthening of TAMS augurs well for the future of the Museum. The Museum, visitors and the community owe a great debt to the TAMS' members, both "old" and "new".

The excitement of the new building and major exhibitions for 1988, should not overshadow the other important developments at the Museum. For example, the painstaking process of preparing the National Photographic Index is continuing. Within this giant and fundamental contribution to the future study of Australia, a major encyclopaedia on the country's mammals, birds, reptiles and amphibians is being prepared for Angus and Robertson, publishers. This project is illustrative of the basic philosophy of the Museum — scholarly research made available to the people in a form and manner from which they can understand and benefit. I look forward to the publication of this milestone of the National Photographic Index. Similarly, the Trust in 1985/86 approved spending \$140,000 in the next three financial years to improve understanding of the origin and purpose of Sepik River artifacts. The project follows successful completion of a similar study on Gulf of Papua artifacts. The Museum is fortunate to have such a wealth of material from these areas to let us undertake these works to the benefit of scholars in Australia, Papua New Guinea and the rest of the world.

The Discovery Room — one of the most exciting developments of all — designed for children, the Museum "trustees" of the future, provides the opportunity for "hands-on" and "minds-on" activities for the young. While the Trust provided \$230,000 over three years, an enthusiastic project team used "intrapreneurship" (being entrepreneurial within your own area) to develop projects including computer models of forests, identifying snakes and shells, understanding how shellfish adapt to the seashore and communication in human society. In extolling the educational virtues of the Discovery Room, it should be stressed it is not a place for kids only, but will be fascinating for adults as well.

The Discovery Room would not be possible without the support of sponsors, CSR Ltd, Caltex Australia and the Commonwealth Bank who each gave \$25,000, and IBM Australia who donated equipment worth \$30,000. Without the social conscience of these companies, such exciting new developments would not be possible. Similarly, Blue Circle Southern Cement's generous support, of \$100,000, will make possible the Human Evolution exhibition in 1988. Cleanaway, the refuse people, quickly donated \$15,000 when the Museum approached them late in the piece to help support the Urban Environment Exhibition, a temporary exhibit mounted in 1985/86. IBM, CSR, and Blue Circle Southern Cement are new "benefactors" of the Museum.

In the straitened circumstances in which governments find themselves the support of the business community is crucial to the continued development of the Museum. Significantly, the gaining of corporate sponsorship is a new expertise in which Museum administrators and staff will have to become increasingly proficient. I am personally grateful for the ability of the Director, Dr Des Griffin, in this area as well as in his traditional area as head of a progressive institution and academic counsellor to permanent, visiting and itinerant research staff. For a man whose background was crabs, Dr Griffin year by year demonstrates the creativity of a mind unconstrained by conservatism — if it hasn't been done before, it is a





Mr Jim Layt, managing director of Blue Circle Southern Cement was presented with a replica of a 1.9 million year old 'Homo habilis' skull by Mrs Kristine Klugman to commemorate the company's \$100,000 sponsorship of the Human Evolution gallery which will open in 1988.

challenge to Dr. Griffin rather than a problem. I acknowledge the great contribution he has made, personally, to the development of the Australian Museum during 1985/86, in the preceding years, and will make in the future.

It is comforting to see trends indicate that museums and cultural institutions are attracting far more patronage than other "institutions", such as football and cricket. While acknowledging these other "institutions" have their place in society, I feel a better balance is forthcoming. Figures show the Australian Museum ranks with Taronga Park Zoo and the Art Gallery of NSW as one of the three principal attractions in terms of visitor numbers. Dominance does depend on "blockbuster" exhibitions. The Australian Museum hasn't ruled out plans for exhibiting Monet sketches of Panda bears. . . .

Australian Museum staff have continued high levels of external and internal research and study synonymous with the Museum.

One consistent theme at Trust meetings is the listing of scientific research papers by Museum staff in August publications. Trust members are aware of the importance of maintaining and extending the Museum's reputation as a research body, and scientific excellence does not pass unnoticed. The Trust supported many of the staff in continuing their work overseas or in other areas of Australia. Among them were Betty Meehan, Hal Cogger, Greg Mengden, John Paxton, Pat Hutchings, Tim Flannery and Harry Recher who is spending a year studying forest practices and their impact on fauna at the Western Australia Institute of Technology. I am honoured, as is the

Trust, by the way our representatives have carried out their duties and studies away from home base.

Our home-based staff have also done us proud. With increasing emphasis on museums, and particularly the developments of the Museum of Applied Arts and Sciences (the Powerhouse Museum) and the National Maritime Museum in Sydney, the wage rates for our staff are starting to become under-valued in community terms. This only means that we must actively campaign to ensure that those who determine our staffing and salary levels understand that continuing excellence is as valuable to the community as new-found excellence. Trendy salaries elsewhere must be matched by commensurate rewards for those dedicated individuals whose only "sin" is that they do not change allegiances, and jobs, every two years.

Late in the financial year, after detailed submissions and much campaigning we were able to gain upgradings for the positions of Head of Education, and Head of Exhibitions, and Head of Community Relations. These "victories" were significant, but only in the light of a falling relativity for salaries generally within the Australian Museum. We will not be bypassed by other institutions, neither in the run-up to a Bicentennial nor in any other circumstances: if it is necessary for us to learn a new sophistication, whether it involves public relations or lobbyist professional as much as simple statistical reports, then the vibrant, adaptable Australian Museum will learn and adapt these necessary new skills.

Financially, it has been another moderately successful year in that we have traded adequately to meet the increasing commitments associated with building a better organisation; "moderately", because we can always do better, and I am sure we will. During the year we structured the financial reports differently to highlight surpluses in trading operations and the impact of the dollar-for-dollar subsidy from the State Government. I thank the Premier for his continuing involvement and interest in the Australian Museum and its task and duty of being a resource for the community. Without the Premier's personal support, and that of members of his department, the work of the Australian Museum would be devalued in the community.

I write this annual President's report at the end of my term of two years as President, and after a total of eight years as a Trust member. These have been privileged years for me, because it was an honour to have been a Trust member at all, and a much deeper honour to have been President for two years of Australia's premier museum.

In the same context, Robyn Williams was honoured by being awarded an Honorary Doctorate of Science from La Trobe University. He is an invaluable Trust member, and I leave the organisation secure in the knowledge that Robyn Williams will be the new President.

He will bring to the task an even greater dedication than he showed as a Trust member. I feel honoured to have as good a successor in Robyn Williams as I had a predecessor in Dr Joe Baker.

Finally I conclude with a quote of Lewis Carroll (Charles Lutwidge Dogson, 1832-1898) which remains as appropriate to the late 20th century as to the late 19th in the face of economic restraint, the search for the corporate dollar and the challenge of new museums:

"Now, HERE you see, it takes all the running you can do to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!"

Kristine Klugman  
President



# Director's Report



*One of retiring NSW Premier Neville Wran's last official functions was the ceremony to mark commencement of construction of the new Museum building. Mr Wran is pictured, with Director Dr Des Griffin, observing the work.*

The past twelve months has been an eventful time for the Australian Museum. Next year will prove even more so as the building program started two years ago comes to fruition. With the Bicentenary of European settlement of Australia in 1988 it's major natural history Museum will have come of age also. Constrained by limited space for too many years we will in the bicentennial year be at last able to branch out and show off the fruits of our scientists' research, our designers craft and our conservators and preparators skills.

During the discomforts and disruptions caused by construction work it is to the credit of staff that they continued to work with no loss of productivity. Upgrading of our fire sprinkler system and installation and connection of extra airconditioning and construction of new toilets in most of the foyers between the College Street and William Street buildings and as well as ordinary maintenance such as painting of areas has resulted in the Museum often looking like a battle ground. Progress was greatly assisted by the Museum's building co-ordinator whose position will remain until the completion of the new building.

The major exhibition project during the past year was the Mineral Gallery. Sponsored by the Utah Foundation and the Australian Museum Society it was opened by the Honorable Barry O. Jones, the Australian Government's Minister for Science on 30 June. Planet of Minerals is one of our most exciting exhibitions and displays brilliant examples of minerals and rocks from the Museum's collection together with interpretive graphics and text and opportunities for interaction. It is one of 11 new semi-permanent exhibitions opened in the past 10 years.

To make way for the new building the old Education Centre was demolished and staff of the Division relocated to the William Street wing; the carpenters' and joinery shop was moved from the south wing to the Yurong Street buildings. The Arid Australia exhibition was dismantled early in 1986: that space will be used to store objects for our 1988 exhibitions.

The four major exhibitions opening in 1988 will be the most ambitious exhibition program ever undertaken by the Museum with a cost estimated at almost \$2M. 'Dreamtime to Dust' will deal with Australia over the last 200,000 years and the impact on its landscape and environment of climatic changes and the arrival of Aboriginal and European people. Dioramas will feature life size reconstructions of extinct animals. Estimated to cost almost \$600,000, sponsorship of \$200,000 is being sought.

'Powers of Perception: Pacific Art through many eyes', a special temporary exhibition, will last 12 months and display 400 of the best of our Pacific collections, from the beautiful to the mundane. Sponsorship of \$150,000 is being sought for this exhibition which will cost around \$450,000.

'Arid Australia' and the Skeleton Gallery will be replaced with two semi-permanent exhibitions dealing with Human Evolution and Cultural Diversity.

The sponsorship by Blue Circle Southern Cement of \$100,000 for the exhibition on Human Evolution was especially significant this last year, as this is the largest sponsorship ever received by the Museum for any exhibition or educational program. Blue Circle Southern Cement's generosity was acknowledged at the announcement of the project by the Honorable Mr Bob Debus, Minister assisting the Minister on the Arts.

The Australian Museum Trust at its first meeting for the year enthusiastically endorsed a proposal to open a Discovery Room, a hands-on exhibition/educational program encouraging much greater interaction between people and exhibits. Four sponsors — Caltex Australia Limited, CSR Limited, IBM Australia Limited and the



Commonwealth Banking Corporation — generously agreed to be involved in this exhibition. The total sponsorship amounts to \$75,000 in cash and more than \$30,000 worth of equipment. The Trust itself will supply almost a quarter of a million dollars over the three years to June 1989 for this project, which is being managed within the Education division with the enthusiastic assistance of scientific and exhibition staff.

In most Museums throughout the world visiting public are able to enjoy guided tours of exhibitions. The Australian Museum has not provided such a service in the past, relying on the printed guiding materials supplied by our Education division and the interpretive brochures in the exhibitions themselves. However, many people expect guided tours and benefit greatly from them. A new project group involving staff from Community Relations, Administration and Science was formed to set aims and objectives, recruit volunteers, devise a training program and monitor the results. From a large number of applicants twenty volunteers were chosen and trained in the content of exhibitions, interpersonal skills and communication. Free guided tours commenced in May 1986 and have been enthusiastically received.

Following more than a decade of discussion between the Museum and the Public Service Board an agreement was reached, with the support of the Premier's Department for the establishment of several new senior positions. These are Chief Exhibition Project Manager, Principal Education Officer, and the upgrading of the position of Head of Community Relations. In addition, positions of Exhibition Project Manager were created to replace the Exhibition Officer positions which had for too long existed on inadequate salary scales; the significantly higher salaries recognised increased work value. A new position of Design Manager was also approved: this person will manage the day to day operation of the design group, until now a responsibility of the Head of the Exhibitions Division.

A new computer system was purchased to allow the Museum to manage the information associated with its vast collections. The system comprises an Australian-made Unison supermicro computer from Email. It has a capacity of 140 megabytes of disc storage and two megabytes of RAM. Up to eight interactive terminals can operate on the system and a TITAN software system is being used. This new database management system was developed at the University of Melbourne and is used in a number of other Museums and Herbaria in Australia. For the last ten years the Museum has been using the CSIRO computer system (CSIRONET), a system which has recently undergone major changes in hardware and cost. Our new system utilises more modern hardware and software and provides opportunities which would not have been available via CSIRONET.

No scientific institution can maintain its standards of performance without acquiring modern technology and replacing obsolete equipment. Consequently we were especially grateful for a special grant of \$40,000 from the Premier's Department through the Capital Works Fund for the acquisition of a number of microscopes, a large ultra freezer and a diamond saw.

Amongst the most exciting of our scientific research was the find of a new class of starfish-like animals, called Sea Daisies. Semi-spherical and with calcareous plates in their outer "skeleton", Sea Daisies occur in the very deep sea on driftwood.

The article describing these animals, one of the most important zoological finds in the last hundred years, was published in *Nature*, London and followed our exciting announcement of the one hundred million year old platypus like animal which appeared in the same journal last year.

The Australian Museum Society increased its membership by 115% and further expanded its extremely active program.

The Lizard Island Research Station completed another successful year but regrettably saw the departure of Barry and Lois Goldman, the Station's managers for the last nine and half years. Drs Barbara Kojis and Norman Quinn replaced them as Co-Directors.

Another doctoral fellowship was awarded and in May 1986, four special fellowships for 1988 were awarded to established Coral Reef scientists from Australia and the United States. This program, assisted by the Lizard Island Reef Research Foundation, will conclude with the presentation of the fellows' research results in August 1988 at the Sixth International Coral Reef Congress.

Financially, the Museum managed reasonably well. Total expenditure rose by 11%, consolidated revenue funds increased by just under 4% and funds managed by the Museum Trust rose by 19%. Importantly, gross revenue from Bookshop operations, together with sales of guiding materials and education materials, exceeded half a million dollars and the operations of Australian Natural History for the first time brought in more than \$200,000. Surplus on these operations together exceeded \$200,000 which will greatly benefit the Museum in the future. The Trust's own discretionary funds finished the year with an accumulated surplus of just over \$200,000 a decline over the previous year.

Australian Museum staff are distinguished by their dedication and enthusiasm. Combined with the large measure of financial independence gained by merchandising, donations and grants, and a willingness to evaluate performance and change course if necessary. These characteristics have allowed production of a significantly larger number of exhibitions, development of more education activities and achievement of more significant research and collection programs than in most other museums in Australia.

Many of the Museum's achievements have been as great as those of any natural history museum in the world. I believe this has been greatly assisted by attention to the recruitment, training and development of good staff and to planning and evaluation, a practice started by Director Emeritus John Evans in 1954 and continued by my predecessor Frank Talbot.

Whilst governments seek more and more to quantify performance, the more difficult search for quality may be put aside.

Distribution of resources by governments may be determined more by history, pressure groups and threats of impending disaster than by superior performance.

There is no doubt that the Australian Museum has lost out as a result. Most of the expansion in public and scientific activities has been funded by sources outside State Government. Operation of the Australian Museum of the future, with its additional space, will be possible only with greater Government support.

Likewise, the continuing failure of the Australian government to establish a Museums Commission to provide support for nationally important collections and public programs will exacerbate the Australian Museum's problems. Economic gloom cannot be allowed to lead to a loss of the gains made in recent decades, but more especially those of the last ten years under the vigorous and enlightened patronage of retired New South Wales Premier Neville Wran.

Des Griffin  
Director



# Anthropology Division

*'Young Prince' mask and headdress from the Anthropological collection is worn in the Balinese Topeng dance drama.*



Our projects cover the cultural heritages of the indigenous peoples of Australia, the Pacific and Indonesia. The Division welcomes co-operative projects with these peoples and encourages their access to information and collections about their material cultures.

## Highlights

- Completion of a travelling exhibition based on the "Aboriginal Australia" gallery.
- Commonwealth travel award to Phillip Gordon, Aboriginal Liaison Officer, to study involvement of indigenous peoples in the organisation and management of cultural affairs in Vanuatu, New Zealand and Hawaii.

## New Exhibitions Planned

Betty Meehan joined the team for a 1988 semi-permanent exhibition on the diversity of human cultures. Diane Losche was engaged as consultant for this gallery, and Jim Specht served as team chairperson. Jim Specht was also scientific officer to a major 1988 temporary exhibition on the Pacific, serving as team chairperson. Zoe Wakelin-King provided scientific expertise for a small semi-permanent exhibition on regional Indonesian cultures which includes a Javanese gamelan orchestra. This orchestra will be available in the gallery for performances and demonstrations.

## Growth of the Collections

The major addition to the collections was a very large Papunya painting by Michael Nelson Jakamarra loaned for display in the 1986 Sydney Biennale, which will go on display in the Museum. Another large painting, by Rosie Nangala of Yuendumu, was also acquired.

Other acquisitions included a collection of contemporary artefacts from the Sulka people of New Britain, Papua New Guinea, and woven items from the former Caroline Islands (Federated States of Micronesia). Other contemporary artefacts were acquired from Kowanyama, the Kimberley and Central Desert regions, and Yuendumu. This emphasis on contemporary material reflects the Division's commitment to ensuring that its collections reflect the changing material cultures of the region.

## Collection Information

The computerised file on Aboriginal ethnographic collections was brought into full operation: it ensures rapid access to information and is supplemented by photographic coverage of significant parts of the collections. Progress was made with the preparation of illustrated catalogues of NSW items and of the Roth collection. Betty Meehan finished gathering data for the survey of Aboriginal collections in Australian museums sponsored by the Council of Australian Museum Directors.

## Moving Preparations

Extensive planning was completed for the move of the Pacific Islands' and Aboriginal collections when the new building is finished. Kathy Barnes, Alex Szalay and Neville Baker assisted in compiling up-to-date inventories of parts of the Pacific collections.

Nan Goodsell and Tania Konecny were appointed, on a half-time basis, as documentation officers for the Pacific and Aboriginal collections respectively. During the year they cleared the back-log of unregistered items.

## Research — Field and Elsewhere

All fieldwork during the year was within Australia. Ronald Lampert and Phillip Gordon visited the Kimberley and Central Desert regions of Western Australia to begin field studies of contemporary material culture, and returned to continue this work at the end of the year. Lampert began an archaeological project in the Lake Eyre region of South Australia.

Kate Khan successfully completed at Yuendumu a basic course in the Warpiri language of central Australia to assist her in studies of the material culture and art of the area.



# Earth Sciences Division

Betty Meehan received a grant under the ARCS scheme to work with Dr Neville White, La Trobe University, Melbourne, on the contemporary subsistence and material culture of several Aboriginal communities in the Northern Territory. Fieldwork in 1986 will last five months.

In May Jim Specht organised a workshop on the Lapita Homeland Project carried out in 1984/85 at the Museum. Over 30 scientists including participants from the U.S.A. and New Zealand attended.

## Anthropology and the Community

Members of the Division spoke to groups within and outside the Museum. In his Aboriginal Liaison work, Phillip Gordon visited communities in Wagga Wagga, Bourke, Brewarrina, Tweed Heads, Yamba, Bateman's Bay and Canberra. He also spoke to visiting groups on the "Aboriginal Australia" gallery.

## Universities and Conferences

Seven grants-in-aid were made to post-graduate students in Australian Universities as part of the Trust scheme to promote the study of material culture and other fields of relevance to the Museum.

Betty Meehan gave a paper at the 13th International Congress of Nutrition in Brighton, England, at the Second Australian Gastronomy Conference and at a conference on Greek Colonisation and Native Populations. Ronald Lampert attended the annual conference of the Australian Academy of Humanities. Several members of the Division presented papers at other conferences including the Australian Archaeological Association Annual Conference and the Conference of Museum Anthropologists.

## Appointments

Betty Meehan and Ronald Lampert served on advisory committees of the Australian Institute of Aboriginal Studies. Betty and Ronald also sat on committees of the Australian Archaeological Association. Ronald Lampert represented the Museum on the Aboriginal Sites Advisory Committee of the NSW National Parks and Wildlife Service, and the Council of the National Trust (NSW). Kate Khan and Phillip Gordon were made Associate Members of the Australian Institute of Aboriginal Studies.

## Donations

The Division gratefully acknowledges donations of artefacts and photographic materials from M. Tuckson, I. Howie, F. Rehuher, Sir Charles Moses, P. and G. Pulati, Dr E. Scheibner, B. H. Cunningham, M. Mattke, K. M. Katz, P. Watson, J. P. Ramsay, K. Cummings, and M. Abbott.

## Future Plans

- Two new galleries for 1988 will move to the production phase
- The first period of fieldwork for the Sepik Documentation Project will be carried out
- The national survey of Aboriginal collections in museums will be completed
- Preparations for moving the Pacific and Australian collections will be completed.

The Division maintains comprehensive fossil, mineral, rock and meteorite collections from Australia and overseas and also provides information and advice on palaeontology, mineralogy and petrology to research workers, the general public and the media. The Division's research activities focus on the evolution of early backboned animals and on volcanicity and upper mantle geology in Eastern Australia.

## Highlights

- Opening of new Mineral Gallery
- Removal and relocation of the Hall of Fossils.
- Transfer of type fossil collections from Sydney University.

## Mineral Gallery Opening

The efforts of the mineralogy staff have been directed into preparation of the spectacular new Planet of Minerals Gallery. Minerals are examined in their environment of formation. The emphasis is on involvement by relating to a visitor's own experiences and encouraging them to explore beyond this. Touch specimens, talking specimens, videos and microscopes are used to involve the visitor.

## Collection Management

During the year a large part of the type fossil list was updated and placed on computer. The transfer of Sydney University's type fossil material has considerably enhanced the Australian Museum's fossil collection.

The entire display collection of minerals has been photographed individually for insurance purposes.

## Growth of the Collection

During the year over 1460 fossil specimens were registered, mostly material transferred from the Department of Geology and Geophysics, University of Sydney. These included the historically significant Tenison-Woods plant fossil collection formerly housed in the Macleay Museum, University of Sydney. Other donations include thirty Tertiary vertebrate fossils from the United States from Mr & Mrs W. Bowles of Denver. A large collection of fossil and recent mammal material (marsupials and rodents) and replicas of Mesozoic and Cainozoic mammal jaws was received from the estate of the late Mr J. Mahoney, a Research Associate. Purchases include two fine Pleistocene echinoids from Mexico and half a tonne of fossiliferous blocks from the Talbragar Fish Beds near Gulgong NSW, collected privately before it became a geological reserve.

Outstanding gemstones recently added to the mineral collection include a large Australian diamond from Argyle, W.A., a 17 ct. deep blue sapphire from Sri Lanka, a large aquamarine from Brazil and an unusual blue tourmaline from Kangaroo Island, S.A.

Other noteworthy additions were fluorite specimens from China and a spectacular charoite vase from the USSR. A magnificent large white opal, known as 'Desert Beauty', weighing 290 cts. and valued at over \$8000 was donated to the new Mineral Gallery by Mr Brian Paradine of Sydney.

Sir John Proud, former Museum Trustee, donated a specimen of proudite and gold ore from Tennant Creek.

The Chapman Collection, one of the best private collections in the world, has been valued and a dossier prepared to approach sponsors. It is hoped the collection





Museum mineralogist Dr Lin Sutherland shows The Hon. Barry O. Jones, Minister for Science, through Planet of Minerals on opening night.

will remain in Australia and sponsorship is being sought under the Tax Incentives for the Arts scheme. The collection is valued at \$2 million, and sponsorship for this collection could be in part, or over several years.

#### **Fossil Gallery Relocation**

The fossil gallery was closed to the public during most of the year for dismantling and reassembly two floors higher, replacing the former Hall of Life. The *Stegosaurus* skeleton replica is now inside the new gallery, replacing the giant sloth skeleton which was disarticulated, repaired and placed in storage.

#### **Halley's Comet Display**

The visit of Halley's Comet was marked by a temporary display, 'Cosmic Contacts', in the Mineral Gallery foyer. Meteorites were loaned for display to the Geological and Mining Museum, to Sydney Observatory and to Miranda Fair Westfield Plaza for a 'Westfield welcomes Halley's'; the latter aroused considerable interest and proved a major attraction for shoppers. Dr Hollis gave numerous radio and TV interviews relating to the Comet.

#### **Rock-solid Advice**

Mineralogy advised the Bicentennial Darling Harbour Project on the type and source of suitable rocks for a landscaped Chinese garden which will form part of the recreation park.

#### **Opal Jaw Makes World News**

The 100 million year old opalised mammal jaw from Lightning Ridge, NSW was formally described in an article in 'Nature', the international scientific journal. The jaw was featured in full colour on the cover, a rare honour, recognising its beauty as well as its scientific importance. The animal was named *Steropodon galmani*, meaning 'flash-of-lightning-tooth' and acknowledging the part played by Dave and Alan Galman of Lightning Ridge, in whose collection, acquired by the Museum, this unique specimen was discovered.

#### **Fossil Replica for Canada**

In March 1986 the new Tyrrell Museum of Palaeontology in Drumheller, Alberta, Canada, urgently requested a replica of one of our treasures, the large fossil fish slab from Canowindra, NSW on display in the Hall of Fossils. The slab bears over 100 complete specimens of four types of early fishes. Several fibre-glass replicas of the spectacular Canowindra fish slab have been produced by Robert Jones with volunteer assistance.

#### **Field Work**

Fossil labyrinthodont bones discovered by Robert Jones in Triassic sandstone on the rock platform at Long Reef, Sydney, were excavated and recovered with the help of members of the Fossil Club of NSW, Robert Jones



and Kate Lowe visited the Willi Willi Caves west of Kempsey, at the invitation of the Kempsey Speological Club, to inspect and photograph a fine skull and associated remains of a *Thylacine* and plan its safe recovery.

In April Alex Ritchie joined Reg Morrison, one of Australia's leading natural history and landscape photographers, in Central and South Australia. From a site in the western MacDonnell Range Alex collected many complete specimens of the Devonian armoured fish, *Bothriolepis*, and a complete head of a lobe-fin crossopterygian fish, the first such discovery in Central Australia. A range of Precambrian and Ordovician fossils was also recovered for the collection and for display purposes.

A Queensland field trip was undertaken by Lin Sutherland, Dr Julian Hollis and Allan Robinson of the Geological Survey of Queensland to investigate areas which are to be included in a forthcoming publication on Eastern Australian volcanism. The volume is a summary publication from various authors working in this field and publication is planned for the bicentenary. Lin Sutherland is preparing chapters relating to central Queensland and Tasmania.

#### International Gemmological Conference

Honorary Research Associate, Oliver Chalmers was involved in the organisation and was made an honorary member of the Conference. Lin Sutherland presented a paper on the origin of Australian gemstones with volcanic connections and Oliver Chalmers a paper on gemstones in Australia. Oliver led an excursion, attended by conference participants, to Lightning Ridge, the sapphire fields around Inverell and other gemstone localities.

The Museum arranged a special 4 hour high security display of the finest gemstones in its collection. Lin Sutherland and Mr Chalmers attended the conference.

#### International Vulcanological Conference

Lin Sutherland attended the International Vulcanological Congress held in New Zealand and presented a paper on 'Rift Spreading, Hot Spot Vulcanism and Eastern Australia'.

#### Projects in Progress

Dr Ritchie continued research on the origins, evolution and distribution of early vertebrates in Australia and their relationships with contemporaneous faunas on other continents.

Research in mineralogy is concentrated on two aspects: the origin of volcanic rocks in Eastern Australia, and the material brought up in volcanic rocks which tells us about the mantle, the lower crust and the high pressure origins of volcanic rocks. Another aspect includes a study of the origins of gemstones in Western Australia including sapphires, zircons, and diamonds. This work is in collaboration with Professor William Griffin from the Oslo Museum.

One of the most interesting research problems being investigated by the team is the origin of the zircons and sapphires in eastern Australia. Dr Julian Hollis is finding some unusual aspects to the origin of these materials and hopes soon to identify the source rocks for the gem sapphires, zircons and diamonds.

From studying large zircons, the project has changed to a study of the small zircons found in volcanic rocks. The smaller zircons are surprisingly abundant and since they are in the rock which formed at the surface, their crystal habits are sharper and tell us more about their formation. Electron microprobe examination is used to determine the chemical composition, yielding

information which enables dating of the rocks by fission track dating.

Zircons are the key to unlock the origin of the volcanic gemstones. Sapphires do not have the fission tracks and so cannot be dated but they are associated with the zircons at the time of formation.

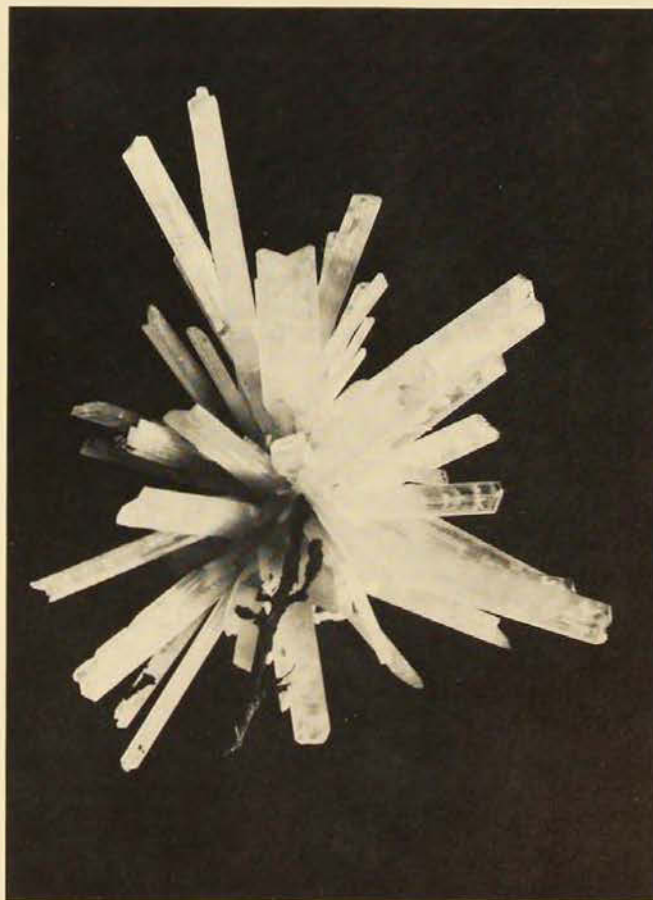
Lance Raynor from Sydney University Geology Department has helped enormously with analytical work associated with this project. Ross Pogson has been particularly helpful in the magnetic surveys of volcanic pipes. We would also like to thank Dr Allan Robinson of the Geological Survey of Queensland for his contribution to this work.

#### Community Involvement

Division staff gave talks and illustrated lectures to interested groups in the community. Alex Ritchie kept up an active public response to attempts to have fundamentalist creationist views taught in science classes in NSW public schools.

#### Future Plans

- Computerisation of major sections of the geological collections.
- Sponsorship is being sought for the purchase of the Albert Chapman mineral collection.
- Completion of the new Gem Room adjacent to the new Mineral Gallery





# Invertebrate Zoology Division

The Invertebrate Zoology Division undertakes evolutionary, biological and ecological studies on various invertebrate animals (animals without a backbone); establishes and maintains collections, especially relating to Australia; communicates research findings to scientific and educational groups and the public; and encourages use of the collections for research.

## Highlights

- Greatest echinoderm find in over 150 years.
- Dedication of Joy Kerslake Room.

## Collections Management

Our invertebrate collection continues to expand with the following material registered, 1,200 *crustaceans* (crabs and their relatives), 500 *echinoderms* (sea-stars and their relatives), 1,300 worms, 27,000 insects, 20,000 *molluscs* (snails and their relatives) and 1,300 spiders. Computerisation of the spider and crustacean collections is continuing with the echinoderm collection being prepared for computerisation.

## Valuable Donations and Exchanges

Donations and exchanges considerably increased the value of our collections. The insect collection has benefited from substantial collections from Canada, Fiji, New Guinea and Australia including 1,114 types. The marine invertebrate group (crustaceans, echinoderms and worms) attracted important donations including marine amphipod crustaceans from Russia; polychaetes from China, NSW and Western Australia; echinoderms from Taiwan, and deepwater echinoderms from NSW. A large number of types were deposited in the collections from Australian and overseas workers, enhancing the value of the collections.

A large donation of western American tertiary fossils was presented by the University of California, Berkeley to the Mollusc Section. Large collections of shells made by the late J.A. Kerslake, W.M. English, P.E. Schivrin and M.W. Utick were donated; as were large collections of nudibranchs from Hong Kong by Dr B. Darvell and from northern Tasmania by G. Close.

## International Visitors

Dr Harry ten Hove from the Zoologisk Museum, Amsterdam, and Visiting Fellow in the Division for 3 months undertook a revision of Australian serpulid worms, worms which secrete a calcareous tube. Dr ten Hove considerably increased our knowledge of the serpulid fauna, especially of northern Australia; and the results of his work will make it easier for us to identify many of these common fouling organisms. Another visitor to the Worm Section was Mr Zhang Song Ling, Deputy Director of the Natural History Museum in Shanghai. Mr Zhang was funded by the Australia China Council. As well as studying polychaete worms, he was very keen to study our varied extension services and sat in on numerous children's lessons at the Museum, the Royal Botanical Gardens and the Taronga Park Zoo. He gave a talk on natural history museums in China, and highlighted the considerable differences which exist between museums in the two countries.

Dr Brian Kensley and Dr Jerry Barnard from the National Museum of Natural History, Smithsonian Institution, Washington, D.C. spent several weeks in the

Crustacea Section, working on deep water prawns and amphipods respectively. Dr Kensley was completing a major project with Dr Des Griffin and his former research assistant Ms Helen Tranter on deep water prawns found off the NSW coast.

Numerous overseas workers visited the Mollusc Section, including Prof Carol J. Hickman of University of California and Prof Ruth Turner of Museum of Comparative Zoology, Harvard University, both spent considerable periods of time in the Museum completing sections of their research.

## Greatest Echinoderm Find in over 150 Years

While in the National Museum of New Zealand with Drs A.N. Baker (Assistant Director) and H.E.S. Clark (Research Associate) of that Museum, Dr Frank Rowe discovered a new form (Class) of echinoderm. It is disc shaped, has no arms or gut and gives birth to live young. The tube-feet occur in a ring close to the rim of the animal.

This is the most significant find of any living echinoderm because of its peculiar shape. The only other echinoderm known to have a similar shape lived between about 450-350 million years ago. Knowing what a living form looks like may help re-interpret the soft structures of the fossil form. A great deal of interest has been aroused amongst local and international zoologists. The new echinoderm has been nick-named "Sea Daisy" because it looks "daisy"-like from above.

## Joy Kerslake Room

In April the 150,000th register entry was made and the occasion used to dedicate the Joy Kerslake Room housing the bivalve collections in recognition of the efforts of Associate Joy Kerslake, a volunteer for 30 years, who curated these collections since 1973. Joy died in October 1985.

## Research Projects

Dr Jim Lowry finished his work on the callynophore, a newly discovered sensory organ found on the antennules of many higher crustaceans.

Jim Lowry and Dr Poore (Museum of Victoria) completed a joint study of an ingolfiellidean amphipod from Bass Strait. This is the first record of this little known crustacean suborder from the south-west Pacific area.

Dr Niel Bruce has completed a monographic study of the Australian cirolanid isopods (marine "sea lice"). A monographic study of the fish lice (isopod) of longtoms, garfish and needlefish will also be published this year.

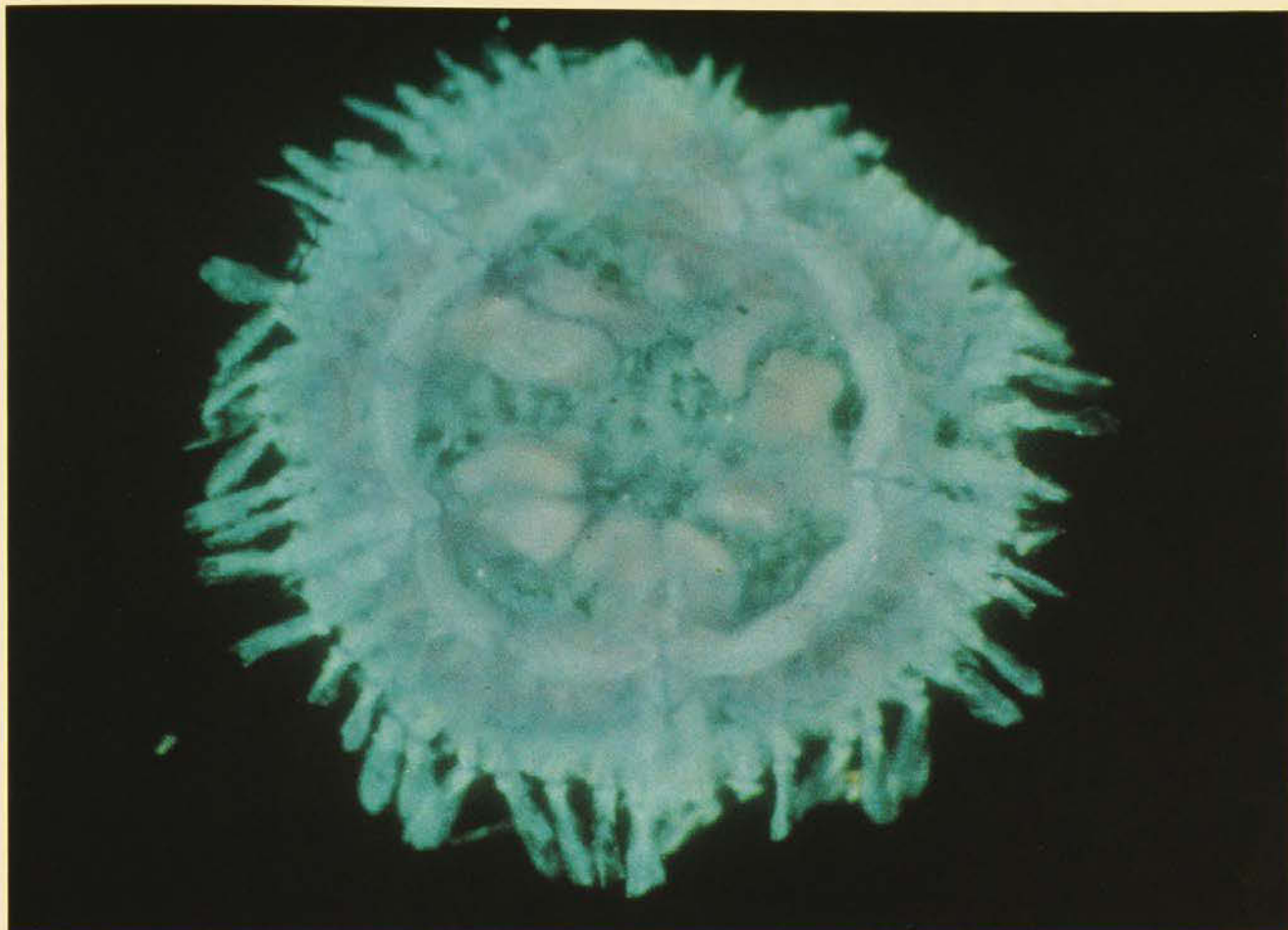
Dr Pat Hutchings with Chris Glasby has completed a revision of the polychaete family Terebellidae in Australia, and over 60 new species have been described.

Pat Hutchings and Mandy Reid completed a study on how polychaete worms bore into coral, and using a combination of a scanning electron microscope (SEM) and histological techniques have found that some worms dissolve the coral using acid secretion whereas others eat the coral using their jaws. Individual tooth marks could be seen in the walls of their burrows under SEM. Dr Allan Jones has sampled the Hawkesbury benthic community for seven and a half years in order to describe variation in space and time and relate biological patterns to physical features of the environment such as salinity and sediment type. All the samples have been sorted and the processing of data and writing-up of results are now well under way.

Dr Winston Ponder completed a large monograph on the genera *Murex* and *Haustorium* of the Indo-West Pacific. A new family based on the pyramidellacean limpet *Amathina* has been proposed by Dr Ponder in a paper dealing with its anatomy and relationships. Winston Ponder has also written a chapter on artesian springs has been written for a text book on Australian



'Sea Daisy' *Xyloplax nedusiformis* was collected from a lump of wood at Castle Point in the North Island of New Zealand by Dr Frank Rowe.



limnology and completed a paper on the conservation of these habitats.

Dr McAlpine made a study of the classification and evolution of upside-down flies (Neurochaetidae).

Two major research projects were completed this year by Mike Gray. The first, a study of the systematics and biology of the funnel web spider (Hexathelidae: Atracinae) has been submitted as a doctoral thesis at Macquarie University. A paper on the work was presented at an inaugural Arachnological Symposium held in association with the 1986 Conference of the Australian Entomological Society. The second project, a systematic revision of the spider family Gradungulidae, has been submitted as part of a co-authored revision of the superfamily Hypochiloidea (the primitive cribellates).

#### Research in Progress

Jim Lowry and Ms Stoddart continue their studies (supported by Marine Sciences and Technology (MST)) on the Australian lysianassoid fauna. Jim Lowry and Penny Berents began a study (supported by ABRS) of the cerapod amphipods of Australia). These small tube-dwelling crustaceans live in coastal waters around Australia and appear to be the most diverse cerapod fauna in the world.

Jim Lowry and Dr Barnard (Smithsonian Institution) studied deep sea phoxocephalid amphipods from the Tasman Sea. Frank Rowe continues his involvement in various studies of the taxonomy and biogeography studies of Australian echinoderms. The preparation of the echinoderm volume of the Zoological Catalogue of Australia funded by ABRS has begun.

Pat Hutchings is completing her study on Australian terebellids with Chris Glasby, with a review of the biogeography of this important group of worms in Australia.

A detailed study on the rates of bioerosion of coral substrates carried out at Lizard Island over the past 5 years funded by MST is being prepared for publication.

Further studies on Indo-West Pacific chromodorid sea slugs by Dr Bill Rudman are being prepared for publication and a major long-term project revising the high classification of the nudibranch sea-slugs is in progress.

Studies are continuing on hydroid snails from artesian springs and the family Fusinidae (spindle shells) from the Indo-Pacific by Winston Ponder.

Dr Bickel continues his research on the fly family Dolichopodidae (long-legged flies) under an Australian Museum Trust Visiting Fellowship, and, from January 1986, as a temporary Scientific Officer.

The scanning electron microscope at the Department of Agriculture, Rydalmere is being used in a study of the sensory structures and genitalia of the filistatid spiders by Mike Gray.

#### Field Trips

Jim Lowry and Dr Friend (Western Australia Wildlife Research Centre) collected terrestrial crustaceans in the forests of east Gippsland in order to supplement the excellent collections in the Museum and to provide fresh material for Dr Friend's ongoing studies on the terrestrial amphipods of Australia.



Right: *Xenuromys barbatus*, one of Papua New Guinea's rarest rodents held by a young Mianmin helper. (Photo by Tim Flannery)

Below: *Mallomys rothschildi*, a giant murid collected in Papua New Guinea's western mountains. (Photo by Gary Steer)



*Loveridgelaps*, a Solomon Island elapid snake was collected outside the range of the known species and may represent a new form although it is closely related to Australian venomous snakes.



# Vertebrate Zoology Division

The FRV "Kapala" was made available to the division by the NSW Department of Agriculture, Division of Fisheries, for two weeks during December (1985 and January 1986). Excellent epibenthic sledge samples, containing large numbers of peracarid crustaceans, echinoderms and polychaete worms were obtained from depths not previously represented in our collections.

Bill Rudman collected and studied sea-slugs on a field trip to Victoria and southern NSW with Geoff Avern and Scott Carter. Recording the shape and colour of living sea-slugs is essential for identification.

Winston Ponder collected non-marine and estuarine molluscs, mainly for the hydrobiid project from south Western Australia. Work on the Western Australian Museum collections was carried out during this same trip to WA. He also visited New Caledonia, to investigate hydrobiid radiations in southern New Caledonia with Dr P. Bouchet from the Paris Museum. He is on an extensive overseas study tour from May 1 to Europe to study collections and attend a workshop on marine molluscs in Ceuta, Spain and was awarded a visiting Professorship at the Museum National d'Histoire Naturelle, Paris.

David McAlpine visited the beaches of South Gippsland, Victoria, to sample the kelp-flies which are important in breaking down the masses of stranded seaweed. He obtained six species, only one of which was previously named and described.

## Community Involvement

During 1985/86, Dr Jones delivered lectures to the Workers Educational Association and attended Hawkesbury boat trips as commentator to National Parks and Wildlife Association members. He has advised various bodies on matters relating to research, management and environmental impact. These include the S.P.C.C. (Hawkesbury research and marine outfalls), the D.E.P. (Hawkesbury environmental management), the MWS & DB (marine impact) and local councils and resident groups (environmental impact). He has also served on the National Trust Coastal Conservation Committee. Ms. Murray has identified specimens from environmental impact sampling.

Ian Loch gave talks to Cairns and Townsville Shell Clubs. Phil Colman conducted tours of Long Reef rock platform for Museum volunteers, Royal Zoological Society members and local schools.

Pat Hutchings continued as Honorary Secretary of the Australian Coral Reef Society.

Phil Colman attended a Standing committee on agriculture meeting in Perth called to monitor progress of the *Helix aperta* eradication program. He also liaised with Australian National Parks and Wildlife officers in Canberra concerning the implementation of regulations restricting the export of Australian fauna.

Geoff Holloway has given lectures to a number of natural history societies, Sydney and Petersham T.A.F.E. Colleges as well as running insect identification and collecting workshops over several weekends.

## Student Involvement

Many of our Scientific Officers are co-supervising graduate students, and this involvement is being encouraged by the recently inaugurated Postdoctoral Fellowship Scheme and the first three successful students are all co-supervised by people in this Division. The successful applicants were Penny Berents — co-supervisor Jim Lowry, Chris Glasby — co-supervisor Pat Hutchings and Greg Skilleter — co-supervisor Winston Ponder. A total of 11 students are being supervised by staff in the Division. Many of these students spend considerable lengths of time and actively participate in the Division.

The Division manages collections of vertebrate animals, primarily from Australia; provides information to scientists and the community and encourages and engages in, research on the taxonomy and ecology of vertebrate animals of Australia and surrounding regions. It also focuses on the ecology and behaviour of Australian vertebrates — mammals, birds, reptiles, amphibians and fish — and the application of ecological principles to land management.

## Highlights

- Major collections received from Papua New Guinea.
- Evidence found of rare Hairy-nosed wombat

## Scientists Participate in International Studies

In November Dr Hal Cogger spent a month in Japan working with Professor Nobuo Tamiya of Tohoku University, Sendai, and Associate Professor Harold Heatwole (University of New England, Armidale) on the relationships of laticaudid sea snakes of the Pacific region.

The Second International Conference on Indo-Pacific Fishes was held in Tokyo in July and August and papers were presented by Doug Hoese, Jeff Leis, and John Paxton. The Crown Prince of Japan (a Research Associate of the Museum) was the patron for the Conference. The First International Conference was held in the Australian Museum in 1981. Fish collections were examined in several Japanese institutions. The Australian Society for Fish Biology annual conference was held in Melbourne, and included a two-day conference on endangered fishes as well as a one-day session on the computerization of fish collection data. Jeff Leis presented a paper at the AMSA conference, held in Hobart.

Hal Cogger attended two overseas conferences in Europe during August-September 1985. He delivered a paper on the endangered Fijian crested iguana while at the Societas Herpetologica Europea in Prague, in Budapest he attended the meeting of the International Union of Biological Sciences where he represented the Committee of the International Herpetological Congress and assisted in obtaining the formal affiliation of that body with the IUBS. He also attended a meeting of the International Commission on Zoological Nomenclature, of which he is a Commissioner.

In December, John Paxton left for Hamburg, W. Germany, where he will be based for most of the year studying the whalefishes held in the collections of several major European museums.

## Field Studies and Donations

Several collecting trips added new species to the fish collection. Doug Hoese and Denise Rennis spent 6 weeks in Western Australia collecting mangrove and freshwater fishes. Mark McGrouther and Sally Reader participated in a C.S.I.R.O. cruise off Townsville to collect fishes from water depths of 200-300 m, and Mark also added new species of deep-water fishes to the collection through a collecting trip off Sydney in the *F.R.V. Kapala*.

More than 2000 lots with over 9000 specimens of adult and larval fishes were added to the collection. Sixty eight loans were sent out consisting of over 500 lots and 2000 specimens.



A very rare Solomon Islands elapid snake *Loveridgelaps elapoides* was received from Michael McCoy for study by Dr Cogger and Dr Mengden.

Ken Aplin of the University of NSW staff from the South Australian Museum collected over 1200 mammal specimens from two areas in New Guinea. The division has also received a collection of 750 New Guinea rodents obtained by Dr Pat Woolley of La Trobe University. Dr Peter Dwyer of the University of Qld donated over 700 mammal specimens he collected in New Guinea in the 1970s.

These collections have increased our specimens to the point that we now hold the world's third largest collection of New Guinea mammals.

A major collection trip was carried out in Old's Cape York area last September-October by Linda Gibson with Harry Parnaby, a Ph.D. student from the University of NSW working on the taxonomy of small bats in Australia. The 150 specimens collected represent 22 species of mammals.

A modified registration process has allowed us to register over 1000 specimens in the last year. Largely due to short term grants for former volunteers experienced in this work. Staff output in the preparation of specimens for research collections has increased.

Dr Allen Greer went to the Kimberley and northwest Australia in August-October to collect sand-swimming skinks for his study on limb reduction in lizards. Hal Cogger and Greg Mengden, Research Fellow collected elapid snakes and other species in Papua New Guinea and the Solomon Islands.

Research into the mammal fauna of West Sepik Province, P.N.G. continued with two trips to remote locations by Tim Flannery. This resulted in the collection of over 900 mammal specimens, including several species not previously held by the Museum. Additional material of an undescribed species of *Phalanger* was obtained that will aid in scientific description of the species.

Joint work with various lapita pottery project participants on subfossil faunas from the islands north of New Guinea has resulted in some surprising findings. Perhaps the most intriguing is that the present rodent and marsupial fauna of New Ireland is probably almost all introduced by humans.

The entire spirit collection of birds was reorganized and rehoused, greatly assisting its use and curation.

Construction of walls enclosing the cabinet area will permit better collection management through optimum environmental conditions.

Extensive collecting trips were made with Max Thompson of the Southwestern College and University of Kansas. During December 1985 — January 1986, work was carried out near Merriwa, Mt Coricudgy, Cobar, Eden, Bombala and Urbenville, NSW.

Walter Boles spent ten days at Riversleigh, Queensland collecting fossils of birds and lesser vertebrates.

#### Ecology and Land Management Studies

The movements of honeyeaters in heathland in Brisbane Water National Park have been followed for the last year using radio-tracking with transmitters attached to the birds. This technique has confirmed expectations that the availability of nectar would govern the movements and nesting behaviour of these birds. It is part of a research program led by Dr Pyke which seeks to determine the factors controlling the abundance and movements of honeyeaters.

Through pollination research on Christmas Bells at the Barren Ground Bird Observatory near Jamberoo,

NSW and subalpine plants in Colorado, Drs Pyke and Michael Zimmerman of Oberlin College (USA) are exploring the adaptive significance of floral nectar production.

Possible effects of introduced honeybees on native bees are being explored by Drs Sugden and Pyke in the Nadgee Nature Reserve near Eden. This study should contribute towards improved management of honeybees.

Dr Recher commenced a nine month study of forest ecology at the Western Australian Institute of Technology, Perth.

Division staff continued to monitor the effects of wildfires, censused breeding bird populations in heathlands and studied foraging behaviour of insectivorous birds and small mammal populations in the forest.

#### Research

The first volume of the Catalogue of Australian Fishes for the Bureau of Flora and Fauna was completed and publication is expected in 1987. Work is underway on the second and final volume.

Other fish research projects include systematics of gobies, kelpfishes, and gudgeons, distributional ecology of reef fish larvae and taxonomy of larval snappers and fusiliers, taxonomy of spiny flatheads, the distribution of Sydney Harbour fishes, and systematics of whalefishes.

Volume II of the Larvae of Indo-Pacific Coral Reef Fishes has begun under MST funding. This volume will cover descriptions of the larvae of approximately 50 families of coral reef fishes.

Reports of the existence of a series of wombat burrows near Deniliquin in NSW (an area where no wombats had been sighted for over 80 years) prompted an investigation of the site in June. Fresh evidence was discovered of the presence of wombats. Analysis of hair found on site confirmed the identification of the animal as a species of Hairy-nosed Wombat *Lasorhinus*.

Linda Gibson gave a talk on this to the scientific meeting of the Australian Mammal Society in Adelaide in May 1986.

Field work will continue in this area in order to determine the number of animals present and to positively identify the species.

Walter Boles completed his section of the ABRS Faunal Directory on native and introduced Australian finches, and also completed the manuscript for a National Photographic Index book 'Robins and Flycatchers'.

Walter Boles began a study of the Tertiary birds of the Riversleigh deposits, northwest Queensland. These are important because they contain, among other things, the earliest known fossil record of songbirds in Australia.

Walter Boles and Ian McAllan submitted the report of their ornithological survey of the Willandra Lakes World Heritage Region, contracted by the NSW Dept of Planning and Environment.

#### Community Activities

Linda Gibson was invited to sit on the Coastal Conservation Committee of the National Trust and the Endangered Species Committee of the Australian Conservation Foundation. Linda also represented the Museum on a committee to protect the flying fox colony in Sydney's Gordon.

Walter Boles taught an 'Ornithological Techniques' course at Sydney Technical College and a short course on preparation techniques at Barren Grounds Bird Observatory.



He also served as President, Australian Bird Study Association/Member, Taxonomic Advisory Committee, Royal Australasian Ornithologists Union.

Ecology and Land Management studies in progress

#### **Amateur and student support**

The Peter Rankin Trust Fund for herpetology awarded the following four grants in 1985/86

- Ray Field for studies on the reproductive biology of Australian pythons
- Paul McKeown for observations on she-oak skinks, blue-tongue skinks and bearded dragons
- Anna Medlin for studies on the taxonomy of *Litoria caerulea* and *L. gilleni*
- David Robinson, Brad Maryan and Robert Edward Browne-Cooper for a reptile survey of Cooleenup I., W.A.

#### **Future Plans**

- Expanded studies on pollination ecology including the importance of bats as pollinators.
- Completion of Volume II of the checklist of fishes for the Zoological Catalogue of Australia.
- Publication of first comprehensive work on mammals of New Guinea.
- Expanded studies on pollination ecology.

#### **Associate**

Mr. Jack Mahoney, a valued associate of the Mammal section for many years, died in October 1985. An authority on the classification and evolution of Australian mammals he gave valuable advice and assistance with the collection over many years.

# Community Relations Division

The Community Relations Division is responsible for increasing the awareness of the Museum as a centre of scientific expertise, a source of enjoyable experiences and an educator. Through the publication of Records of the Museum, Australian Natural History magazine, promotional brochures, material on new exhibitions and the Annual Report, the division disseminates knowledge about Australia's natural environment and cultural heritage.

#### **Highlights**

- Australian Natural History magazine ends the financial year with a record surplus.
- Museum Shop increases turnover by 19% and net profit by 98%.

#### **Australian Natural History Magazine**

The magazine continues to progress with a large increase in colour photographs and a vastly improved design. Research into revenue generation has resulted in increased advertising and greater income from the sale of re-prints, bulk copies and a successful back issues campaign.

A massive reader survey, the second in four years, has assisted in establishing our reader profile and pointing out target audiences. Direct marketing has proved the most efficient and cost-effective method of increasing subscriptions.

Topics featured during the year included crocodile conservation, Downy Creek logging, Halley's Comet, the Pinnacles Desert and a first aid guide to treating bites and stings from dangerous Australian animals. New features include Quips Quotes and Curios and a 'Wild Foods' Column.

#### **Museum Shop**

During November new toy display fixtures were installed which dramatically increased toy sales. A retail computer for stock control and profit analysis came on line on the 1st July and has operated successfully for the full year. As well as hosting book launches a number of art and craft exhibitions were held including African Artefacts, Insects sculptured in metal by Barbara Romalis and an exhibition of jewellery by four Australian jewellers.

#### **Marketing**

Blue Circle Southern Cement's sponsorship of the 1988 exhibition, "Human Evolution", the temporary exhibition on Sydney's Urban Environment and "phallic symbols" for sale at the Museum Shop were among the diverse items covered by the media during the year. Television advertising again proved its worth, when run during the Christmas and May school holidays. The year ended with a major promotion of the new Mineral Gallery.

#### **Records**

The Record's first colour photograph, a specimen of the rare Noisy Scrub-bird from Western Australia, appeared in parts three and four of Volume 37. This Volume comprised the scrub-bird papers which represented years of international co-operation between scientists. Nine papers were produced in all.





*Improved display areas in the Museum Shop have contributed to greatly increased turnover.*

Volume 37 (370 pages) and the first part of volume 38 of the Records were published this financial year. Of the 26 papers published, four were on palaeontology, 20 on zoology and two on anthropology. One third of the papers were overseas scientists and one quarter were by Australian Museum scientists. The Supplement series to the Records published two zoological monographs totalling 364 pages.

#### **Future Plans**

- Production of a new television advertisement for the new financial year.
- Upgrading of the temporary exhibitions area in the Museum Shop.
- A new advertising program based on a three month cycle.
- An "all out" direct marketing campaign for Australian Natural History Magazine.
- A new approach to packaging and promoting the Museum's scientific research.



# Finances

## Contents

## Page

Statistical Summary of trends over preceeding 5 years	22
Supplementary Information	23
Statement of Financial operation for the year ended 30 June 1986	25
Statement of financial position as at 30 June 1986	26
Statement of Source and Application of Funds	27
Shop Trading Account	
Coffee Shop Trading Account	28
Notes to and forming part of the Accounts	29

## Statistical Summary Year Ending 30 June

	1982 (\$'000)	1983 (\$'000)	1984 (\$'000)	1985 (\$'000)	1986 (\$'000)
Reserves	215	134	483	306	218
General Fund Receipts	889	991	1,310	1,329	1,457
Grant Fund Receipts	618	679	1,057	700	937
General Fund Payments	892	875	1,044	1,479	1,608
Grant Fund Payments	761	876	982	727	864
Consolidated Fund Payments	3,722	4,498	5,007	5,520	5,729
Statutory Endowment Receipts	137	125	140	148	160
Corporate Sponsorship raised during the year:	200	200	200	350	350
% of State Government funds to Total Funds Spent During the Year	64%	71%	65%	69%	66%
Permanent Staff	159	162	163	163	163



## Finances

### Highlights

- Revenue from Trading Operations up by over \$274,000 (39%).
- Revenue in respect of Grants up by over \$237,000 (34%).
- Australian Museum Society Revenue up by over \$137,000 (89%).
- Interest on Investments up by over \$30,000 (51%).
- Expenditure on Mineral Gallery of over \$200,000.

### Supplementary Information State Government Funds

State Government funds were provided to meet salaries of the Museum's permanent staff; general operating maintenance expenses; endowment, special subsidy contributions and major plant acquisitions.

The State Government allocation to the Museum increased by \$220,568 or 4% over the previous year. Of this amount 6% related to increases in salary and allowance payments; and 8% or \$12,000 to increases in the statutory endowment. There was a decrease of 4% or \$51,333 in the level of maintenance and working expenses compared with the previous year.

Despite an 8% increase, the statutory endowment has remained at a consistently low level over many years.

The special subsidy payment is a \$1 for \$1 incentive scheme devised by the State Government to encourage individuals and companies to enter into joint venture with the Australian Museum for special projects.

Notwithstanding the increases referred to above, pressure was placed on all levels of Consolidated Fund accounts throughout the year. Expenditures in excess of original estimates had to be made and set off against savings achieved in other accounts and by some expenditure being met from Trust funds.

In summary, most programs were funded by Consolidated Revenue although the Trust had to meet additional costs and further savings had to be made by holding some positions vacant during the year.

### Trust Accounts

The Museum Trust operates two main accounts, the General and Grant Accounts.

Funds within the General Account are generated through — merchandising operations such as sale of books, magazines, minerals, souvenirs, replicas, catalogues, artefacts, films; hire of parts of the Museum buildings for functions and television commercials; donations; interest on investments.

Scientific research grants and corporate sponsorship are accounted for within the Grant Account.

### Trust General Account

Receipts to the General Account amounted to \$1,457,557, an increase of 11% over the previous year. Major items contributing to this result were Museum Shop (32% of total funds); Australian Natural History Magazine (14%); Interest on Investments (5%); Gallery Sponsorship (5%); Statutory Endowment (11%); and Special Subsidy (24%).



**Payments** from the General Account amounted to \$1,607,877, an increase of 9% over the previous year. Major items contributing to this result were Exhibitions (30%); Museum Shop (20%); Australian Natural History Magazine (11%); Collection Acquisitions (8%); and Advertising (7%).

### Trust Grant Account

**Receipts** in the Grant Account amounted to \$937,512. The main sources of this income were: Lizard Island Research Station (27%) of total income; National Photographic Index (27%); Marine Science and Technology Grant Scheme (14%); and Education and Exhibition Programs (12%).

**Payments** from the Grant Account amounted to \$863,857. Major payments were in relation to Lizard Island Research Station (29%); National Photographic Index (22%); and Marine Science and Technology Grant Scheme (14%).

### Summary of Accumulated Funds

**Trust General Account.** Operations within this account resulted in an accumulated surplus of \$152,364 as at 30th June, 1986, a reduction of \$131,716 in the balance of accumulated surplus funds 12 months earlier.

Increased expenditure in the Exhibitions development area which was reflected in the completion of major galleries and several temporary exhibitions, was a significant factor in the reduction in accumulated funds.

**Trust Grant Account.** An accumulated surplus of \$96,123 was returned at the 30th June, 1986.

At year end, major deficits were being carried in the following projects -

- Lizard Island Research Station returned a surplus of \$1,398 during the year and reduced the accumulated deficit from approximately \$89,600 to \$88,200.
- Opalised Fossil Collection. The cost of this purchase initially stood at \$80,000. Subsequent corporate sponsorship from Esso Australia has reduced this to \$30,000. It is expected that the deficit will be met by sale of some items in the collection during 1986/87 and transfer of any remaining balance to the General Account.

**Combined Reserves.** The combined reserves of the General and Grant Accounts stood at \$248,487, a result which was above budget forecasts.



# Australian Museum Trust

## Statement of Financial Operation

### for the Year Ended

### 30 June 1986

	Notes	1986 \$	1985 \$	Increase (Decrease)%
<b>Revenue:</b>				
<b>Consolidated Fund —</b>				
Personnel Costs and Working Expenses	—	5,728,999	5,520,431	4
Statutory Endowment	—	160,000	148,000	8
Projects Subsidy	—	350,000	350,000	—
<b>Grants —</b>				
Australian Government	2	256,788	252,312	2
Other Scientific	2	563,604	398,750	41
Education/Exhibitions	2	117,120	48,954	139
<b>Trustees and Special Accounts —</b>				
Trading Operations	3	706,956	580,628	22
Other Revenue	4	240,601	240,280	—
Peter Rankin Trust Fund	5	2,525	2,380	6
Australian Museum Society	6	292,445	154,553	89
Coffee Shop	—	259,454	123,314	110
		<u>8,678,492</u>	<u>7,819,602</u>	<u>11</u>
<b>Expenses for Year Exceeded Revenue by</b>		<b>11,863</b>	<b>176,295</b>	<b>(93)</b>
		<u>8,690,355</u>	<u>7,995,897</u>	<u>9</u>
	Notes	1986 \$	1985 \$	Increase (Decrease)%
<b>Expenses:</b>				
<b>Consolidated Fund —</b>				
Personnel Costs	—	4,334,206	4,074,305	6
Working Expenses	7	1,394,793	1,446,126	(4)
<b>Grants —</b>				
Australian Government	2	285,840	251,976	13
Other Scientific	2	520,151	331,748	57
Education/Exhibition	2	57,866	142,950	(60)
<b>Trustees and Special Accounts —</b>				
Trading Operations	3	501,525	518,343	(3)
Exhibitions	8	471,574	436,650	8
Special Programs	9	171,308	166,690	3
Collection Acquisitions	—	132,206	90,436	46
Education Programs	10	60,028	23,774	152
Audit Fees	11	14,600	7,200	103
Other Operating Costs	12	256,636	235,909	9
Peter Rankin Trust Fund	5	1,167	971	20
Australian Museum Society	6	267,734	164,450	63
Coffee Shop	—	220,721	104,369	111
		<u>8,690,355</u>	<u>7,995,897</u>	<u>9</u>
<b>Revenue for Year exceeded expenses by</b>	<b>141</b>	<b>—</b>	<b>N/A</b>	
		<u>8,678,492</u>	<u>7,995,897</u>	<u>9</u>



# Australian Museum Trust Statement of Financial Position as at 30 June 1986

	Notes	1986 \$	1985 \$	Increase (Decrease)%
<b>Funds Held —</b>				
Trust General Account	—	152,364	284,080	(46)
Trust Grant Account	—	96,123	22,468	328
Australian Museum Society	—	72,055	28,844	150
Peter Rankin Trust Fund	—	18,040	16,682	8
Coffee Shop	—	8,727	6,994	25
		<u>347,309</u>	<u>359,068</u>	<u>(3)</u>
<b>Represented By —</b>				
Investments	13	283,000	263,000	8
Debtors and Accrued Income (less Prov for Doubtful Debts 1986 \$5,000; 1985 Nil)	14	8,892	17,487	(49)
Cash at Bank and on Hand	15	90,796	85,781	6
		<u>382,688</u>	<u>366,268</u>	<u>4</u>
<b>Less — Creditors and Accrued Expenses</b>	16	<u>35,379</u>	<u>7,200</u>	<u>391</u>
		<u>347,309</u>	<u>359,068</u>	<u>(3)</u>

## 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:

- The financial statements and notes thereon exhibit a true and fair view of the financial position and transactions for the year ended 30 June, 1986.
- 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 Act, Regulations and the Treasurers Directions; and;
- 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

D.J.G. Griffin,  
Secretary of the Trust




## Australian Museum Trust Auditor-General's Certificate

The accounts of the Australian Museum Trust for the year ended 30 June, 1986, have been audited in accordance with Section 34 of the Public Finance and Audit Act, 1983.

In my opinion, the Statements of Financial Position, Changes in Financial Position and Financial Operations, together with annexures 'A' and 'B', 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, 1986 and transactions for the year then ended.

Sydney  
October 1986



K.J. Robson, FASA CPA,  
Auditor-General of New South Wales.



# **Australian Museum Trust** **Statement of Source** **and Application of Funds** **for the Year Ended** **30 June 1986**

	1986 \$	1985 \$
<b>Funds were obtained from:</b>		
Consolidated Fund —		
Personnel Costs and Working Expenses	5,728,999	5,520,431
Statutory Endowment	160,000	148,000
Projects Subsidy	350,000	350,000
Grants —		
Australian Government	256,788	252,312
Other Scientific	563,604	398,750
Education/Exhibition	117,120	48,954
Trading Operations	965,913	700,582
The Australian Museum Society	292,445	154,553
Interest	83,895	62,101
Sponsorship and Donations	108,631	66,805
Other	51,097	117,114
	<u>8,678,492</u>	<u>7,819,602</u>
Decrease in Monetary Assets	11,863	176,295
	<u>8,690,355</u>	<u>7,995,897</u>
<b>Funds were applied to:</b>		
Administration Activities (see note 1 (D))	2,300,005	2,582,261
Educational Activities	506,127	441,197
Exhibition Activities	1,254,395	1,277,052
Scientific Research Activities	3,644,848	2,907,625
Trading Operation Activities	717,246	622,712
The Australian Museum Society	267,734	164,450
	<u>8,690,355</u>	<u>7,995,897</u>



# **Museum Shop Trading Account for the Year Ended 30 June 1986**

	1986 \$	1985 \$
Sales	467,019	403,858
Opening Stock (i)	125,194	110,273
Purchases	294,253	299,112
	<u>419,447</u>	<u>409,385</u>
Closing Stock (i)	109,850	125,194
Cost of Sales	309,597	284,191
Gross Profit	157,422	119,667
Operating Costs — Part time wages (ii)	19,048	24,125
Surplus (iii)	<u>138,374</u>	<u>95,542</u>

## **Notes**

- (i) Stock is valued at cost.
- (ii) Salaries totalling approximately \$52,000 (1985 \$48,000) for a Shop Manager and two Salespersons, who are within the permanent staff establishment, are not included in the operating costs. Their salaries have been met from the Consolidated Fund.
- (iii) The difference of \$15,344 between the surplus (\$153,718) of revenue over expenses on account of the Museum Shop as outlined at Note 3 and the surplus (\$138,374) as shown in the above trading accounts represents the difference between the opening and the closing stocks:

	\$
Opening Stock	125,194
Closing Stock	<u>109,850</u>
	<u>15,344</u>

# **Coffee Shop Trading Account for the Year Ended 30 June 1986**

	1986 \$	1985 \$
Sales	258,961	119,954
Opening Stock (i)	2,057	1,762
Purchases	126,730	51,985
	<u>128,787</u>	<u>53,747</u>
Closing Stock (i)	5,291	2,057
Cost of Sales	123,496	51,690
Gross Profit	135,465	68,264
Operating Costs		
Salaries	81,733	41,282
Durables	2,756	1,574
Sundry	<u>9,502</u>	<u>9,528</u>
	93,991	52,384
	<u>41,474</u>	<u>15,880</u>
Add: Other income — Interest on Investments	493	3,360
Surplus (ii) and (iii)	<u>41,967</u>	<u>19,240</u>

## **Notes**

- (i) Stock is valued at cost.
- (ii) Surplus funds are distributed equally between the Museum and the Australian Museum Society.
- (iii) The difference of \$3,234 between the surplus (\$38,733) of revenue over expenses on account of the Coffee Shop as per the statement of financial operations and the surplus (\$41,967) shown in the above Coffee Shop Trading Account represents the difference between the closing and opening stock:

	\$
Closing Stock	5,291
Opening Stock	<u>2,057</u>
	<u>3,234</u>



# Australian Museum Trust Notes to and Forming Part of the Accounts

## 1. Accounting Policy

- A (i) The accounts have been prepared on a modified accrual basis: i.e. income earned but not received and expenses incurred but not paid at 30th June, 1986 (where the amounts are material) are included in the Statement of Financial Operations and are shown as "Debtors" and "Creditors" in the Statement of Financial Position. The exception to this is the Consolidated Fund which, apart from its salary component, operates strictly on a cash basis. Also assets purchased are treated as expenditure in the year of acquisitions therefore, no depreciation charges are made.

Exemptions have been granted from full accrual accounting under Section 41B(2), and from the necessity of preparing a Balance Sheet or Statement of Balance under Section 41B(3) of the Public Finance and Audit Act, 1983.

- (ii) With the exception referred to above, Australian Accounting Standards have been adhered to in preparing financial statements. Policies adopted are consistent with those applied in the previous year.

Employees are members of the State Superannuation Scheme. No provision is required to be made for deferred liability under this scheme as the contributions paid by the Treasury cover this liability.

- B. General Operating expenses of the Museum including salaries of all permanent staff, rent, rates, travel, and other similar costs, are met from the Consolidated Fund.
- C. The cost of employers' superannuation contributions and payroll tax are met directly by the Treasury and are not included in the Trust accounts. Employees are members of the State Superannuation Scheme. No provision is required to be made for deferred liability under this scheme as the contributions paid by the Treasury cover this liability.
- D. Statement of changes in financial position shows the source and application of funds. Salaries are categorised within activities, as is the case with grant sponsorships and other expenditure falling directly within an activity. However, other expenditure not falling into a specific category, such as rent and electricity, has been charged to Administration, which, therefore, reflects actual Administration costs and overheads associated with maintaining the specific activities undertaken by the Museum. Administration also includes expenditures in respect of Community Relations.

The Statement is provided as a guide to the manner in which funds are applied within the Organisation.

- E. The cost and current values of land and buildings are not reflected in the accounts. Insurance coverage for land and buildings has been effected through the Treasury Risks Account.

- F. The cost and current values of the following assets are not reflected in the Statements of Financial Position (refer Note A(ii)):

- plant and equipment, fixtures, fittings and furniture. For insurance purposes, plant and equipment is valued at \$736,000.
- the Trust's collection of exhibits, etc. — the value of which, based on a 1981 valuation, stands at \$76 million. The State Government acts as self insurer for any fire loss or damages to collections amounting to more than \$5 million, arising from any one claim.

- G. Motor vehicles are provided by the Government Supply Department for the use of the Australian Museum. The estimated cost of these vehicles as at 30 June, 1986 is \$144,000 (1985 \$132,000). The cost of acquisition of these vehicles is met by the Government Supply Department while their running costs are met by the Australian Museum.

- H. Building maintenance and improvements totalling \$1.3 million undertaken by or for the Department of Public Works, were carried out during the year. A major Building Development estimated to cost \$13 million has been undertaken and is due for completion in July/September 1987. Funding is being provided from the State's Capital Funding Allocation.

- I. The Australian Museum occupies a site bounded by College, William, and Yurong Streets, Sydney. The site is Crown Land and is dedicated for the purpose of the Australian Museum. It is considered to be inappropriate to value this land given the restricted purpose of the holding and that no other use other than the present use is permitted.

The Australian Museum also rents premises at Rushcutters Bay and East Sydney for Scientific Research purposes and storage.

- J. Stock on hand at cost at 30th June 1986 was valued at \$109,850 for the Museum Shop, and \$5,291 for the Coffee Shop. Stock on hand is not included in the Statement of Financial Position.

- K. Long service leave and annual leave are paid by the Consolidated Fund when taken.

- L. The audit fee increase of \$7,400 for 1986 included \$7,000 in respect of the Trust operation on Consolidated Fund.

In prior years no fee was levied for the audit of Consolidated Fund operations.



## 2. Grants — Revenue and Expenses Comprised

	1986 \$		1985 \$	
	Revenue	Expenses	Revenue	Expenses
<b>Australian Government</b>				
Australian Biological Resources Study	24,558	43,686	40,111	36,602
Marine Science and Technologies Grants Scheme	128,490	123,920	106,468	103,839
Australian Research Grants Scheme	59,323	69,456	62,681	73,501
Queen Elizabeth II Fellowship Scheme	43,078	46,382	26,055	12,150
Other	1,339	2,396	16,997	25,884
	<u>256,788</u>	<u>285,840</u>	<u>252,312</u>	<u>251,976</u>
<b>Other Scientific</b>				
Lizard Island Research Station	253,802	252,404	178,894	125,997
National Photographic Index of Australian Wildlife	255,752	188,093	148,425	139,596
Other	54,050	79,654	71,431	66,155
	<u>563,604</u>	<u>520,151</u>	<u>398,750</u>	<u>331,748</u>
<b>Education / Exhibition Programs</b>	<u>117,120</u>	<u>57,866</u>	<u>48,954</u>	<u>142,950</u>
<b>Grants in total</b>	<u>937,512</u>	<u>863,857</u>	<u>700,016</u>	<u>726,674</u>

## 3. Trading Operations

	1986 \$		1985 \$	
	Revenue	Expenses	Revenue	Expenses
Museum Shop	467,019	313,301	393,202	323,237
Australian Natural History	203,366	180,614	171,797	194,910
Gallery Guides	27,771	—	10,656	—
Other Trading	8,800	7,610	4,973	196
	<u>706,956</u>	<u>501,525</u>	<u>580,628</u>	<u>518,343</u>

## 4. Other Revenue

	1986 \$	1985 \$
Gallery Sponsorship	72,866	51,706
Interest on Investments	80,932	56,544
Donations	35,765	15,099
Miscellaneous	38,728	109,489
Records of the Museum	7,192	4,068
Museum as a Venue	5,118	3,374
	<u>240,601</u>	<u>240,280</u>

## 5. Peter Rankin Trust Fund

The Peter Rankin Trust Fund for Herpetology is a fund which seeks to provide small grants-in-aid to young Australian herpetologists. The Fund makes awards annually to a total of approximately \$1,000.

Contributions to the invested capital of the Fund are continually being sought by the Committee overseeing the Fund.

	1986 \$	1985 \$
<b>Revenue</b>		
Donations	55	184
Interest	2,470	2,197
	<u>2,525</u>	<u>2,380</u>
<b>Expenses</b>		
Scholarships	1,166	970
Bank Charges	1	1
	<u>1,167</u>	<u>971</u>



## 6. The Australian Museum Society

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

Revenue	1986 \$	1985 \$
Functions	178,260	87,524
Membership Subscriptions	84,030	53,587
Merchandising	4,086	1,576
Venues	2,972	4,545
Other	23,097	7,321
	<u>292,445</u>	<u>154,553</u>

Expenses	1986 \$	1985 \$
Functions	136,577	64,363
Subscriptions	7,121	—
Merchandise	2,915	1,945
Salaries and Honoraria	55,433	45,735
Office Supplies	29,528	24,490
Other	36,160	27,917
Total	<u>267,734</u>	<u>164,450</u>

## 7. Consolidated Fund Working Expenses Comprised

	1986 \$	1985 \$
Workers Compensation Insurance	81,284	61,982
Meals	3,835	4,270
Rent and Rates	208,436	162,724
Maintenance	8,097	6,027
Travel	70,458	80,099
Motor Vehicle Running Costs	54,690	45,295
Freight and Cartage	23,378	20,562
Advertising	54,373	120,006
Books	62,501	50,866
Fees for Services Rendered	61,736	52,927
Gas and Electricity	134,501	137,096
Laundry	1,154	—
Other Insurance	162,298	44,346
Postal and Telephone	70,849	72,073
Printing	168,967	245,370
Stores	226,984	259,740
Minor Items	1,272	2,545
Plant and Equipment	99,980	80,198
	<u>1394,793</u>	<u>1,446,126</u>

## 8. Exhibitions Expenses Comprised

	1986 \$	1985 \$
Mineral Gallery	208,173	45,987
Temporary Exhibitions	70,683	62,255
Aboriginal Australia Travelling Exhibition	57,216	—
Maintenance of Galleries	33,013	8,783
Fossil Gallery	28,038	—
College Street Foyer Refurbishing	19,298	23,645
Australia '88 Exhibition	16,751	—
Aboriginal Gallery	13,817	274,808
Pacific Cultures Exhibition	12,666	—
Other Galleries/Exhibitions	11,919	21,172
	<u>471,574</u>	<u>436,650</u>



## 9. Special Programs Expenses Comprised

	1986 \$	1985 \$
Matching Subsidy Distributions	72,000	63,500
Research Grants	28,714	15,362
Visiting Fellows	27,883	41,606
Contributions to Lizard Island Research Station	25,000	30,000
Scientific Assistance	14,481	13,277
Honoraria	3,230	2,945
	<u>171,308</u>	<u>166,690</u>

## 10. Education Programs Expenses Comprised

	1986 \$	1985 \$
Museum Train	27,440	9,966
Wandervan	25,925	9,416
Sunday at the Museum	6,663	4,392
	<u>60,028</u>	<u>23,774</u>

## 11. Audit Fee

1986 \$	1985 \$
14,600	7,200

## 12. Other Operating Costs Comprised

	1986 \$	1985 \$
Advertising	107,634	48,463
Computer Fees	6,148	16,967
Entertainment	18,978	21,510
Printing	29,707	17,102
Travelling Expenses	22,583	22,412
Visitors Survey	5,234	6,133
Miscellaneous	59,217	70,822
Buildings — Improvements and Repairs	7,135	32,500
	<u>256,636</u>	<u>235,909</u>

## 13. Investments of the Australian Museum Recorded at Cost as at 30 June Comprised

	1986 \$	1985 \$
St George Building Society	270,000	—
National Australia Bank	—	250,000
Primary Industry Bank of Australia	10,000	10,000
Australian Savings Bonds	3,000	3,000
	<u>283,000</u>	<u>263,000</u>
These investments are held on behalf of:		
Australian Museum Trust	200,000	250,000
The Australian Museum Society	66,000	—
Peter Rankin Trust Fund	17,000	13,000
	<u>283,000</u>	<u>263,000</u>



#### 14. Debtors and Accrued Income Comprised

	1986 \$	1985 \$
Australian Government Grants	—	5,706
Debtors (\$13,892 less Provision for Doubtful Debts \$5000 1985 Nil)	8,892	11,781
	<u>8,892</u>	<u>17,487</u>

#### 15. Cash at Bank Including Cash Advances Comprised

	1986 \$	1985 \$
Australian Museum Trust	74,974	46,261
The Australian Museum Society	6,055	28,844
Coffee Shop	8,727	6,994
Peter Rankin Trust Fund	1,040	3,682
	<u>90,796</u>	<u>85,781</u>

#### 16. Creditors and Accrued Expenses

	1986 \$	1985 \$
Audit Fee	14,600	7,200
Exhibition expenses — Mineral Gallery	20,779	—
	<u>35,379</u>	<u>7,200</u>

#### 17. Lizard Island Statement of Revenue and Expenditure Summary as at 30 June 1986

	1986 \$	1985 \$
<b>Revenue</b>		
Supporting Institutions	23,365	5,500
Fees	73,829	91,768
Sales	19,608	18,617
Donations		
Lizard Island Reef Research Foundation	85,000	90,777
Australian Museum, including NSW Government Subsidy	72,000	82,606
	<u>253,802</u>	<u>289,268</u>
<b>Expenses</b>		
Salaries and Fees	115,344	85,458
Running Expenses	18,599	16,272
Maintenance	29,133	31,904
Fuel	19,110	19,568
Other	24,432	20,777
Capital Works	45,786	60,948
	<u>252,404</u>	<u>234,927</u>
Surplus	<u>1,398</u>	<u>54,341</u>

Comparison figures for 1985 taken from Annual Report of Lizard Island Reef Research Foundation.

— End of audited information —



# Education Division

The Education Division seeks to provide a unique educational resource, relevant to all sections of the community throughout NSW. Through the provision of a stimulating environment to create interest, enthusiasm and opportunities for learning, visitors will be encouraged to develop a greater appreciation of our natural environment and cultural heritage, and a desire for its conservation.

This requires a high degree of commitment from the education staff, continuous development of professional skills and knowledge and an ability to respond to the changing needs of the community and schools.

Through interaction with other museum staff and resources, we seek to promote the Museum and its activities, as being accessible and innovative.

## Highlights

- The move to the new Education Centre.
- Action Room developed with emphasis on an interactive approach with school groups, including introduction of ecological drama.
- New Museum on the Road exhibition "Aboriginal Australia".

## Action Room is Developed

An initiative in discovery learning, the Action Room was set up in Term 1, 1986, providing exciting activities for students. Topics covered were Variety and Classification of Living Things, and Natural Communities. The addition of the Silkwood Theatre Company's ecological drama to the Term 2 studies of natural communities was another popular innovation. Anthropologists, teachers and education officers have all contributed to the planning of the Aboriginal Perspectives in Science Action Room for Term 3, 1986.

Class visits have also continued with 14,250 students in 524 classes participating through the year; the number was less than previous years because of time lost during the move to the new Education Centre and time spent in February to plan new teaching programs.

Eighteen Teachers Ideas Packs have now been developed. These are being evaluated along with the progress of the Action Room.

## Self Guided Visits

A total of 60,000 students in 1,413 groups visited the Museum for unbooked excursions. All were assisted by specially published self guided visits material on arrival or, increasingly, received beforehand as a result of publicity through the Noticeboard, the Division's newsletter.

## Support for Youth

Sixty eight work experience students have been placed throughout the Museum this year. The program is an important one: through it students have the valuable opportunity to experience work within the Museum.

## Multiple Use of Education Facilities

Teacher trainees and Museum Studies students spent their in-service periods studying the education facilities, while other teacher trainees and Zoo Education Officers watched demonstration lessons. Lectures to community groups included "Australia's Marine Wonderland", a 10-week course conducted in association with the



School children in the Museum's Education Centre meet a shingle back skink (*Trachydosaurus rugosus*).

Workers' Education Association and "Molluscs" a 5 week evening course for members of the Conchology Section of the Royal Zoological Society of NSW. The Centre's facilities are used by many scientific and conservation groups during the evenings.

## Volunteers

We receive regular assistance by 29 volunteers, on a weekly, school holidays or on-call basis.

## Museum Train

During the past year the Museum Train toured the Central West (Narromine — Bourke), the Southern region (Bombala — Queanbeyan; Kiama — Nowra) and the Riverina (Albury — Wagga — Cootamundra). By the end of the year the Train was in the North West region (Moree — Narrabri). A total of 68,636 people visited the Train during the year, of these 21,306 were children in class groups, and 47,330 members of the public, an increase of 3,342 over last year. In all towns available lesson times were always fully booked, demonstrating the Train's value to schools.

The Commonwealth Bank and State Rail Authority continued to play an integral role in the success of the Museum Train, with the SRA being entirely responsible for its transport and maintenance and the Bank providing sponsorship as well as valuable local advice, assistance and promotion in each town.

## New Exhibition for Museum On The Road

The most exciting exhibition to join the program started its tour in February 1986. The 'Aboriginal Australia' MOTR is an excellent travelling exhibition, derived from the semi-permanent exhibition of the same name in the College Street building.

In the latter half of 1985, 'Life in the Sea' and 'Papua New Guinea' visited central western and south western towns, many of which had not previously seen a Museum exhibition. In 1986 'Mammals' and 'Papua New Guinea' are visiting the South Coast. The other exhibitions are continuing their tour of outer Sydney suburbs. 'Arid Australia' has been taken out of circulation in 1986, after a run of 8 years.



The 'Story of the Earth' exhibition was lent to the Stocklands Shopping Centre company for 2 months in 1985 to move between shopping malls in Sydney, Gosford and Newcastle.

Altogether, an estimated total of 187,000 people visited the Museum on the Road exhibitions of whom 42,000 were school children. Another 50,000 people saw the exhibition in Stocklands shopping centres.

#### **Museum in a Box**

These portable loan cases containing specimens, artifacts, tapes, graphics and notes remain very popular with schools. During the year, 817 loans were booked, a slight increase over last year. Some updating of the cases' contents has been undertaken and a new case on frogs is in preparation. Damage and loss are still problems, especially damage in transit, requiring a large time input for repairs.

Roger Inder, Preparator, who began work on Museum in a Box, retired after 21 years continuous, valuable service.

#### **Wandervan**

This extension service is designed to provide educational activities for disadvantaged and handicapped people in schools, remand and migrant centres, hospitals, rehabilitation units, nursing homes and centres for the emotionally disturbed. This year the Wandervan visited 5 616 people at 142 different centres including country visits to the more isolated regions in the far north and south west of the State.

The Wandervan continued its regular program on TV's Romper Room and Simon Townsend's Wonderworld, and also participated in Carnivale and World Environment Day.

The service has been generously sponsored by the Sydney City Council for the past four years. This support ends in June 1986 and a new sponsor is being sought to maintain this unique facility.

#### **School Holiday Activities**

Each holidays, activities are organised which provide 'hands on' experiences for children and their families. This year 18,544 visitors have joined in activities related to "Mammals", "The Urban Environment" and "The Variety of Living Things". They were given the opportunity to handle, compare and contrast, and discuss real material like skeletons, mammals and birds, or shells, as part of learning games. Some games have been trialled for the new Discovery Room. Relevant field trips have also been organised.

The Discoverers Club involves children more closely with the Museum. Children become Discoverers once they complete a series of Walkabouts, answering questions which require an exploration of the Museum gallery exhibits. Club activities have included a behind-the-scenes look at the Zoo, a visit to the Gordon bat colony and a three day camp at the Barren Grounds Bird Observatory.

#### **Sunday at the Museum**

Themes for SATM centre around gallery exhibits and are planned to cater for family participation. Parents help children to investigate, compare, and measure; they answer the innumerable questions whilst working with actual specimens and in special activities. During the year these activities, combined with specimen observation, included investigating marine, freshwater and terrestrial environments; matching games, jig-saws, collage and silk screening; making batik and fish printing. Leaders of groups such as Scouts and Guides as well as school teachers often found the activities useful for their purposes at later dates.

#### **Preparation of New Specimens**

Preparation of new teaching specimens and equipment, and repairs to others numbered about 200. New techniques were developed to produce flexible casts of many animals. The range of living animals used as teaching specimens was increased and of particular interest were the breeding successes with Plains Rats and Striped Faced Dunnarts.

Mr Millar continued his studies in the Animal Technicians Course and was awarded a prize for best academic record in the year.

#### **Making the Museum More Widely Known**

The 'Noticeboard' museum education poster to inform teachers of all the new happenings, is produced each school term and mailed to all schools in New South Wales.

Articles on the Museum's Education programs appeared in a variety of education magazines. Education Officers have been interviewed on many radio and children's television programs.

Publicity for the Museum Train and Museum on the Road was achieved by newspaper advertisements, radio and television announcements, interviews, attractive brochures, posters, leaflets and Teachers Ideas Packs. Teachers previews of travelling exhibitions are also organised where Museum education officers meet teachers and local community leaders.

#### **Community Involvement**

Division staff continued their involvement with various community groups and professional associations, participating in conferences and serving on advisory committees. Education Officers chaired gallery project teams ("Planet of Minerals", "MOTR Aboriginal Australia", Discovery Room) and joined other teams. Preparation of a series of six children's books on Australian environments to mark the Bicentennial in 1988 is progressing well.

Visitors who contributed to the work of the Division included Dr A Thorne, Department of Prehistory, Australian National University; Mr R Renew, Curator of Interactives, Museum of Applied Arts and Sciences; Dr M Arth, Head of Education, American Museum of Natural History, New York.

#### **Future Plans**

- Opening the Discovery Room
- Continuing evaluation of new teaching strategies
- Development of alternative strategies for class activities in exhibition galleries.



## Statement of Philosophy for Exhibitions at the Australian Museum

# Exhibition Division

**The Basis for Display.** The Museum seeks to make particular statements or address themes through its exhibitions. Objects form the fundamental support for addressing these statements or themes. Objects are not generally the starting point for the exhibition.

**Objects in Context.** Objects are displayed in context: their meaning is explained so that the audience may understand the significance of the object. The display of objects in isolation — solely as art objects for instance — is not consistent with the Museum's philosophy other than in exceptional instances.

**Conservation Requirements.** In displaying objects, the Museum adheres to requirements that will conserve the objects for research, education and preservation of our natural and cultural heritage in the long term.

**Biological Displays.** In dealing with the biological world, a mix of environmental and systematic exhibitions will be sought so as to show environment context, diversity, evolutionary trends and the need for conversation.

**Emphasis on 'Australia'.** In general the Museum's role in dealing with Australia will be emphasized. Australia's surrounding lands and seas are of relevance to the understanding of Australia. Where cultural, geological or biological subjects from other parts of the world are dealt with to any significant degree they should be used to support major statements which allow a greater understanding of Australia.

**The Australian Museum.** In its exhibitions seeks to be relevant to all of Australia and through extension services to reach people throughout the state of NSW and, where appropriate, the rest of Australia as well as visitors to Australia. The Museum's displays will address, where appropriate, topical and controversial issues.

**Alternate Methods of Communication.** In considering exhibitions, regard will be had to other vehicles for communication such as publications, and other projects conducted by the Museum and, where appropriate, those other methods will be evaluated as an alternative.

**Balance.** The Museum cannot address every subject area and collection at the one time: exhibitions will attempt to achieve a balance between subject areas over time.

**"Stick to Knitting".** The Museum will recognise the areas in which it has developed expertise and the unique role it must play.

**Innovation.** In its exhibitions, the Museum will seek to be innovative while still using techniques and approaches which have been successful in the past.

**Display of Objects.** The Museum will seek to use real objects, rather than models or replicas: where the latter are used then attention will be drawn to this fact.

**International Exhibitions.** The Museum sees it as appropriate to bring in from overseas exhibitions of outstanding quality and recognises that parts of its exhibitions or collections can form the basis of exhibitions travelling overseas. In both we recognise it as important that other organisations with appropriate expertise be involved in the project. We see it as the Museum's responsibility to take the initiative in this.

The Division is responsible for providing visitors with effective interpretation of scientific knowledge by developing high standard exhibitions. Maintaining pleasant and modern facilities in other public areas is also a responsibility of the Division.

### Highlights

- Completion of "A Planet of Minerals" gallery
- New fully mechanised workshops for the Carpenters
- Regraded senior positions.

### A Planet of Minerals

Four years of planning and hard work culminated in the opening of this semi-permanent exhibition jointly sponsored by the Utah Foundation and the Australian Museum Society.

The old exhibition, in place for many years, was the subject of an extensive visitor evaluation by consultant market researchers. The results of this survey were used to guide the planning of the new exhibition opened on June 30th 1986.

### Variety in Temporary Exhibitions

Four temporary exhibitions were held during the year.

"Pressed on Paper" June-July 1985 Long Gallery. The exhibition featured over 70 framed prints of fish, invertebrates and plants created by members of the International Nature Printing Society. The collection demonstrated the variety of subjects, techniques and materials which can be used to make nature prints. The exhibition was compiled and toured by the Smithsonian Institution, Washington.

"Robes of Power" August-September 1985, Long Gallery. 'Robes of Power — Totem Poles on Cloth' showed 20 specially commissioned contemporary Ceremonial Button Blankets from seven different tribal nations of the north-west coast of Canada. Rare film of the Potlatch ceremony was supplied on an accompanying video. The exhibition was toured by the Adelaide Festival Centre Gallery.

"The Sydney Urban Environment" November 1985-March 1986 Long Gallery.

This important temporary exhibition was produced by the Museum and posed the question, "Is our environment getting better or worse?"

A bold graphic approach in the exhibition was dramatically enhanced by a rubbish dump diorama and an exhaust-smoke emitting panel van.

The exhibition was sponsored by Cleanaway Pty Ltd. and is now on semi-permanent exhibition at the Hawkesbury Agricultural College.

"Cosmic Contact" March-May 1986 Vestibule 2.

With a large touch meteorite forming the centre piece this exhibition put Halley's Comet into perspective with other cosmic visitors.

"Aboriginies in Sydney" — December 1985 — March 1986, Aboriginal Australia exhibition area. Twenty photographs by Elaine Pelot-Kitchener were mounted as part of the Festival of Sydney. These compelling works formed part of the changing section of the gallery aimed at reflecting contemporary aspects of Aboriginal culture.



# Planet of Minerals



*Cosmic Contacts looked at Halley's Comet while the world was engrossed by this cosmic visitor.*

## New Carpentry Workshop

A new workshop was opened on May 30th within the old school building on the Museum site. This workshop is equipped with all the woodworking machinery of a small factory and will continue the high standard of exhibition construction of the past with new efficiency.

## New Audio Visual Studio

The old carpentry workshop in the south wing was gutted and a modern audio-visual studio installed. A feature of this installation is the capacity to make inhouse productions. A major innovation incorporated in the Museum's 1988 extensions will be the cabling of A.V. to the galleries from a central monitoring point within the Studio.

## Regraded Senior Positions

The Public Service Board agreed to the regrading of senior positions in the Exhibition Division. Reflecting greater responsibilities undertaken in management of the Division.

## Aboriginal MOTR

A travelling exhibition based on the Aboriginal Australia Gallery was launched in February 1985 to join the Museum-On-The-Road (MOTR) extension program.

## Future Plans

- "The Discovery Room" opening in August 1986.
- "Twentieth Century Dinosaurs" life size sculptures made from recycled junk from USA September 1987.
- Five major exhibitions for 1988.

A major new exhibition of Australian minerals and gemstones opened in June 1986 after several years of planning. Sponsored by the Utah Foundation and TAMS, the gallery features the Museum's beautiful mineral collection, including the Broken Hill collection — the best in the world.

There are educational exhibits where children can view minerals in rocks through a microscope or find out the elements in minerals by pressing the button of a mineral wheel-of-fortune.

Visitors can explore a mine stope and see a miner working overhead, or venture into a limestone cave and see the subterranean world of stalactites.

A walk-in quartz crystal with a computer graphic showing how crystals form, and a computer interactive which draws the occurrences of 16 mineral deposits around Australia are further educational aids. Recent research on volcanics by Museum mineralogist Dr Lin Sutherland has been incorporated into the displays. One shows how Australia moved over 'hot spots' in the Earth's mantle, creating volcanoes at points of weakness in the Earth's crust. The oldest volcanoes in the chain are in north Queensland and the youngest in Victoria, with a 'hot spot' lying under Bass Strait today.

A mineral safari around Australia, led by a model of retired Museum mineralogist Oliver Chalmers, leads visitors through famous mineral sites. Starting on Sydney's doorstep, we visit Prospect Hill, then New England where we see the minerals of the eastern granites. In western Tasmania we meet the 'wild west chromium gang'. We visit the Flinders Ranges and go on a Museum mineral dig at Rum Jungle. In the Pilbara we visit the Argyle diamond mine, now the world's largest diamond source, then on to Kalgoorlie and gold and nickel booms.

The initial concepts for the Planet of Minerals gallery were developed to the design phase by Jeff Freeman, Exhibition Officer on the project team. On his resignation and move to the Museum & Art Gallery, Darwin Glenn Ferguson developed the design concepts into production. Other members of the Project Team were Dr Lin Sutherland Scientific Officer, Christine Deacon Community Relations Officer and Glenn Hunt Education Officer and Chairman of the Project Team. The designer of the gallery was Sally Morris and she was assisted by Chris Kalucy and other members of the Exhibitions Preparators, carpenters, contractors and staff members throughout the Museum all contributed to the success of the gallery. Members of the Mineral Department had enormous input into the gallery production, especially Ross Pogson, Jane Barron, Gayle Webb and Joan Henley. Other mineral experts Albert Chapman and Armstrong Osborne assisted in the development of different concepts.

The Planet of Minerals exhibition was opened on June 30th by the Minister for Science, the Honorable Barry O. Jones. The opening was attended by Utah Foundation Executive Officer Mr H. Bartlett, TAMS President Mr Craig Williams, Museum Trustees and 200 guests.





Retired Museum mineralogist Oliver Chalmers was immortalised in the gallery and leads visitors through the Australian gemstone safari. He holds a chunk of 'Fool's gold' hence the sombre expression.





*Planet of Minerals, the exciting new mineral gallery.*



# Administration

The Division provides support services in the areas of accounting and computing information, staffing, photography, building security, maintenance and development, and assistance to the public through 'front of house' staff.

## Highlights

- Commencement of major building development.
- Full year operation of computerised accounting system.
- Development of Museum Guiding Service.
- Approval of a major restructuring and regrading in Accounts Section.

## Building, Major Development, Renovations and Maintenance

Demolition of the old Education Centre and excavation of the site for the new building was completed in March, 1986. In the same month, a contract for the new construction was let.

Progress to date has seen concrete poured on level 00 and level 0. Associated with this work, the Education Division was relocated into a newly fitted out centre in the existing William Street wing.

Other major works accomplished within the existing buildings include refurbishment of the old carpenters' workshop as a new audio-visual studio, and a paint spray booth; repainting TAMS and Anthropology offices; further stonework restoration on College Street facade, installation of an emergency communication system, renovation of two design studio workrooms, refurbishment of the old mineral store for shared use by Anthropology and Earth Sciences; and renovation of Yurong Street Annex by the owner, in conjunction with sprinkler installation by the Department of Public Works, to house the Entomology staff and collections as well as part of the fish collection.

## Accounts

This section provides general financial and accounting services to the Museum. During the year a major restructuring of the section has been approved by the Public Service Board to take advantage of the full resources of the Museum's Burroughs computer and to upgrade financial reporting. The year was the first full year of operation of the B20 system which has been successfully established.

System enhancements are being introduced on a continuing basis and at the same time clerical procedures are being reviewed and adopted to fit in with new systems and reporting refinements.

Staff training will be emphasised to improve the quality of the section's service within and without the Museum.

## Guiding, Security and Cleaning

This section maintains the appearance of galleries and outside areas, assists members of the public to ensure they enjoy their visit to the Museum and provides security for the public, collections and buildings.

The emphasis during 1985/86 was on the development of the guiding program. Permanent Guides and selected volunteers participated in a ten week training period.

## Photography Section

During the year the photography section

- Provided nearly all the photographic illustration requirements for the Urban Environment Exhibition.

- Arranged a distribution contract for sales of the Museum's colour transparencies with Horizon International Photographic Agency.
- Completed archival conservation of the Roth photographic collection.

## Fieldwork Assignments and Projects:

- Lake Mungo, NSW, "ground truth" photographs for the Willandra Lakes world heritage area Land Sat study.
- Alpine land use project in liaison with the National Parks and Wildlife Service and the Museum's Environmental Ecology section.
- Scone, NSW, preparators collecting trip for the 1988 'Dreamtime to Dust' gallery.
- Nepean River district, photo material for a forthcoming Australian Natural History magazine article.
- Bathurst, NSW, region, photo material for the Mineral Gallery.
- Inclusion in the files of more than four hundred Tasmanian photographs, made during travels by the Head of Section.
- Association with The Australian Museum Society in their venues included:
- Off Sydney Heads onboard the Southern Quest for seabird photographs. Selections from this material are filed with the National Photographic Index of Australian Wildlife.
- Parkes, NSW, area, for Halley's Comet viewing and instruction of members on photographic methods.

## Notable Published Work

Cover, Nature Magazine, Vol 318 number 6044, Dec 1985, photograph by John Fields of an opalized Mesozoic mammal jaw.

Cover, Australian Museum, annual report, 1984-85, composite photographs and design by Kate Lowe.

## Additional Activities

The Head of Section, as co-ordinator of the group APAN, Australian Photographic Accessing Network, has continued active participation in advancing the principal group aim, to define a standard data entry program for computer retrieval of photographic collections on a national level.



## Staff Office

The staff section provides a support system for the Museum's 163 permanent and up to 60 temporary staff. Services include an induction program for new staff and the co-ordination and presentation of a range of more general staff development courses.

The Museum has run three courses for supervisors or officers who in future, might be responsible for supervising staff members or volunteers. A series of stakeholder workshops were conducted throughout 1985.

The Equal Employment Opportunity Management Plan for the Australian Museum identified a need for staff members to have information, guidance and support in respect of their careers and to be aware of the needs and plans of the organisation when they do so. Emphasis and encouragement has been given in the Administration area during the year to participation in word processing and computer courses, in line with the use by the Museum of this equipment.

Over the 1985/86 financial year the Museum participated in The Youth Employment Scheme and Community Employment Program. Some 25 people were under these schemes.

## Equal Employment Opportunity

The Australian Museum is committed to EEO principles, both through its EEO Management Plan and the Museum's Corporate Plan. Access to equal opportunities in all aspects of employment is a right of all employees, without regard to marital status, sex, race, physical or intellectual impairment. It is the purpose of the EEO plan to ensure that the principles are applied and to promote EEO for women and minority groups who may in the past have been disadvantaged in employment opportunities.

The Equal Employment Opportunity Management Plan has been implemented with new objectives. The plan outlines specific objectives and strategies relating to staff Management, selection and recruitment, staff development and grievance resolution. The latest priorities have been the establishment of a suitable Staff Appraisal Scheme, comprehensive induction procedures and an increase in staff awareness of EEO issues. Work is continuing on other aspects of the EEO management plan.



*One of our popular free guided tours in progress in the Aboriginal Australia gallery.*



# Materials Conservation Division

The Materials Conservation Division aims to prevent damage to the collections, conserve items of special importance, and undertake necessary research to increase the immediate and long-term preservation of the collections as well as disseminating information on conservation methods.

## Highlights

- "Powers of Perception" — planning completed, work commenced
- "Aboriginal Australia MOTR" conservation and experimental work completed
- Research on damaged painted artefacts — Stage II underway

## Powers of Perception

Scheduling and treatment of approximately 600 objects for this huge Bicentenary display on Pacific cultures has commenced. Many of the objects will require complex treatments for which new techniques will have to be developed.

## Research on Painted Artefacts

A major project is being undertaken to develop methods and materials for the treatment of damaged painted artefacts of traditional and contemporary origin. Stage I of the project, developing treatment techniques, has been completed. Stage II, will develop testing procedures to assess stability of adhesives used to treat flaking pigments. We are concentrating on the adaptation of Australian and international testing standards for the physical and chemical evaluation of synthetic polymers.

## A Unique System for the Mounting of Aboriginal Bark Paintings

A technique developed in the Materials Conservation Laboratory in the early 70's to support Aboriginal bark paintings on display or in storage, is now widely used throughout Australia. After more than a decade of use, the system has been reviewed. Results have shown that the original concept of attaching the bark to individually moulded fibreglass backings is a sound design principle. A number of improvements to the materials and fabrication techniques have, however, been introduced to achieve a more stable, accurate and aesthetically pleasing mounting system.

Sue Walston will present the results of this work at an international conservation symposium to be held in Ottawa in September 1986.

## "Aboriginal Australia — Museum-On-The-Road"

Conservation work for the travelling exhibition was completed. Objects have been treated and secured into place in their specially designed show cases. It is anticipated that they will now require minimum attention for the next five years while they are on the road. A number of treatment and mounting techniques are being tested for their effect and reliability under harsh travelling and environmental conditions.



*Conservators Karen Coote and Sue Walston examine an artefact.*

## Fumigation Review — Quarantine Area

A quarantine area, including a walk-in freezer, will be incorporated into the new building. The need to isolate contaminated material from the main collections was emphasized by the fumigation review of techniques and is another step in protecting the collections from insect attack.

## General

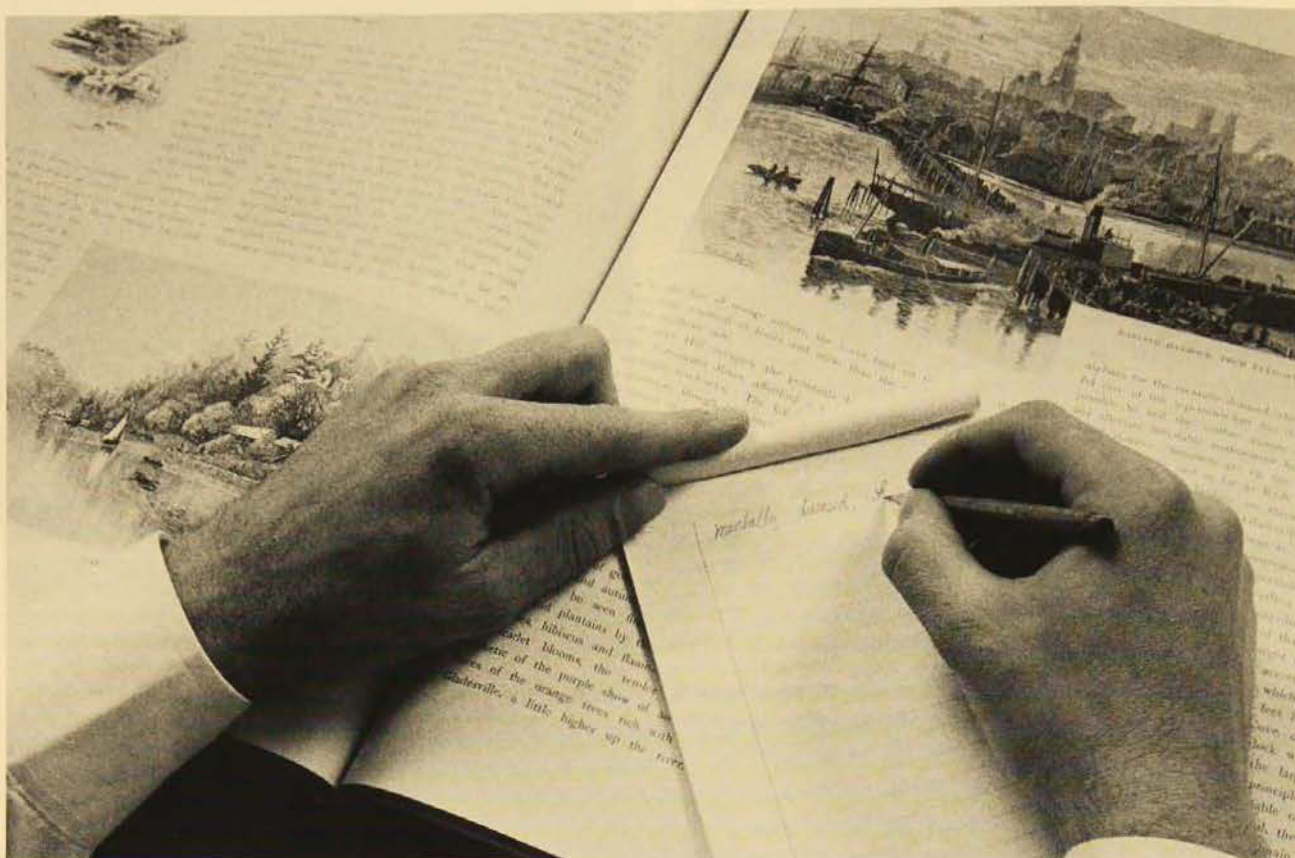
During the year Sue Walston attended the 9th International Taniguchi Symposium on "The Conservation of Cultural Property: Ethnographical Objects in Museums" held in Japan and, together with Karen Coote, organized an ethnographic textile conservation workshop in Adelaide as part of the 1985 National Conservation Conference of the Institute for the Conservation of Cultural Material (ICCM). Karen Coote was re-elected Chairperson of ICCM NSW Division and Sue Walston continued as Co-ordinator of the International Council of Museums Conservation Committee Working Group on Ethnographic Material.

## Future Plans

- Continued research into consolidation techniques for the treatment of flaking pigments on ethnographic artefacts
- Organisation of the 8th Triennial Meeting of the ICOM Conservation Committee to be held in 1987
- Conservation of 900 artefacts for "Powers of Perception" and "Human Cultures" — two major exhibits to be opened in 1988
- Computerization of conservation treatment records
- Relocation of Division to new building



# Library



The Museum Library Collections form a major natural history literature resource in Australia. We aim to conserve, acquire, organise and retrieve information to support the work of Museum staff.

The Library also endeavours to make the collection available for the scientific and educational activities of many organisations and individuals.

## Highlights

- Booklet for staff on Library procedures produced
- New photocopier acquired
- Designs for space in the new building developed
- In house access to AUSINET system of data bases established

In the Library's Corporate Plan one objective was to increase the awareness of our services. Therefore we have produced a booklet outlining these services, giving background on procedures affecting the users, location maps and codes, and advising the user on ways to obtain results.

The acquisition of a second photocopier for library services now means that the Interlibrary Loan Service has direct and immediate access to a copier, resulting in a quicker service to external requesters and more efficient production of our monthly Accession Bulletin and weekly Periodicals Bulletin.

Details of the internal layout of the library areas in the new building are still being developed. The Library's collections and services were disrupted by building work and the terminal and photocopying room, other working areas and bays in the stacks were relocated.

During the past year, staff attended the following:

Seminar on Collection Development Policy; Advanced DIALOG Training; AUSINET User Seminar; Disaster Planning Seminar; Computer and Communication Networks Courses; Conservation of Photographs Seminar and the Asian-Pacific Special and Law Libraries Conference in Melbourne. In addition, staff assessed computerised library management systems.

## Statistics

		1985/86	1984/85
Loans	— Staff	3700	2300
Interlibrary Loans	— Staff Requests	750	791
	External Requests	1236	1304
Binding	— Volumes Bound	1628	2604
Acquisitions	— Monographs Acquired*	823	850
	Serial Titles*	117	172

\* Excludes Linnean Society and Mel Ward Collections

## Visitors

Visitors to the library included the Librarian from the National Museum of Victoria and a group of 16 U.S. librarians here on a library tour of Australia. Both this latter group and a group of 30 people from the Australian Museum Society were given tours of the Library and special exhibitions from our unique Rare Books Collection were set up for them.

## Future Plans

Assessment of computerised library management systems will continue. The major planning for the next financial year will revolve around the organisation of the collection for the move to the new building in 1987.



# Lizard Island Research Station

The Lizard Island Research Station, 240 kilometres north of Cairns, Queensland, is a facility of the Australian Museum. It was established in 1973 to provide scientists and post graduate students from around the world with an efficient base for research into the biology, conservation, ecology, geology, history and hydrology of the Great Barrier Reef. Accommodation, boats, diving equipment, a running seawater aquarium system and air-conditioned laboratory facilities are available adjacent to the reef.

## Highlights

- Directors Change
- Skipper and Crew for R.V. Sunbird appointed
- Major donation from West German Government

## Goldmans Depart

After nine and a half years of innovative direction and management of the Lizard Island Research Station Barry and Lois Goldman returned to the mainland. Under their direction the station has developed from a collection of primitive huts in 1975 to a well equipped station with accommodation for 15 scientists and six staff with two modern air-conditioned laboratories and a 14½m catamaran.

Sir John Proud, chairman of the Lizard Island Reef Research Foundation, praised the dedication of Lois and Barry Goldman and their contribution to the station's development over the past 10 years. "Their work is greatly respected and appreciated and the station is an on-going monument to their diligence and competence", he said.

Drs Barbara Kojis and Norman Quinn have joined the Lizard Island team as Co-Directors. Both received their Doctorates from the University of Queensland.

## New Skipper of RV Sunbird

Captain Jim and Margot Dargaville sailed to Lizard Island arriving in early May to take up the positions of Master and crew of RV Sunbird. Jim has a Foreign Going Masters certificate and is certified to command unlimited tonnage vessels in international waters.

RV Sunbird continues to perform well and is filling a scientific and logistic need. Researchers from overseas as well as local scientists are utilizing its shallow draft, speed, stability, trawling equipment and diver support for their work.

## Station Equipment

In February, Dr Pagenstert, the Consul General of the Federal Republic of Germany for NSW and Qld presented \$34,000 to assist research on Australia's Great Barrier Reef. The funds were provided for purchase of a fluorescence compound microscope, a Leitz rotary microtome, and a refrigerated centrifuge with the remaining funds of \$13,000 to be used to set up a West German Lizard Island Doctoral Fellowship commencing in 1987.

## Fourth Fellowship Awarded

Maria Milicich received the fourth doctoral fellowship and will be supervised by Dr R. Doherty of Griffith University. Maria joins us from the University of Auckland.



*Gould's Monitor, a resident of Lizard Island*

## New Workshop Extension Completed

A 94m<sup>2</sup> extension to the workshop was completed in December 1985, and the station now has, in addition to its dive shop and tool shop, a covered area with a concrete base for maintenance and construction activities. The extension also provides excellent protection for the new Kubota tractor. Peter Kendall's (owner/manager of FarNorAg), donation of \$7,000 allowed us to purchase a new tractor.

## Research

An excellent record of research continues including studies rearing clams, *Tridacna* spp., and studies on nesting behaviour and food gathering activities of terns and shearwaters.

Mr John Chisholm has constructed an underwater physiological chamber for the measurement of coralline algal productivity and calcification, with the collaboration of technicians and scientists at the Australian Institute of Marine Science. The chamber has been deployed on the reef edge exposed to the south-east trade winds. One reviewer commented that the successful deployment of this equipment has made John the only person in the world at the moment with the ability to measure underwater primary production and calcification by calcareous red algae on reefs.

## Community Involvement

Guests from the Lizard Island Lodge are given a guided tour of the station which include meeting researchers and a brief slide show.

In September, TAMS members enjoyed a visit to the station.

## Future Plans

In the future we plan to increase both Australian and international recognition of the Lizard Island Research Station as the premier location to study the Great Barrier Reef and tropical biology and part of this aim is to increase support for doctoral fellowships at the station.



# National Photographic Index



Terry Lindsey and Ronald Strahan of the National Photographic Index of Australian Wildlife launch their latest bird book.

## Aims and Organisation

Index is a special project of the Australian Museum which maintains a documented collection of photographs of the mammals, birds, reptiles and frogs of Australia and its territories. This resource is available for use by zoologists, authors and publishers and it provides the basis of richly illustrated books produced by the Index itself.

The Index is managed by an Executive Officer but its overall direction and financial control is vested in a Committee of Management appointed by the Museum Trust. Under the chairmanship of Mr J. Broinowski CMG, the Committee held five meetings during the year. In January 1986, Mr L.J. Hartigan and Mr P.T. Jackman were appointed to the Committee.

## Highlights of the Year

- The Seabirds of Australia, a 518-page book on the seabirds occurring in and around Australia and its territories, was published in May, 1986. This is the third of a series of ten volumes to be produced by the Index, covering all Australian birds. It is more comprehensive than any previous book on the subject.

## Activities

- Index staff have been vigorously engaged in book production. The texts of *The Shorebirds of Australia* (originally called "Waders and Gulls") and *The Robins and Flycatchers of Australia* are with the publisher and the texts of *The Honeyeaters of Australia* and *The Parrots and Pigeons of Australia* are being edited. Two word-processors are now fully integrated into the system of book preparation and the text of *Robins and Flycatchers* and all subsequent volumes produced by the Index are expected to go to the publisher and printer as floppy discs.

- In addition to its series of books on Australian birds, the Index has contracted to produce a large-format 800-page *Encyclopaedia of Australian Animals*, covering all vertebrate species except the fishes and due to be published in 1989. The text on mammals is being written by Ronald Strahan; on birds by Terence Lindsey; on reptiles by Harry Ehmann and on frogs by Michael Tyler.
- Some 3,700 colour photographs were added to the collections during the year, the largest annual increment in the Index's history, bringing the number of transparencies to nearly 20,000. In terms of species coverage and photographic excellence, the Index undoubtedly has the finest existing collection of colour transparencies of Australian birds and mammals. The reptile and frog collections are still at an early stage of development.

## State of the Collections

GROUP	1984/85		1985/86		Additions		Species represented
	main	subsid.	main	subsid.	photos	species	
Mammals (to stage 17)	1,105	2,221	1,118	2,260	45	4	264
Birds (to stage 49)	4,940	7,022	4,940	9,438	2,416	28	785
Reptiles (to stage 5)	147	313	682	801	754	18	289
Frogs (to stage 3)	83	174	225	329	397	32	101
Totals	6,275	9,730	6,965	12,828	3,612	82	1,439

## Historical Collection

The historical collection comprises glass negatives, lantern slides and black and white prints, mostly of birds, from the first half of the twentieth century. It increased by about 2,400 items during the year, largely as a result of continuing donations from Messrs. N. Chaffer, J.D. Waterhouse and J.P. Ramsay, and now stands at 8,412 catalogued items. A program to attract further work is under way.

The collection is managed entirely by volunteers under the direction of Mr E.L. Carthew, Honorary Archivist (Historical), assisted by Mr H.J. de S. Disney and Mr J.D. Waterhouse, also honorary archivists.

## Funding

The Index continues to meet its operating costs from royalties derived from its publications, sponsorship of illustrations in its bird books, and service fees for the commercial use of its photographs (reproduction charges being remitted to the copyright holders). In the past year income from each of these sources exceeded budget targets. For the first time, reproduction fees were received for use of photographs in the historical collection.

## Staff

Ronald Strahan has been elected an honorary life member of the Australian Mammal Society. Mary Rose Gordon resigned from the position of Archivist in November 1985 but remains on staff (approximately one week per month) as organiser of photographs for Index publications. Heather Lawrence was appointed as Archivist in place of Mary Rose Gordon. Helen Cooney was appointed as clerical assistant in October 1985 in place of Denise Grieg.



# The Australian Museum Society (TAMS)

The Society develops and maintains contacts between the Museum and the community by promoting a greater understanding of Museum activities, and assists the Museum financially, as requested by the Trust.

Last year was the most outstanding in the thirteen years of the Society's history in both membership growth and program development.

## Highlights

- Membership increase 110%
- Our second donation (of \$10,000) towards the new Mineral Gallery
- Overseas tours to China and Easter Island

## Membership

The Society adopted a higher public profile through direct mailing, greater media coverage, wider distribution of the membership application brochure and generally increased promotional activity. This concentrated effort generated our 110% member increase: at year's end TAMS had 4,500 members.

## Popular Programs

The larger membership increased demand for events. Response has been enormous: the Society expanded its field of interest to include events and trips not feasible previously because of insufficient demand. For example, twenty-four members joined the highly-successful tour to China in September, 1985, led by Dr Alex Ritchie and Ms Pamela Pearce. Fifty-one members, in two tours, visited Easter Island in January, 1986, giving valuable assistance to Professor Grant McCall, social anthropologist, and His Excellency, the Governor of Easter Island, Sergio Rapu (curator of the Easter Island Museum). Three-hundred-and forty people joined our five tours to Parkes in NSW to view the return of Halley's Comet, and though the comet was an over-rated event, our tours boasted excellent resident astronomers, and extra activities such as visits to the Western Plains Zoo at Dubbo.

Special interest activities continue to be popular: over six hundred people enjoyed our Tank Stream tours and Sydney Observatory visits.

Through the Society's lecture program members again had the opportunity to hear outstanding and internationally acclaimed speakers such as Professor R. Penny, Director of the Centre for Immunology, and Dr Victor Chang, Chairman, Cardiac Transplant Team, both from St. Vincent's Hospital, Dr Geoffrey Martin, Reader in Egyptian Archaeology, University College, London, and Dr Brian Bracegirdle, Keeper, Museum of Medical History, British Museum.

## A Planet of Minerals Sponsorship

Society members were invited to contribute to the co-sponsorship of the new Mineral Gallery. This year a further \$10,000 was given to the Museum, bringing TAMS's donation to a total of \$20,000.



*Easter Island was just one of the TAMS events of the past year.*

## The Volunteer Program

The Volunteer Co-ordinator, Mrs Herti Verge, selected and placed approximately sixty new volunteers in almost every section of the Museum. More than two hundred full or part time volunteers help the Museum.

## Cafe Museum

Museum visitors gave enthusiastic endorsement to the service provided by the refurbished Cafe Museum. The Manager, Jurgen van Opdorp, has been outstandingly successful in promoting the Cafe as a venue for private functions. The success of these activities is reflected in the increase of over 40% in revenue.

## Future Plans

- Financial assistance to a Museum Bicentennial project
- Two tours, with 30 TAMS members led by Vincent Serventy and Dr Jim Lowry to the Galapagos and Patagonia
- Drive for further corporate benefactor membership



# Volunteers

The following people volunteered their services to the Museum during the year. Much valuable work could not have been achieved without their assistance.

## Anthropology

J. Bona  
D. Hardy  
M. Rawson  
N. Chadwick  
B. Lukins  
A. Robinson  
L. Tyson  
L. Oakes  
J. Taubman  
R. Cohen  
E. Phillips  
L. Salpeter  
G. Calov  
O. Hasler  
S. Howes  
D. Donlan  
S. Florek  
N. Baker  
J. Bible  
J. Owen  
J. Lerbscher  
T. Corkill  
P. Ikingier  
J. Anderson  
K. Bona  
K. Westmacott  
I. Rowell  
G. Godley

## Earth Sciences

### Palaeontology

Bill Boogaart  
Jane Frances  
Jean Hodgson  
Matthew West

### Mineralogy

Julian Grodzicky  
Erica Hepburn  
Celia Jones  
Armstrong Osborne

## Invertebrate Zoology

### Arachnology

E. Balmer  
G. Copp  
E. Sheridan

### Crustaceans and Coelenterates

D. Bright  
S. Caldwell  
T. Goodsell  
F. O'Connor  
E. Silk  
H. Ward

### Echinoderms

H. Broughton

## Entomology

R. Blance  
A. Bowman  
W. Carlov  
G. Knowles  
N. Lavidis  
R. Lormer  
M. O'Brien  
N. Rodd  
D. Scambler  
G. Theischinger  
C. Urquhart  
M. Wyllie

## Malacology

M. Bradbury  
S. Bull  
P. Burton  
E. Christian  
G. Clark  
G. Davis  
F. Docherty  
E. Donlea  
N. Ireland  
T. Ireland  
J. Woodhouse  
A. Lerio  
M. Melville  
A. Murdoch  
M. O'Brien  
D. Pearson  
E. Powell  
K. Rutland  
G. Thornley  
L. Vlahos  
J. Wise

## Marine Ecology

D. Collis  
R. Marsh

## Worms

M. Cooper

## Vertebrate Zoology

### Herpetology

M. Milston

### Ichthyology

A. Daniel  
M. Thomson

## Mammalogy

J. Alexander  
E. Eyres  
M. Lean  
D. Liszka  
A. Meza  
C. Munns  
M. Nagy  
S. Praseuthsouk  
M. Thurlow

## Ornithology

T. Armstrong  
S. Banks —  
Work Experience Student  
E. Carthew  
A. Derwent  
H.J. Disney  
H. King  
I. McAllan  
M. Murphy  
A. Pisanello —  
Work Experience Student  
P. Rowland  
M. Tink  
R. Webster

## Vertebrate Ecology

J. Bloom  
C. Burrows  
H. Dickens  
S. Fox  
L. Hartman  
R. Kreen  
J. Lillywhite  
J. Messer  
A. Miller  
J. Molle  
A. Rowe  
P. Sanderson  
J. Taylor  
R. Wheeler  
M. Wilson

## Community Relations

J. Wallin  
J. Beavis  
D. Wright

## Education

M. Copp  
A. Sharpe  
J. Miller  
B. Kenyon  
O. Hasler  
B. Weekes  
C. Murphy  
V. Carter  
K. Hancock  
B. Eyre  
B. Johnston  
D. Jarvis  
M. Gordon  
M. Moore  
A. Murdock  
K. Riley  
E. Woolf  
P. Glennan  
G. Sainty  
M. Walton  
K. Hamey

E. Oakley  
M. Poulos  
P. Scholfield  
B. Silver  
P. Rohles  
I. Austin  
E. Hird  
D. Mincher

## Library

K. Blofeld  
M. Fields

## Materials Conservation

P. Baudert  
S. Costello  
L. Cox  
H. Joynes  
L. Mack  
K. Magoffin  
F. Lacoba  
P. Orenden  
N. Turner

## National Photographic Index

E.L. Carthew  
H.J. de S. Disney MA  
J.D. Waterhouse

## Photography

Malcolm Ward  
Bridget Ohlson  
Kelly Bona

## The Australian Museum Society

D. Chandler  
J. Cocks  
E. French  
N. Ireland  
T. Ireland  
M. Jones  
S. Murray  
F. Shinn  
H. Verge  
G. Nichol



# Staff

D.J.G. Griffin, MSc, PhD  
H.G. Cogger, MSc, PhD

Director  
Deputy Director

C. Abraham  
E. Kortvelyesy  
P. Dempsey

Secretary to the Director\*  
Assistant to the Deputy Director  
Director's/Scientific Typist

## Anthropology Division

L. Bolton, BA (Hons), Dip. Mus. Stud.  
N. Goodsell, BA  
P. Gordon  
K. Khan, BA (Hons), Dip. Anthropol.  
R. Lampert, PhD, FAHA  
  
B. Meehan, BA (Hons), MA (Hons), PhD  
J. Specht, MA, PhD.  
S. Thomsett, BA (Hons), Dip. Mus. Stud.  
Z. Wakelin-King, BA (Hons)

Senior Technical Officer (Collection Manager)  
Technical Officer  
Aboriginal Liaison Officer  
  
Technical Officer (Scientific)  
Head of Division and Senior Research Scientist

Scientific Officer  
Scientific Officer

Technical Officer (Scientific)  
Senior Technical Officer (Collection Manager)  
Typist

S. Young

Temporary Assistants

N. Baker  
K. Barnes  
R. Bolzan  
N. Chadwick  
S. Knuckey  
L. Oakes, BA, Dip. Mus. Stud.  
A. Szalay, BA (Hons)  
T. Konecny, BA (Hons), Dip. Mus. Stud.

## Earth Sciences Division

### Palaeontology

R. Jones, MSc

Technical Officer (Scientific) and Collection Manager  
Senior Research Scientist and Head of Division

A. Ritchie, BSc, PhD

### Mineralogy and Petrology

J.E. Henley, BAppSc, FGAA

Senior Technical Officer (Scientific) and Collection Manager

R.E. Pogson, BAppSc (Hons)

Technical Officer (Scientific)  
Senior Research Scientist  
Technical Officer

F.L. Sutherland, MSc, PhD  
G. Webb, BA, FGAA, DipDT

## Invertebrate Zoology Division

### Arachnology

M. Gray, MSc

Scientific Officer and Collection Manager  
Technical Assistant

C. Horseman

### Crustaceans and Coelenterates

J. Lowry, MA, PhD  
R. Springthorpe, BSc

Senior Research Scientist  
Technical Officer (Acting Collection Manager)

N. Bruce, BSc (Hons), PhD  
H. Stoddart, BSc (Hons)  
P. Berents, MSc

Scientific Officer  
Scientific Officer  
Scientific Officer

## Echinoderms

F. Rowe, BSc (Hons)  
PhD, CIBiol, MIBiol, FLS  
L. Vail, BSc, MSc

Senior Research Scientist

P. Filmer-Sankey BSc (Hons)  
A. Hoggett, BSc (Hons)  
E. Albertson, BSc  
J. Hanley, BA

Senior Technical Officer (Collection Manager)\*  
Technical Officer (Scientific)  
Research Assistant  
Research Assistant  
Technical Officer (Scientific)

## Entomology

D. Bickel, PhD  
B. Day  
B. Duckworth  
G. Holloway, BSc  
D. McAlpine, MSc, PhD, DIC

Visiting Research Fellow  
Technical Assistant  
Technical Assistant  
Technical Officer  
Senior Research Scientist

## Malacology

G. Avern, BSc, DipEd  
S. Carter  
P. Colman  
J. Gillespie, BSc  
S. Hanslow, BSc  
I. Loch

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

W. Ponder, MSc, PhD  
W. Rudman, MSc, PhD  
G. Serkowski  
J. Waterhouse, BSc(Hons)  
D. Winn, BSc

## Marine Ecology

A. Jones, MSc, PhD  
A. Murray, BSc  
T. Trnski

Scientific Officer  
Technical Officer  
Technical Officer (temporary)

## Worms

A. Chapman, BSc  
C. Glasby, MSc  
P. Hutchings, BSc, (Hons), PhD

Research Assistant\*  
Research Assistant\*  
Senior Research Scientist  
Head of Division  
Research Assistant  
Twofold Bay Project  
Museum Assistant  
Technical Officer  
Research Assistant  
Research Assistant  
Twofold Bay Project

S. Keable, BSc

L. Matthews  
S. Perry, BSc  
M. Reid, BSc  
J. van der Velde, BSc (Hons)

Temporary Assistants

L. Howitt, BSc  
T. Glasby

## Vertebrate Zoology Division

### Herpetology

H. Cogger, MSc, PhD  
A. Greer, PhD  
D. Kent, BSc, Dip. Agr. Ent.  
G. Mengden, BSc, PhD  
R. Sadlier, BSc

Deputy Director  
Senior Research Scientist  
Technical Officer (Scientific)  
Research Fellow  
Collection Manager

### Deputy Director's Research Laboratory

E. Cameron, MSc

Scientific Officer

\* denotes permanent or temporary position no longer occupied by this person



### Ichthyology

D. Brown, BA  
J. Gates, BA  
D. Hoese, BA, PhD  
J. Leis, BSc, PhD  
M. McGrouther, BSc (Hons)  
L. Moodie BSc (Hons)  
J. Paxton, MSc, PhD  
E. Pyllarinos  
S. Reader, BSc  
D. Rennis, MSc  
S. Thompson, MSc  
T. Trnski, BSc  
T. Goh

### Mammalogy

T. Flannery, BSc, PhD  
L. Gibson  
Temporary Assistants

### Ornithology

W.E. Boles, BSE (Hons)  
Temporary Assistants

### Vertebrate Ecology

S. Carter, BSc  
N. Carlile, AssocDiplApSc  
G. Gowing, BSc (Hons)  
P. O'Connor, BSc  
G. Pyke, BSc (Hons), PhD  
H. Recher, BSc, PhD  
R. Schoen  
G. Serkowski  
K. Wale, BAppScEc

Technical Officer (Scientific)  
Technical Officer (Scientific)\*  
Head of Division  
Scientific Officer  
Technical Officer (Scientific)  
Technical Officer (Scientific)  
Scientific Officer  
Laboratory Assistant  
Technical Officer (Scientific)  
Collection Manager  
Technical Officer (Scientific)\*  
Technical Officer (Scientific)  
Scientific Typist

Scientific Officer  
Collection Manager  
E. Eyres  
S. Praseuthsouk

Senior Technical Officer  
(Collection Manager)  
I.A.W. McAllan; T.  
Armstrong; D.W. McFall

Research Assistant  
Research Assistant  
Senior Technical Officer  
Research Assistant  
Senior Research Scientist  
Principal Research Scientist  
Research Assistant (YES scheme)  
Technical Officer (Scientific)  
Research Assistant

### Community Relations Division

J. Bear  
S. Browne  
R. Cameron  
C. Deacon, BSc  
M. Dingle  
F. Doig  
B. Gregg  
G. Hickey, BSc  
L. Hodgson, BSc (Hons)  
M. Ingham  
B. Johnson  
R. Klasek  
J. McIntosh  
A. Maxwell  
P. Pearce, Teach Cert. AAIM  
P. Sharpe  
L. Whaite, BA (Comm)  
M. Zonotto

Shop Assistant  
Shop Assistant  
Editor, Australian Natural  
History\*  
Publications Officer\*  
Head of Division  
Editor, Australian Natural  
History  
Shop Assistant  
Assistant Editor, Australian  
Natural History  
Assistant Editor (Records)  
Assistant to Head of Division  
Shop Assistant  
Shop Assistant  
Circulation Officer  
Publicity Officer  
Head of Division\*  
Shop Assistant\*  
Publicity Officer\*  
Shop Assistant

### Education Division

P.M. McDonald, BEM, BSc, MEd,  
FMAA  
K. Buckle, DipEd  
Z. Harkness  
G.S. Hunt, BSc, DipEd, PhD  
J. McLeod, BA, DipEd,  
DipSpecEd  
S.O. Main, BA, DipEd

Head of Education Division  
Education Officer  
Education Officer (part time)  
Education Officer  
Education Officer  
Education Officer

A.L. O'Neill, BAppSc, Cert Ed  
N.J. Pallin, BA Hons, DipEd  
A. Skates, BA, Dip Teach  
A. Saunders, BA, DipEd

J.J. Gillespie, BSc

K.M. Cocks, BSc, DipEd

S.H. Montgomery, BSc, Agr

S.S. Stephens, BSc (Hons)

R.C. Inder  
D.B. Millar  
M.L. Robinson, B Appl Sc

H. Apostolas  
F.J. Coleman  
E. McPhee

Education Officer  
Education Officer (part time)  
Education Officer  
Education officer (Special  
Project)  
Education officer (Special  
Project)  
Education Officer (Museum  
Train)  
Education Officer (Museum  
Train)  
Education Officer (Museum  
Train)  
Preparator\*  
Preparator  
Preparator  
Typist  
Typist  
Typist

### Exhibitions Division

R. Joyner  
M. Cloyd

Head of Division  
Secretary

### Design

G. Ferguson, Dip Art (App Art)  
K. Gregg  
R. Joyner, ADIA  
C. Kalucy  
B. Matzick, Dip Art (Painting)  
S. Morris, Dip Art (Painting)  
J. Powell, Dip Art (Interior)  
A. Richard, Dip Art Visual  
R. Ross-Willson  
L. Horton-James  
R. Weakley

Exhibition Project Manager  
Designer  
Head of Division  
Museum Assistant  
Exhibition Project Manager  
Designer  
Museum Assistant  
Designer  
Exhibition Project Manager  
Museum Assistant  
Museum Assistant

### Preparation

M. Dingley  
L. Donovan  
A. Gregg  
G. Hangay  
J. Hood  
C. Johnson  
M. Kelly  
P. Keszei  
O. Keywan  
E. MacLeod  
R. Moloney  
T. Ralph  
R. Scott-Child  
A. Titchen  
A. Wang  
C. Wang

Preparator  
Assistant Preparator  
Assistant Preparator  
Chief Preparator  
Preparator  
Assistant Preparator  
Assistant Preparator  
Preparator  
Assistant Preparator  
Preparator  
Preparator  
Assistant Preparator  
Preparator  
Preparator  
Assistant Preparator  
Assistant Preparator

### Administration Division

J. Adams  
H. Apostolas  
K. Denniss  
J. Howarth  
T. Goh  
G. McKenzie, AASA, CPA  
G. Pinto  
J. Recher  
A. Thomas  
E. Tong

Scientific Typist  
Typist  
Assistant to the Secretary\*  
Scientific Typist  
Scientific Typist  
Secretary to the Museum  
Scientific Typist  
Scientific Typist  
Scientific Typist  
Scientific Typist  
Scientific Typist

Temporary Assistants: P. Wearne, R. Chimelewski

\* denotes permanent or temporary position no longer occupied by this person



Accounts  
F. Cauchi  
Z. Christofides  
A. Crame  
J. Harly  
S. Hingston, FCA  
J. Kady  
N. Legg, BA (EC)  
M. O'Donnell  
M. Quinlan  
M. South  
M. Ton  
C. Vesik

Temporary Assistants

John Fields  
Kate Lowe  
Karen Handley

R. Norris  
N. Davis

K. Randall  
D. Shallis  
B. Griffiths  
H. Pierson  
D. Shelton  
U. Lederman  
G. Bonham  
P. Goodwin  
E. Martin  
R. Milroy  
H. Barrons  
E. Reynolds  
W. Payne  
H. Butler  
W. Grice  
A. Jones

W. Walsh  
E. Mair  
K. Bilbe  
G. Hastie  
J. Culbert  
J. Laughton  
A. Szanto  
C. Picklum  
E. Drakoulki  
G. Casey  
N. Khouri  
J. Elias  
B. Walsh  
C. Gianopoulos  
B. Seears  
M. Hickie  
B. Hough  
A. Youssef  
G. Osborne  
R. Davies  
E. Adcock

W. Rixon  
J. Rusten  
Temporary Assistants:

Accounts Payable Clerk  
Accounts Payable Clerk  
Grants Clerk  
Cashier  
Accountant  
Computer Commitments Clerk  
Accountant\*  
Office Manager\*  
Accounts Payable Clerk  
Computer Commitments Clerk\*  
Accounts Payable Clerk  
Accounts Payable Clerk\*  
N. Davis,  
M. Pettit

Head of Section  
Photographer  
Museum Assistant

Staff Manager  
Assistant Staff Manager

Night Security Officer  
Night Security Officer  
Night Security Officer  
Night Security Officer  
Night Security Officer  
Night Security Officer  
Night Security Officer  
Night Security Officer  
Gallery Security Officer  
Gallery Security Officer  
Gallery Security Officer  
Gallery Security Officer  
Gallery Security Officer  
Gallery Security Officer  
Gallery Security Officer  
Gallery Security Officer  
(Temporary)  
Attendant Cleaner  
Attendant Cleaner  
Attendant Cleaner  
Attendant Cleaner  
Attendant Cleaner  
Attendant Cleaner  
Attendant Cleaner  
Gardener  
Cleaner  
Cleaner  
Cleaner  
Cleaner  
Cleaner  
Cleaner (Temporary)  
Head, Security/Cleaning/Guards  
Senior Attendant  
Museum Guide  
Museum Guide  
Museum Guide  
Museum Guide  
Museum Guide

Storeman Driver  
Storeman Driver  
S. O'Brien; W. Steele

K. Coote, BA, BSc (Hons)	Conservator
S. Costello	Technical Officer (Scientific)
N. Dammerel	Technical Assistant
J. Dickens, BAppSc	Conservator
S. Gatenby, BSc	Conservator
K. Head, BAppSc	Conservator
D. Horton-James, BSc	Conservator
E. McFadyen, BA	Technical Officer (Scientific)
A. Pitman	Photographic Assistant
M. Scott	Technical Officer (Scientific)
J. Sharp	Technical Officer (Scientific)
S. Valis, BA	Technical Officer (Scientific)
S. Walston, Dip Cons (Lond)	Head of Division
S. Zounis	Technical Officer (Scientific)

N. Bain	Library Technician
G. Baker, ALAA	Chief Librarian
C. Cantrell	Library Officer
A. McConochie	Library Officer
C. Pyne	Clerical Assistant
H. Spitzer	Typist
J. Dudman	Museum Assistant
P. van der Made	Temporary Assistant

Barry Goldman, BSc, PhD	Director*
Lois Goldman	Manager/Acting Director*
Barbara L. Kojis, BA, BSc, PhD	Co-Director
Norman J. Quinn, BSc, MA, PhD	Co-Director
Jim Dargaville	Master, R.V. Sunbird
Margot Dargaville	Crew, R.V. Sunbird
Peter Pini	Maintenance Officer
Gwen Pini	Accommodation Officer

R. Strahan, MSC, MIBiol, FRZS, FANZAAS,	Executive Officer
T.R. Lindsey	Scientific Editor
H. Lawrence	Archivist
J. Coghlan	Typist
H. Cooney, BSC	Clerical Assistant

S. Bridie	Executive Secretary
W. Wilkins	Secretary
S. Hamilton	Temporary Assistant
F. Shinn	Temporary Assistant
A. Whittet	Temporary Assistant

J. van Opdorp	Manager
T. Bonczyk	Assistant Manager

50



# Publications

## Anthropology

Bell, D.J., Specht and D. Hain, 1986. Beyond the reef: compound fishhooks in the Solomon Islands. In: A. Anderson (ed) *Traditional Fishing in the Pacific*, pp. 45-63. Pacific Anthropological Records, No. 37.

Bolton, L., 1986. The spectre of collection rationalisation. A warning from the Australian Museum. *COMA Bulletin* 18:

Khan, K., 1985. North Queensland Aboriginal baskets. *Craft Australia*, 4: 18-22.

Lampert, R., 1985. Archaeological reconnaissance on a field trip to Dalhousie Springs. *Australian Archaeology* 21: 57-62.

Lampert, R., 1986. The development of the Aboriginal Gallery at the Australian Museum. *COMA Bulletin* 18:

Meehan, Betty and Rhys Jones, 1986. From Anadjerramiwa to Canberra. In: *Rom: An Aboriginal Ritual of Diplomacy*, pp. 15-31. Canberra: Australian Institute of Aboriginal Studies.

Meredith, C.W., J.R. Specht and P.V. Rich, 1985. A minimum date for Polynesian visitation to Norfolk Island, South-west Pacific, from faunal evidence. *Search* 16 (9-12): 304-06.

Peterson, N. and R. Lampert, 1985. A central Australian ochre mine. *Records of the Australian Museum* 37: 1-9.

Specht, J., 1986. Crabs as disturbance factors in tropical archaeological sites. *Australian Archaeology* 21: 11-18.

Thomsett, S., 1986. The Sepik Documentation Project at the Australian Museum. *COMA Bulletin* 18:

## Earth Sciences

### Mineral Section

Sutherland, F.L. and J.D. Hollis, 1985. Gemstones and their volcanic connections, Eastern Australia Coll. Abstr. 20th International Gemm. Conf. Sydney.

Sutherland, F.L., J.D. Hollis and L.R. Raynor, 1985. Diamonds from nepheline mugearite? A discussion of 'Garnet websterites and associated ultramafic inclusions from a nepheline mugearite in the Walcha area, New South Wales, Australia. *Min. Mag* 49: 748-751.

Sutherland, F.L., 1986. Rift spreading hot spot volcanism: intraplate and interplate. Intl. Volcanol. Congr. Abstr., Auckland — Hamilton — Rotorua, 215

### Palaeontology

Ritchie, A. M. Archer, T.F. Flannery and R.E. Molnar, 1985. First Mesozoic mammals in Australia — an early Cretaceous monotreme. *Nature* 318 (6044): 363-366

## Invertebrate Zoology

Bickel, D.J., 1985. A revision of the Nearctic *Medetera* (Diptera: Dolichopodidae). United States Department of Agriculture Technical Bulletin 1692: 109pp.

Bruce, N.L., 1985. *Biremia ambocerca* n. genus, n.sp., the first record of the marine isopod crustacean family Bathynataliidae from Australian waters. *Records of the Australian Museum* 37: 295-299.

Bruce, N.L., 1985. *Calyptolana hancocki* a new genus and species of marine isopod (Cirolanidae) from Aruba, Netherlands Antilles, with a synopsis of Cirolanidae known from the Caribbean and Gulf of Mexico. *Journal of Crustacean Biology* 5: 707-716.

Colman, P.H., 1985. New Records from Christmas Island. *Australian Shell News* 52:3.

Colman, P.H., 1986. Observations on *Recluzia*. *Australian Shell News* 53:3.

Christian, E. and P.H. Colman, 1986. *Hadra bipartita*, a variable species. *Keppel Bay Tidings* 25(1): 3.

Glasby, C.J., 1986. The population structure and reproductive biology of *Ceratonereis limnetica* (Polychaeta: Nereididae) at Lower Portland, Hawkesbury River. *Marine Biology* 90: 589-597.

Gray, M.R. and M.L. Robinson, 1986. Observations on the behaviour and taxonomy of the Australian tailless whipscorpion *Charinus pescotti* Dunn (Ammblypygi: Charontidae). *Proceedings of the Linnean Society of New South Wales* 108(4): 217-224.

Griffin D.J.G. and H.A. Tranter, 1986. The Decapoda Brachyura of the Siboga Expedition Part VIII Majidae. *Siboga-Expedition Monographie XXXIX*, C4 (= Livraison 148): 1-335.

Holloway, G.A., 1986. European Wasps — the sweet-toothed invader. *Australian Natural History* 21(9): 372-376.

Hutchings, P.A., 1986. Variability in polychaete recruitment at Lizard Island, Great Barrier Reef, a long term study and an analysis of its potential impact on coral reef ecosystems. *Proceedings of the 5th International Coral Reef Congress*, Tahiti 5: 245-250.

Hutchings, P.A. and E. Bamber, 1986. Variability of bioerosion rates at Lizard Island, Great Barrier Reef: preliminary attempts to explain these rates and their significance. *Proceedings of the 5th International Coral Reef Congress*, Tahiti 5: 333-338.

Hutchings, P.A. and C.J. Glasby, 1985. Additional nereidids (Polychaeta) from Eastern Australia, together with a redescription of *Namanereis quadraticeps* (Gay) and the synonymising of *Ceratonereis pseudoerythraeensis* Hutchings and Turvey with *C.aequisetis* (Augener). *Records of the Australian Museum* 37: 101-110.

Hutchings, P.A. and C.J. Glasby, 1986. The genus *Euthelepus* (Terebellidae: Thelepininae) together with a description of a new species. *Records of the Australian Museum* 38: 105-117.

Hutchings, P.A. and C.J. Glasby, 1986. A new genus of Thelepininae (Terebellidae) *Glossothelepus* from Mexico. *Proceedings of Biological Society of Washington* 99(1): 84-87.

Hutchings, P.A., J. van der Velde and S. Keable, 1986. Colonisation of New South Wales by foreign marine species. *Australian Fisheries* Vol 45(4): 40-42.

Hutchings, P.A., 1986. Biological destruction of coral reefs. A review. *Coral Reefs* 4(4): 239-252

Jones, A.R., 1986. The effects of dredging and spoil disposal on macrobenthos, Hawkesbury, New South Wales. *Marine Pollution Bulletin* 17: 17-20.

Jones, A.R., 1986. Spatial and temporal variations in a community of nektonic invertebrates from Moreton Bay, Queensland. *Estuarine Coastal Shelf Science* 23: 131-146.

Jones, A.R., C.J. Watson-Russell and A. Murray, 1986. Spatial patterns in the macrobenthic community of the Hawkesbury Estuary, N.S.W. *Australian Journal of Marine and Freshwater Research* 37(4): 521-543.

Loch, I.W., 1985. Brisbane Convention. *Australian Shell News* 54: 4.

Loch, I.W., 1985. Spine Cutter. *Australian Shell News* 52: 1-2.

Loch, I.W., 1986. Gourmet Limpets. *Australian Shell News* 54: 6.

Loch, I.W., 1986. On the same reef as Bob Purtyman. *Shell and Shell Life News* 18(3): 51.

Lowry, J.K., *Cardomanica andersoni* new genus, new species from the western Tasman Sea with notes on species from the tropical western Atlantic (Crustacea: Ascothoracida: Synagogaidae). *Records of the Australian Museum* 37(6): 317-323.

McAlpine, D.K., 1985. A new species of Aulacigastridae from Papua New Guinea and characterisation of species groups in the genus *Nemo* (Diptera, Schizophora). *Australian Entomological Magazine* 12: 47-50.

McAlpine, D.K., 1985. Culture of *Corybas* (Orchidaceae). *The Orchidophile*, September 1985: 9.

McAlpine, D.K., 1985. Book review. Catalogue of Palaearctic Diptera. *Journal of Australian Entomological Society* 24: 232.

McAlpine, D.K., 1985. Adaptation in upside-down flies. *Circular of Entomological Society of New South Wales* 354: 32-33.

McAlpine, D.K., 1985. Upside-down flies. *Australian Natural History* 21: 454-456.

Ponder, W.F., 1985. The anatomy and relationships of *Elachisina* Dall (Gastropoda: Risssoacea). *Journal of Molluscan Studies* 51(1): 23-34.

Ponder, W.F., 1985. The anatomy and relationships of *Emblanda emblematica* (Hedley) (Mollusca: Mesogastropoda: Emblandidae n. family). *Records of the Australian Museum* 37(6): 343-351.

Ponder, W.F., 1986. Glacidorbidae (Glacidorbacea: Basommatophora) a new family and superfamily of operculate freshwater gastropods. *Zoological Journal of the Linnean Society* 87: 53-83.

Rowe, F.W.E., 1985. On the genus *Podospaeraster* A.M. Clark and Wright (Echinodermata, Asteroidea) with description of a new genus from the North Atlantic. *Bulletin de Museum National d'Histoire Naturelle Paris*, 4e series 7, section A, 2: 309-325.



- Rowe, F.W.E., 1985. Six new species of *Asterodiscides* A.M. Clark (Echinodermata, Asteroidea), with a discussion of the origin and distribution of the Asterodiscidae and other 'amphi-Pacific' echinoderms. *Bulletin de Museum National d'Histoire Naturelle Paris*, 4e series 7, section A, 3: 531-577.
- Rowe, F.W.E., 1985. Preliminary analysis of distribution patterns of Australia's non-endemic, tropical echinoderms. In Keegan, B.F. & B.D.S. O'Connor (eds). *Echinodermata. Proceedings of the Fifth International Echinoderm Conference*, Galway 24-29 September, 1984. A.A. Balkema: Rotterdam pp. 91-98.
- Rowe, F.W.E., 1985. A review of the ophiocomin genus *Clarkcoma* Devaney, 1970 (Ophiuroidea: Ophiocomidae). *Proceedings of the Linnean Society of New South Wales* 108(1): 59-69.
- Rowe, F.W.E. and D.L. Pawson, 1985. *Loisettea amphictena*, new genus, new species, from the sublittoral of northwestern Australia (Echinodermata: Holothuroidea). *Proceedings of the Biological Society of Washington* 98(3): 672-677.
- Rowe, F.W.E. and A.K. Hoggett, 1986. The cidarid echinoids (Echinodermata) of New South Wales. *Proceedings of the Linnean Society of New South Wales* 108(4): 225-261.
- Rowe, F.W.E., A.K. Hoggett, R.A. Birtles and L.L. Vall, 1986. Revision of some comasterid genera from Australia (Echinodermata: Crinoidea), with descriptions of two new genera and nine new species. *Zoological Journal of the Linnean Society* 86: 197-277.
- Somchai, B. and F.W.E. Rowe, 1985. A new species in the ophiocomid genus *Ophiocoma* (Echinodermata: Ophiuroidea) from the west coast of Thailand, Andaman Sea. *Research Bulletin of Phuket Marine Biology Centre* 35: 1-6.
- Rudman, W.B., 1986. The Chromodorididae (Opisthobranchia: Mollusca) of the Indo-West Pacific: The genus *Glossodoris* Ehrenberg (= *Casella*, H. & A. Adams). *Zoological Journal of the Linnean Society* 86: 101-184.
- Rudman, W.B., 1986. The Chromodorididae (Opisthobranchia: Mollusca) of the Indo-West Pacific: *Noumea purpurea* and *Chromodoris decora* colour groups. *Zoological Journal of the Linnean Society* 86: 309-353.
- ### Vertebrate Zoology
- Archer, M. and T.F. Flannery, 1985. The Kangaroo. Kevin Wheldon Press. 263pp.
- Archer, M. and T.F. Flannery, 1985. Revision of the extinct gigantic rat kangaroos (Potoroidae: Marsupialia) with a description of a new Miocene genus and species and a new Pleistocene species of *Propleopus*. *J. Paleol.* 59: 1331-1349.
- Archer, M. and T.F. Flannery, A. Ritchie and R.E. Molnar, 1985. First Mesozoic mammal from Australia — an early Cretaceous monotreme. *Nature* 318: 363-366.
- Allison, A. and A.E. Greer, 1986. Egg shells with pustulate surface structures: basis for a new genus of New Guinea skinks (Lacertilia: Scincidae). *J. Herp.* 20(1): 116-118.
- Boles, W.E., 1986. Review: 'National Geographic Society's Field Guide to the Birds of North America'. *Emu* 86: 58-59.
- Boles, W.E., 1986. A guide to birdwatching. *Impulse* 25(5): 4-5.
- Boles, W.E., 1985. Bird in the hand: Jacky Winter *Microeca leucophaea*. *Corella* 9: 66.
- Boles, W.E., 1985. Tongue-spots in nestling fernbirds. *Notornis* 32:41.
- Boles, W.E. and N.W. Longmore, 1985. The generic allocation of the Tawny-crowned Honeyeater. *S.A. Orn.* 29: 221-223.
- Boles, W.E. and N.W. Longmore, 1985. Colours and markings of the mouths of nestling Australian songbirds. *S.A. Orn.* 29: 213-219.
- Boles, W.E. and K. Lowe, 1985. The inner toe of *Megatriorchis*, *Erythrotriorchis* and *Harpyopsis*. *Bull. Brit. Orn. Club* 105: 143.
- Cameron, E.E., 1985. Habitat usage and foraging behaviour of three fantails (*Urhipidura*: Pachycephalidae). In 'Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management' (eds A. Keast, H.F. Recher, H. Ford and D. Saunders): 177-191. Royal Australasian Ornithologists' Union and Surrey Beatty and Sons, Sydney.
- Cogger, H.G., 1985. Australian proteroglyphous snakes — an historical overview. In 'Biology of Australasian Frogs and Reptiles' (eds G.C. Grigg, R. Shine and H. Ehmann): 143-154. Surrey Beatty and Sons, Sydney.
- Dawson, L. and T.F. Flannery, 1985. Taxonomic and phylogenetic status of living and fossil kangaroos and wallabies of the genus *Macropus* Shaw (Macropodidae: Marsupialia) with a new subgeneric name for the large wallabies. *Aust. J. Zool.* 33:473-98.
- Ehmann, H. and H.G. Cogger, 1985. Australia's endangered herpetofauna: a review of criteria and policies. In: 'Biology of Australasian Frogs and Reptiles' (eds G.C. Grigg, R. Shine and H. Ehmann): 435-447. Surrey Beatty and Sons, Sydney.
- Flannery, T.F., 1985 *Propleopus oscillans*. In: Kadimakara. (ed). P.V. Rich 245-248.
- Flannery, T.F., 1985. Reconstructing Australia's oldest mammal. *Australian Natural History* 21(9): 396.
- Flannery, T.F. and M. Archer, 1985. *Palorchestes azael* and *Palorchestes parvus*. In: Kadimakara. (ed). P.V. Rich 234-239.
- Flannery, T.F., and M. Plane, 1986. A new late Pleistocene diprotodontid (Marsupialia) from Purent, Southern Highlands Province, Papua New Guinea. *B.M.R. J. Geol. Aust. Geol. & Geophys.* 10:65-76.
- Flannery, T.F. and T.H.V. Rich, 1986. Macropodoids of the middle Miocene Namba Formation, South Australia, and the homology of some dental structures in kangaroos. *J. Paleol.* 60:
- Gomon, M.F. and J.R. Paxton, 1985. Revision of the Odacidae, a temperate Australian — New Zealand labroid fish family. *Indo-Pacific Fishes*. No. 8. 57pp.
- Gowing, G. and H.F. Recher, 1985. Further comments on length-weight relationships of invertebrates. *Aust. J. Ecol.* 10: 195.
- Greer, A.E. and H.G. Cogger, 1985. Systematics of the reduce-limbed skinks currently assigned to the genus *Anomalopus* (Lacertilia: Scincidae). *Rec. Aust. Mus.* 37(1): 11-54.
- Greer, A.E., A.G.C. Grandison and R. Barbauld, 1985. A new species of *Lygosoma* (Lacertilia: Scincidae) from West Africa, with comments on its biology. *J. Herp.* 19(3): 365-372.
- Greer, A.E., 1985. A new species of *Sphenomorphus* from northeastern Queensland. *J. Herp.* 19(4): 569-473.
- Greer, A.E., 1986. Lygosomine (Scincidae) monophyly: a third, corroborating character and a reply to critics. *J. Herp.* 20(1): 123-126.
- Greer, A.E., 1986. On the absence of visceral fat bodies within a major lineage of scincid lizards. *J. Herp.* 20(2): 265-267.
- Hoese, D.F. and H.K. Larson., 1985. A revision of the eastern Pacific species of *Barbulifer* (Pisces: Gobiidae). *Copeia*.
- Kavanagh, R.P., J.M. Shields, H.F. Recher, and W.G. Rohan-Jones, 1985. Bird populations of a logged and unlogged forest mosaic at Eden, New South Wales. Pages 273-81 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H.F. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.
- Kent, D.S. and W.E. Boles, 1984. Observations of the diet of the Christmas Island Owl. *Corella* 8(4): 93-94.
- Leis, J.M., 1985 Larval fish dispersal and the East Pacific Barrier. *Oceanographie Tropicale* 19(2): 181-192.
- Leis, J.M., 1985. Review: The bibliography on the identification of the eggs, larvae and juveniles of the marine shorefishes of Japan. *Newsletter of the Early Life History Section of the American Fisheries Society* 6(3): 11-13.
- Leis, J.M., 1986. Vertical and horizontal distribution of fish larvae near coral reefs at Lizard Island, Great Barrier Reef. *Mar. Biol.* 90(4): 505-516.
- Leis, J.M., 1986. Ecological requirements of Indo-Pacific larval fishes: a neglected zoogeographic factor. *Indo-Pacific fish biology Proceedings of the Second International Conference on Indo-Pacific Fishes, Tokyo.* pp 759-767.
- Leis, J.M. and S. Bullock, 1986. The luminous cardinalfish *Siphamia* (Pisces: Apogonidae): development of larvae and the luminous organ. *Indo-Pacific fish biology: Proc. Second Int. Conf. Indo-Pac. Fishes, Tokyo.* pp703-715.
- Leis, J.M. and J.T. Moyer, 1985. Development of the eggs, larvae, and pelagic juveniles of three Indo-Pacific ostraciid fishes (Pisces: Tetraodontiformes): *Ostracion meleagris*, *Lactoria fornasini* and *Lactoria diaphana*. *Jap. J. Ichthyol.* 32(2): 189-202.
- Mengden, G.A., 1985. Australian elapid phylogeny: A summary of chromosomal and electrophoretic data. In 'Biology of Australasian Frogs and Reptiles' (eds G. Grigg, R. Shine and E. Ehmann): 193-208. Surrey Beatty and Sons, Sydney.
- Milledge, D.R. and H.F. Recher, 1985. A comparison of forest bird communities on the New South Wales and mid-north coasts. Pages 47-52 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H.F. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.



- Molnar, R., T.F. Flannery and T.H.R. Rich, 1985. Aussie Allosaurus after all. *J. Paleo.* 59: 511-513.
- Parker, S.A., W.E. Boles and N.W. Longmore, 1985. The rediscovery of *Gerygone mouki amalia*. *Bull. Brit. Orn. Club* 105: 118-121.
- Pyke, G.H. and H.F. Recher, 1985. Estimated forest bird densities by variable distance point counts. *Aust. Wildl. Res.* 12: 307-19.
- Pyke, G.H., 1985. The relationship between abundances of honeyeaters and their food resources in open forest areas near Sydney. Pages 65-77 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H.F. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.
- Pyke, G.H. and L. Balzer, 1985. Effects of the introduced honeybee (*Apis mellifera*) on Australian native bees. *Nat. Parks Wildl. Serv. Occas. Paper No. 7*, pp. 1-52. NSW Government, Nat. Park Wildl. Serv., Sydney.
- Pyke, G.H., 1986. A preliminary analysis of bird counts made by the NSW Field Ornithologists' Club. *Aust. Birds* 20: 33-39.
- Quinn, H.R. and G.A. Mengden, 1984. Reproduction and growth in *Bufo houstonensis* (Bufonidae). *S.A. Natl.* 29(4): 189-195.
- Randall, J.E. and D.F. Hoese, 1985. A revision of the dartfishes, genus *Ptereleotris* (Perciformes: Gobiidae). *Indo-Pacific Fishes* 7: 1-36.
- Recher, H.F., 1985. Eucalypt forests, woodlands and birds: An introduction. Pages 1-10 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H.F. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.
- Recher, H.F., 1985. Synthesis: A model of forests and woodland birds communities. Pages 129-35 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H.F. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.
- Recher, H.F., D. Allen and G. Gowing, 1985. The impact of wildfire on birds in an intensively logged forest. Pages 283-90 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.
- Recher, H.F., G. Gowing and T. Armstrong, 1985. Causes and frequency of deaths among birds mist-netted for banding studies at two localities. *Aust. Wildl. Res.* 12, 321-6.
- Recher, H.F. and R.T. Holmes, 1985. Foraging ecology and seasonal patterns of abundance in a forest avifauna. Pages 79-96 in *Birds of Eucalypt Forests and Woodlands: Ecology, Conservation, Management* ed. by A. Keast, H. Recher, H. Ford and D. Saunders. Royal Australasian Ornithologists Union and Surrey Beatty and Sons.
- Recher, H.F., R.T. Holmes, M. Schulz, J. Shields and R. Kavanagh, 1985. Foraging patterns of breeding birds in eucalypt forest and woodland of south-eastern Australia. *Aust. J. Ecol.* 10(4): 399-419.
- Rennis, D.S., 1985. Moray eels: dangerous or docile? *Australian Natural History* 21(11): 504.
- Sale, P.F., G.P. Jones, J.H. Choat, J.M. Lels, R.E. Thresher and D.M. Williams, 1985. Current priorities in ecology of coral reef fishes. *Search* 16(9-12): 270-274.
- Schwaner, T.D., Baverstock, P.R., Dessauer, H.C. and G.A. Mengden. Phylogenetic relationships of Australian elapid snakes: an immunological assessment. In *Biology of Australasian Frogs and Reptiles* (eds C. Grigg, R. Shine and H. Ehmann): 177-184. Surrey Beatty and Sons, Sydney.
- Stevens, J.D. and J.R. Paxton, (1984) 1985. A new record of the goblin shark, *Mitsukurina owstoni* (Family Mitsukurinidae), from eastern Australia. *Proc. Linn. Soc. NSW.*, 108(1): 37-45.
- Education Division**
- McDonald, P.M., 1985. Services related to the Art Curriculum K-12 at the Australian Museum. *Journal of Art Education* 10, pp 22-24.
- Exhibition Division**
- Hangay, G. and M. Dingley, 1985. *Biological Museum Methods*. 2 vols. Academic Press, Sydney.
- Lizard Island Publications to 30 May, 1986.**
- Braley, R.D., 1985. Serotonin induced spawning in giant clams (Bivalvia: Tridacnidae). *Aquaculture*, 47 (1985): 321-325.
- Hall, S.J., 1985. Four new species of *Myodocopine* ostracodes (sarsiliidae) from Lizard Island, North Queensland. *J. Crust. Biol.* 5 (3): 500-522.
- Harrison, K. and D.M. Holdich, 1982. Revision of the genera *Dynamennella*, *Ischyromene*, *Dynamenopsis* and *Cymodocella* (Crustacea: Isopoda), including a new genus and five new species of eubranchiata sphaeromatids from Queensland waters. *J. Crust. Biol.* 2: 84-119.
- Harrison, K. and D.M. Holdich, 1982. New eubranchiata sphaeromatid isopods from Queensland waters. *Mem. of Qld. Mus.* 20: 422-446.
- Harrison, K. and D.M. Holdich, 1984. Hemibranchiate sphaeromatids (Crustacea: Isopoda) from Queensland, Australia, with world-wide review of the genera discussed. *Zool. J. Linn. Soc.* 81: 275-387.
- Holdich, D.M. and K. Harrison, 1980. The crustacean isopod genus *Gnathia* Leach from Queensland waters with the descriptions of nine new species. *Aust. J. Mar. Freshw. Res.* 31: 215-240.
- Holdich, D.M. and K. Harrison, 1980. The isopod genus *Dynamene* from Australian waters, with the description of a new species from coral reefs. *Mem. Qld. Mus.* 20: 163-170.
- Holdich, D.M. and K. Harrison, 1981. The sphaeromatid isopod genus *Sphaeromopsis* Holdich & Jones in African, Australian and South American waters. *Crustaceana* 41: 312-314.
- Holdich, D.M. and K. Harrison, 1983. Sphaeromatid isopods (Crustacea) from brackish waters in Queensland, Australia. *Zoologica Scripta* 12: 127-140.
- Jones, A.R. and C. Watson-Russell, 1984. A multiple coring system for use with scuba. *Hydrobiologia* 109: 211-214.
- Kojis, B.L., 1986. Sexual reproduction in *Acropora Isopora* (Ctenophora: Scleractinia) II. Latitudinal variation in *Acropora palifera* from the Great Barrier Reef and Papua New Guinea. *Mar. Biol.* (in press).
- La Haye, C.A., N.D. Holland and N. McLean, 1984. Electron microscope study of *Haplosporidium comatulae* n.sp. (Phylum Ascetosporea: Class Stellatosporea), a Haplosporidian endoparasite of an Australian crinoid, *Oligometra serripinna* (Phylum Echinodermata). *Protistologica* 20(4): 507-515.
- Lucas, J.S., W. Nash and M. Nishida, 1985. Aspects of the Evolution of *Acanthaster planci* (L.) (Echinodermata, Asteroidea). *Proceedings of the 5th Int. Coral Reef Congress, Tahiti*, 5: 327-332.
- Meyer, D.L., 1985. Evolutionary implications of predation on recent comatulid crinoids from the Great Barrier Reef. *Paleobiology* 11 (2): 154-164.
- Moriarty, D.J.W., D.C. White and T.J. Wassenberg, 1985. A convenient method for measuring rates of phospholipid synthesis in seawater and sediments: its relevance to the determination of bacterial productivity and the disturbance artifacts introduced by measurements. *J. Micro. Methods* 3: 321-330.
- Moriarty, D.J.W., P.C. Pollard and W.C. Hunt, 1985. Temporal and spatial variation in bacterial production in the water column over a coral reef. *Mar. Biol.* 85: 285-292.
- Moriarty, D.J.W., P.C. Pollard, W.C. Hunt, C.M. Moriarty and T.J. Wassenburg, 1985. Productivity of bacteria and microalgae and the effect of grazing by holothurians in sediments on a coral reef flat. *Mar. Biol.* 85: 293-300.
- Nichols, P.D. and R.B. Johns, 1985. Lipids of the tropical seagrass *Thalassia hemprichii*. *Phytochemistry* 24 (1): 81-84.
- Oliver, J., 1985. An evaluation of the biological and economic aspects of commercial coral collecting in the Great Barrier Reef. Final Report to the G.B.R.M.P.A. October, 1985, pp. 106.
- Schmitt, P.D., 1984. Marking growth increments in otoliths of larval and juvenile fish by immersion in tetracycline to examine the rate of increment formation. *Fish. Bull.* 82 (1): 237-242.
- Smith, J.D., 1985. An analysis of prey remnants from osprey *Pandion haliaetus* and white-bellied sea-eagle *Haliaetus leucogaster* feeding roosts. *Emu* 85: 198-200.
- Sweatman, H.P.A., 1984. A field study of the predatory behaviour and feeding rate of a piscivorous coral reef fish, the lizardfish *Synodus englemani*. *Copeia*, 1984 (1): 187-194.
- Sweatman, H.P.A., 1985. The influence of adults of some coral reef fishes on larval recruitment. *Ecol. Monogr.* 55 (4): 469-485.
- Waren, A., 1981. Revision of the genera *Apicalia* A. adams and *Stilapex* Iredale and description of two new genera (Mollusca, Prosobranchia, Eulimidae). *Zool. Scripta* 10: 133-154.
- Waren, A., 1984. An anatomical description of *Eulima bilineata* Alder with remarks on and a revision of *Pyramidelloides* Nevill (Mollusca, Prosobranchia, Eulimidae). *Zool. Scripta*, 12 (4): 273-294.



## Research Associates

Crown Prince Akihito  
I. Bennett, MSc  
R. Burns, MASCs  
R.O. Chalmers, ASTC  
H.J. de S Disney, MA  
J.W. Evans, MA,Scd,DSc  
H.O. Fletcher, MSc  
J. Hollis, PhD  
P. Kailola, BSc  
J. Mahoney, BSc  
L. Moffatt, PhD  
D. Newton  
E.C. Pope, MSc,PhD  
L.R. Richardson, MSc,PhD  
F.H. Talbot, MSc, PhD,  
FLS, FRZS, FRSA  
G. Theischinger  
M.J. Whitten, BSc(Hons),  
BA, PhD, FTS

M. Archer, PhD  
J.B. Burch, PhD  
R. Catala, DSc  
W. Dawbin, DSc  
B. Egloff, MA, PhD  
F. Evans  
J. Forshaw  
K. Huffman  
F.D. McCarthy, DipAnthrop  
J.E. Marlow, BSc (Hons)  
T.R. New, PhD  
J. Pickett, MSc, DPhilNat  
A.A. Racek  
W. Starck, PhD  
I.W.B. Thornton, PhD  
  
J.P. White, MA, PhD  
J.C. Yaldwyn, MSc, PhD

## Associates

B. Bertram  
N. Coleman  
G. Daniels  
J. Frazier  
T. Goddard  
A. Healy  
R. Kuiter  
D.H. Lewis, PhD  
N.W. Longmore  
D.F. McMichael, CBE,  
MA, PhD  
K. Meguro  
F. Parker  
D. Rae  
A.B. Rose  
D. Scambler, BSc

A.H. Voisey, DSc  
A. Chapman  
L. Courtney-Haines  
D.D. Francois, MSc, PhD  
K. Gillett, ARPS  
H. Goodall  
C. Lawler  
T.R. Lindsay  
D. Lindner  
W. McReaddie  
  
M. Moulds  
H. Paxton, BA (Hons)  
N.W. Rodd, BSc  
T. Steene  
M. Tuckson

Designed by H. & H. Koch, Commercial Artists.  
Printed by Rodenprint.  
Typesetting by Rochester Communications Group.  
All photography courtesy of John Fields & Kate Lowe  
of Photography Department, Australian Museum.



**Australian Museum**  
6-8 College Street  
Sydney NSW 2000  
Phone (02) 339 8111

Tues-Sun & holidays 10am-5pm  
Monday noon-5pm  
Admission is free.