

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

Caltex Oil (Australia) Pty. Ltd.
Westpac Banking Corporation Ltd.
Dick Smith Electronics Pty. Ltd.
Bushell Trust
Bernard Van Leer Foundation
State Bank of New South Wales
Sir John Proud (Sydney NSW)
Mr William Bowmore (Newcastle NSW)
Mr Henry Loomis (Washington USA)
Mr Peter Bridge (Carlisle WA)
James N. Kirby Foundation
The Broken Hill Proprietary Company Ltd.
Dr Charles H. Warman (Sydney NSW)

Mrs Jean McK Moriarty (Sydney NSW)
Mr Stan G. Moriarty (Sydney NSW)
Unilever Australia Pty. Ltd.
Suntory Ltd/Japan Foundation
Mr W.O. Cudlipp and Mrs P.B. Cudlipp
The Australian Museum Society
Utah Foundation
The Sydney City Council
Commonwealth Banking Corporation of Australia
Castlemaine Tooheys Ltd.
Esso Australia Ltd.
Bayer Australia Ltd.

Donors

Australian Institute of Aboriginal Studies
Australian Research Grants Scheme
Council of Australian Museum Directors
Dr Bruce Errey
James Cook University of North Queensland
Lizard Island Reef Research Foundation
Marine Sciences and Technologies Grants Scheme
National Employment Scheme for Aboriginals

Australian Bureau of Flora and Fauna

Queens Fellowship
Readers Digest Services Pty. Ltd.
Smithsonian Institution (Washington DC, USA)
State Rail Authority of New South Wales
Sir Edward Stewart
UNESCO
Zoological Board of Victoria
NSW Board of Fire Commissioners

Lizard Island Donors

Esso Australia Ltd.
Philip Bushell Foundation
Queensland National Parks and Wildlife Service
James Cook University, Townsville
R.H. Smith
The Japan Foundation
Dr & Mrs B. Goldman
Mr B.W. Weisener
Dr C.H. Warman
Sir John Proud

Jean Rentoul
KA & DA Petrie
Readers Digest Services Pty. Ltd.
G.J. O'Neil
Winserve
Repco Administration & Finance Ltd.
Applied Industrial Plastics Pty. Ltd.
Boral Besser & Masonry Limited
George Alexander Foundation

6 College St, Sydney, NSW 2000. Report available 31/10/85 The Australian Museum Trust
Annual Report
for the year ended 30 June 1985

The Australian Museum
President
K.K. Klugman MA
Deputy President
J. Landels
Director
D.J.G. Griffin MSc PhD
Director Emeritus
J.W. Evans MA ScD DSc

Contents

	Page
Benefactors, Donors & Lizard Island Donors	1
Business Philosophy	3
Highlights for the year	4
The Australian Museum Trust	5
Organisational Chart	6
President's Report	7 9
Director's Report	9
Anthropology Division	11
Earth Sciences Division	12
Invertebrate Division	14
Vertebrate Division	18
Administration Division	20
Database Manager	21
Financial Report	Insert
Ethnic Affairs & EEO	22
Education Division	23
Exhibition Division	25
Aboriginal Gallery — Special Report	27
Materials Conservation Division	29
Community Relations Division	30
Library	31
Lizard Island Research Station	32
National Photographic Index of	
Australian Wildlife	33
The Australian Museum Society	34
Australian Museum Volunteers	35
Staff	36
Publications	39
Research Associates & Associates	42

A Museum for the Future

Mission

he 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

he 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.

Priority Objectives

he objectives set in the Corporate Plan sit alongside the functional objectives already forming the basis of the programs of each museum division. Reviews of the performance against those functional objectives is a stated objective of the corporate plan. Amongst the priorities set within the corporate plan were:

- Better visitor services
- Increase in public awareness of the Museum
- Improvement in corporate and government relations
- The attraction of more funding and improved management of financial resources
- Improvement in technical and physical resources
- Development of collection acquisition policies
- The introduction of staff development and appraisal schemes
- Two new Galleries underway for the new building: a semi-permanent exhibition, 'Human Cultures' and the temporary 'Pacific Cultures' for 1988
- Four new Aboriginal field documentation projects.

Highlights of the Year

T

he completion and opening of the Aboriginal Australia Gallery, sponsored by BHP. Approval of major new building development.

Final conversion of all accounting and staff records from manual systems to computer.

Purchase of collection of opalised fossils including oldest known platypus/echidna like animal, dinosaur remains and freshwater animals.

Opening of new Insect Gallery sponsored by Bayer Australia.

Acquisition of additional computer and word processor capability.

Development of a new 'self-guided' visit program for schools.

New laboratory opened at Lizard Island Research Station.

Planning process improved with formulation of an exhibition philosophy and of the exhibition program to 1992.

Commencement of planning for special exhibitions for the 1988 Bicentennial.

New corporate planning process commenced.

Trustees of the Australian Museum

- 1. Mrs Kristine Klugman BA MA has administrative and teaching experience in the Associate Diploma of Justice Administration at Mitchell College, Bathurst. In 1982 she was appointed by the Governor of New South Wales as Deputy President of the Board of Fire Commissioners of New South Wales. She was appointed to the Trust in 1978 and elected President in 1984.
- 2. Mr John Landels is a graduate in Chemical Engineering from Melbourne University. Since 1952 he has worked for Caltex, becoming a Director in 1967 and Chief Executive and Managing Director of the Caltex Group of Companies in Australia in 1977, and was elected to the Australian Museum Trust in 1980 and appointed to it by the Premier in 1982.
- 3. Professor Derek Anderson BSc PhD has been active on various committees and councils such as the New South Wales National Parks and Wildlife Advisory Council, Ecological Society of Australia and the Australian Conservation Foundation. He has lectured at the University of Sheffield, the University of Sydney and the University of New South Wales as well as the Australian National University and the University of the South Pacific. He became a member of the Trust in 1975.
- 4. 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.
- 5. Ms Faith Bandler is author of five historical novels and has worked for 25 years towards racial and sexual equality. In 1979 she won the Braille Society Book of the Year Award for her novel Wacvie. She was a Foundation Member of the Women's Electoral Lobby and is currently writing a history of legislative changes and how they affected Aboriginal people. She joined the Trust in 1984.



- 6. Mr Colin Bull AM BSc has been Chairman of Directors of Johnson and Johnson Pty. Ltd. since 1982. He is a Director of Manufacturers Mutual Insurance Co. and Clyde Industries and has been a Trustee of the Committee for Economic Development in Australia. He was President of the Chamber of Manufacturers of New South Wales from 1981 to 1982. He joined the Australian Museum Trust in 1985.
- 7. Mr Mike Little BSc was Chairman of Unilever Australia from 23rd March, 1977 to 31st December, 1983. He attended Rhodes University College at the University of South Africa and joined Lever Bros South Africa in 1952 becoming Managing Director of the Lever Division Brazil in 1974. He joined the Trust in 1984.
- 8. Mrs Lorna McClelland was an Interior Designer and has been interested in natural science and land-scape 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.
- 9. Mrs Caroline Serventy OAM BA has been closely associated with the Museum since 1971. She has a special interest in interaction between museums and the community and has served as President of the Australian Federation of Friends of Museums and Galleries. She joined the Australia Museum Trust in 1976.
- 10. Mr Robyn Williams is well known as Producer of the ABC Science Show. A popular journalist Robyn received a citation from the United Nations Peace Program for an article about science and scientists and is a regular contributor to the Museum's magazine Australian Natural History. He joined the Trust in 1984.

 $^{^{*}}$ The Australian Museum Trust is established under the 'Australian Museum Trust Act, 1975; as a corporation with perpetual succession, having been proceeded by various Museum Acts — 1902 and 1853; the latter established a Trust.

Organisational Chart

Director Des Griffin

Deputy Director H. Cogger Scientific Research, Library, Divisions of Anthropology, Earth Sciences Invertebrate Zoology, Vertebrate Zoology

Secretary G. McKenzie



Administration, Finance, Staff, Security, Photography, Buildings

Head Community Relations P. Pearce

Publishing, Marketing, Merchandising

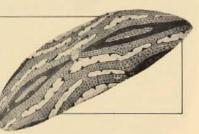


Head Education P. McDonald



Educational activities, Class visits, Extension activities

Head Exhibitions R. Joyner Exhibition design, Art, Preparation and Construction



Head Materials Conservation S. Walston



Collection Conservation and Research

President's Report

n these times of economic stringency, the Trust is grateful for both corporate support and the matching N.S.W. Government subsidy. During this financial year, and with great assistance from the Director, Dr Des Griffin, I was successful on behalf of the Trust in securing an increase in the amount of money on which the dollar-for-dollar subsidy would be paid from \$200,000 to \$350,000. Principally through the efforts of Dr Griffin, \$400,000 was raised in this way in the 1984/85 financial year. The Trust greatly appreciates this acknowledgement by the N.S.W. Government and yourself of the commitment and the dedication of the Australian Museum in seeking sponsorship, and of the Museum's need for increased funds. Even with the increase in subsidy arrangements, funds from non-Government sources now account for about one-third of income, and the Trust would like to thank all those sponsors, both corporate and individual, who have assisted the Australian Museum during the year. The new funds and new sources of increased funding have created the opportunity to develop innovative programs by which the Museum is meeting the challenge of changing community expectations.

The Director in his report has outlined plans for the new building, a \$10 million project to be completed by 1988. The new building is both necessary and welcome; however, there will be disruption to both the public and staff during the extensive building period. The Museum will try to ensure that the public is aware of the cause of difficulties — the extension project will be fully illustrated by means of slides, maps and a model. The Trust plans to minimise the disruption to staff by various strategies which are now well into the final planning stage.

One significant advantage of the new building will be a visiting display area, where space will be available for large international, temporary exhibitions, which in the past we have not been able to accommodate. With careful planning, this area will be a major source of both added interest, and added funds, for the Museum.

With the new building and our thinking taking us firmly towards the Bicentennial of Australia in 1988; it is appropriate to review progress to date: more than 1,000,000 people experience the Australian Museum each year, either directly or through one of its travelling programmes. Each year, on average one in five adults living in the Sydney Metropolitan area visit the Museum. While 80,000 school children a year visit the Museum in groups, many tens of thousands more visit with their families.

he Australian Museum is rightly a major tourist attraction for Sydney and part of the city's tourist circuit, making the Museum significant both nationally and internationally. The Museum's educational and exhibition programs are carried forward with considerable professional skill by dedicated and hard-working members of staff and volunteer assistants. As well, the Australian Museum's reputation for scientific research is one of which the Museum, the State of N.S.W. and Australia can be justly proud.

While there is no room for complacency, we look towards the Bicentennial and the years beyond with satisfaction in past achievements and confidence in future successes. In the changes to Trust membership during the 1984/85

financial year we have suffered some serious losses in terms of expertise and experience. However, I am happy to say that we have gained in other areas as new Trust members brought diverse backgrounds and experience to their new roles. Mr John Landels, Chairman and Chief Executive of Caltex Oil (Australia), resigned from the Trust in March following his appointment to a new position in the United States. Mr Landels was elected to the Trust in 1980 and appointed in 1984. He served as Convenor of the Finance Committee and, from June 1984, as Deputy President. His contribution will be sorely missed.

Mr Colin Bull, A.M., Chairman of Johnson and Johnson was elected to the Trust in October 1984 to fill the vacancy due to Mr Landels' departure.

he Australian Museum Society (TAMS) continues to demonstrate the enthusiasm and drive so vital to the success of a "friends" group. They have been extremely successful in a major membership drive. On behalf of the Trust Members and the staff, I would like to publicly acknowledge the most valuable contribution made by TAMS to the progress of the Museum this year through a wideranging program of lectures on scientific and educational subjects, social gatherings and local, interstate and overseas travel. I also pay tribute to the major financial contributions TAMS has made to museum exhibitions.

The Trust met in July for a special, full-day seminar (the first ever held) to examine the corporate plan for senior management and to clarify the role of the Trust. Among the goals set were to:

- plan for the Bicentennial
- review resource allocation
- focus on staffing policies and practices
- · work to improve the image of the Museum
- secure additional sponsorship
- develop an experimental exhibition centre Discovery Room.

Another seminar is planned for the 1985/86 financial year to further explore these topics and evaluate progress to date.

The concept of the Discovery Room was developed from this seminar (the concept was due to be endorsed at the July 1985 meeting of the Trust). The Discovery Room will break new ground in that it will provide inter-active exhibits relating to natural sciences of a type available at only a few museums elsewhere in the world. This is an exciting opportunity to create something different. It will be built in the former Bird Gallery which opens on the Marine Hall, and will include about 10 varied activities, each of which will call for visitor interaction. The room will be run by a manager and a team of "explainers".

The Discovery Room will complement the Museum's exhibitions as activities will be chosen to highlight gallery themes. It will also be available for designers to try out any interactive exhibits that may be planned for new galleries. The room will fit very comfortably into the advancing educational policies of the Museum.

ne of these educational policies is to broaden the knowledge of the Australian community in Aboriginal affairs. To this end, an event of deep significance occurred in March when the new Aboriginal Gallery was opened

by the Governor-General, His Excellency, the Right Honourable Sir Ninian Stephen, A.K., G.C.M.G., G.C.V.O., K.B.E., accompanied by Her Excellency Lady Stephen. This superb gallery, with its innovative displays and its interactive elements is a fitting testimonial of the way that Aboriginal communities supported the Museum's efforts. It is their guidance and assistance which helped make the gallery the success it is.

It is the Australian Museum's policy to involve Aboriginal and Pacific Island people in the material collected in previous years and held "in trust" on their behalf so that the people of Australia may better understand the cultures that preceded European colonisation and continue down to the present day.

n behalf of the Trust, I would like to place on record our thanks to the Director and all operation and heartfelt support. Trust Members come from a wide diversity of backgrounds and have vastly differing responsibilities in the world

Museum as a commitment worthy of their time and thoughtful consideration. Because of the positive attitude of the staff, and the go-ahead nature of the Museum, all the Trustees - and particularly myself enjoy immensely being able to serve as Trustees of the heritage of Australia.

> K.K. Klugman President

Des Griffin and Kristine Klugman with Buzz Kennedy, guest speaker at the opening of "Insects and Other Invertebrates of Land and Freshwater.'



Director's Report

t the end of last year there was still uncertainty about whether a new building, necessary for the Museum's collections, staff and exhibitions programs, would be million building program in the New South Wales Government's budget 1984-85 ended speculation. Detailed planning commenced immediately for the work which is to be phased over the three and a half years to the end of 1987.

The development will occupy the courtyard space between the William Street wing to the north, the College Street wing to the west and the south wing. Essential new space will be provided for the outstanding collections of Pacific and Aboriginal cultural material, for education activities and for a new library. Two new large exhibition spaces will also be available. Movements of staff and collections to the new building will have additional benefits to many of the Museum's activities, providing space to better house other collections and staff. Four floors in the existing William Street wing will be substantially modified.

A co-ordinator was appointed on a temporary basis up to the commencement of excavation for the new building, to specially oversee the numerous developments and relocations to take place and for liaison with staff, architects and building contractors.

he Australian Museum will be able to play a significant role in the 1988 Bicentennial of European settlement of Australia.

Two special temporary exhibitions will be staged for 1988. The first, Australia 88, will examine the effect of people on the Australian environment over the last 100,000 years and offer scenarios for the future. The exhibit will feature interactive displays. An exhibition on the same theme will tour to four or more museums in the U.S.A. The exhibition has been endorsed as part of the New South Wales Government's contribution to the Bicentennial. The second temporary exhibition will display the best items from our outstanding collections of Pacific cultural material. These two exhibitions will be mounted in the large gallery spaces in the new building.

Two semi-permanent exhibitions will also open in 1988. These related exhibitions will deal with the biological and physical evolution of humans and their relatives and with contemporary societies and cultures and the different responses of different societies to the same forces. Planning for the four exhibitions commenced with establishment of project teams and detailed discussion of the briefs for them.

1985 saw two major semi-permanent exhibitions open and substantial progress with a third. The new Insect Gallery opened February 1985 in the same space as the Birds in Australia exhibition — the uppermost mezzanine of the 'Long Gallery'. Bayer Australia Ltd generously agreed to sponsor the exhibition and were recognised as Benefactors by the Trust. On March 30, 1985 the Governor General, His Excellency, the Right Honourable Sir Ninian Stephen, A.K., G.C.M.G., G.C.V.O., K.B.E., accompanied by Her Excellency Lady Stephen opened Aboriginal Australia. The Museum's most ambitious exhibition project to date took six years in the planning and construction. Aboriginal Australia

was generously sponsored by BHP. A travelling exhibition forming part of the Museum on the Road (MOTR) based on the exhibition will commence touring New South Wales first term 1986. The new Mineral Gallery will open in the middle of the next year.

Corporate planning — the most important process guiding the future of the Museum — was completed for 1984-85 by September.

The plans were formulated for almost all Divisions and Sections by staff themselves in line with the plan for Senior Management completed at the close of last year. Each plan contains assessable objectives and appropriate strategies to achieve them. The corporate planning cycle will be joined with the budget cycle in the coming year.

s part of the implementation of the corporate plan this year advances were made in staff training and development — including the introduction of a course for supervisors

as planned and a second work shop for senior staff. Career path planning was reviewed and a policy for staff appraisal developed: this was ready for implementation by year's end. The use of computers in financial management and planning was improved and additional microcomputer capability obtained to improve management of information and word processing.

In accordance with the Corporate plan, collection acquisition policies were reviewed, and review of scientific programs in vertebrate and invertebrate biology divisions was completed, future needs in computer management of collection information were assessed.

Much of our marketing was improved or reviews undertaken: strategies to have more tourists and visitors specially interested in the Museum visit need further attention. A special pack for teachers bringing classes to the Museum without the help of Museum Education Officers — Self Guided Visits — was completed and 16 of the new packs sponsored by Caltex Oil (Australia) Ltd were completed for school children visiting in classes to be assisted by Museum staff.

ew staff members include Dr Neil Bruce, a Queen's Fellow in Marine Science who will study small crustaceans; Dr Tim Flannery — new Scientific Officer in Mammals — who has a special interest in the evolution of Australia's unique marsupial fauna and its relationships with that of New Guinea; and a new Scientific Officer in Anthropology — Dr Betty Meehan who will study Aboriginal material culture.

A searching review of special opportunities for the Museum in its biological programs was undertaken. Areas on which the Museum will concentrate were identified: as a result special support will be given to research on larval fishes in tropical Australia and former Queens Fellow Jeff Leis will join the staff for three years to advance this important research.

Increasing attention to the quality of the documentation of our collections of artefacts saw completion of study on our Gulf of Papua collection and led to formulation of a proposal to conduct a similar study on Sepik River collections. The Trust agreed to support the latter — consisting of \$100,000 in the next three years. A major collection of opalized fossils from Lightning Ridge in northern New South Wales was acquired with the special

assistance of Esso Australia. Included is the oldest known platypus/echidna like animal, represented by a lower jaw and a perfect set of teeth. The remnant, which is over 100 million years old, throws new light on the evolution of Australia's fauna and this strange group of

he Museum's special programs all had outstanding years. The Australian Museum (TAMS) prepared plans Society implement recommendations from a special marketing report and, using direct mail and more active publicity, looks set to double its membership in 1985.

The National Photographic Index of Australian Wildlife continued production of its series of books on Australian birds. One volume was published by Angus and Robertson and two were in an advanced state of production by

year's end. The Index reached agreement in principle on publication of an Encyclopaedia of Australia's Mammals, birds, reptiles and amphibians in 1989

The Lizard Island Research Station was again heavily used by Australian and overseas scientists studying a wide range of projects. The fees contributed by users of the Station and RV Sunbird, together with modest funds from supporters of the Station and the Museum virtually covered running costs during the year. The completion of major capital development will allow recovery from the deficits run up in the expansionary five years to 1984, as substantial funds donated to the Lizard Island Reef Research Foundation are transferred to the Museum.

The year saw further tightening of the financial situation. This was most obvious in the Trust's General Funds where the accumulated surplus was reduced by a further \$150,000 over the year. This was despite increased earnings in the Museum's shops and additional support from benefactors. The growth in Trust revenue increased but support from traditional sources declined in real terms. Funds from non State Government sources reached 32% of total outlays and now support every major area of activity including many staff and minor capital works. Continuation of these trends will put further pressure on all programs.

I again have pleasure in thanking my colleagues for their efforts over the year, and the President and Trust mem-



His Excellency

A.K., G.C.M.G.,

at the opening of

Anthropology Division

he Division of Anthropology makes a scientific and educational contribution to the community through research, exhibitions and collections management. Projects are concerned with the cultural heritages of the indigenous peoples of Australia, the Pacific and Indonesia. There is a strong emphasis on co-operation with such peoples and ensuring their access to information and collections. For example, the division developed text and provided artefacts for the new Aboriginal gallery; upgraded storage and improved access to the Aboriginal and Pacific collections as well as some Indonesian and American Indian material; began a new field documentation project on Sepik artefacts and concluded important field work in the Flinders Ranges.

Highlights

- The completion and opening of the new 'Aboriginal Australia' exhibition.
- Aboriginal artefacts of the unique W.E. Roth collection photographed and catalogued.
- The Lower Sepik collection catalogued, photographed and an inventory taken for the Sepik Field Documentation Project.

A Gallery Develops

The most visible event of the year was the opening of the 'Aboriginal Australia' exhibition on 1 March. Until then, several members of the division spent most of their time on this project, co-ordinated by the team chairperson Ronald Lampert. The gallery is the subject of a special report.

Improving Information on the Collections

Proper use of the collections depends very much on the quality of information about the objects in them. The Museum does not have extensive documentation for the very important early collections it holds. Many objects have only an area of origin for identification, with no information on their actual significance, or name. Documentation projects have become increasingly important to the Division while there are still people alive who can fill in the missing details.

The Museum Trust has agreed, therefore, to fund a three-year project to improve the documentation of the lower Sepik (PNG) collections. Ms Bolton will supervise this project which will involve taking photographs of the artefacts back to the lower Sepik for identification by the local people. As part of this project, Sue Thomsett is recataloguing and reorganising the collection, and Ric Bolzan has photographed it.

Growth of the Collections

Several early Aboriginal artefacts from south-eastern Australia were purchased to add to the very small amount of local material already in the collections. Two rare Melville Island busts probably dating from the 1950's were purchased, as well as a coiled basket made by Barbara Mundalmi and a crocodile painting created by David Milaybuma while they were working on the Aboriginal Gallery. A contemporary painting, 'The Wandjina' by Aboriginal artist Raymond Meeks, was also added.

The crowded Pacific store inhibited acquisition of more than a few objects, some Indonesian and African material was added.

Greater Access to Collection Information

A

n important outcome of the Museum's commitment to improving access to the information it holds, was the sorting, cataloguing and photographing of the W.E.

Roth Collection. Dr Roth collected some 2,000 objects in north Queensland at the turn of the century. These were purchased by the Museum in 1905. The collection and Dr Roth's detailed notes, particularly of the Rainforest region are very significant as they are probably the only surviving records of Aboriginal culture there.

Lissant Bolton and Jim Specht published Volumes II and III of the inventory of Polynesian and Micronesian artefacts in Australian museums. These volumes complete the second stage of the UNESCO sponsored survey of Pacific Islands' artefacts in Australia which will assist Islanders to trace their heritage as well as provide a major research resource.

Following the photographing of the Museum's entire New South Wales ethnographic collection, photographs of well documented early "type specimens" have been selected and assembled for production as a book.

Anthropological Field Work Conducted in a Variety of Places

Dr Lampert completed his archaeological research in the Flinders Ranges, where his excavations at the Hawker Lagoon campsite show aspects of Aboriginal prehistory over the last 15,000 years. Aboriginal usage of the lagoon area seems to have been related to climatic changes, and reflects several changes in stone tool technology.

In May and June, Dr Specht joined a large interuniversity archaeological team (in the Bismarck Archipelago, Papua New Guinea) looking for sites of the Lapita pottery. Dr Specht discovered sites where the Lapita potters worked about 3000 years ago on offshore islands of New Britain.

Community Involvement

A

s part of the work of bringing the Museum to the public, various members of the Division have spoken on topics of current interest to the media, given talks and lec-

tures and led TAMS tours to the Flinders Ranges and Vanuatu. Division members have also served in various capacities on committees of Australian research institutions and participated in conferences in Australia and the United States.

Student Support

The Museum Trust has also funded field work and study of museum collections in Australia, the Pacific Islands and South-East Asia on material culture and archaeology carried out by final-year Honours and postgraduate students. Five grants were made under this scheme this year, including archaeological projects in Australia, and Pacific projects such as an investigation into the centreposted house in western Viti Levu, Fiji.

Donations

The Division gratefully acknowledges donations from the following people: Mrs Reynallt, Mr J Magers, Australian Board of Missions, Mrs R Komon, Mrs M Tuckson, H.M.A.S. Yarra, H.M.A.S. Perth, G. MacDonald and A.

Future Plans

• Dr Betty Meehan's new research project involving field work in Arnhem Land.

 Two new Galleries underway for the new building: a semi-permanent exhibition. 'Human Cultures' and the temporary **Pacific** Cultures for 1988. · Four new

Aboriginal field documentation projects.

from the Sepik River.



Earth Sciences Division

he Division maintains comprehensive fossil, mineral, rock and meteorite collections from Australia and overseas. These valuable collections are used for research by many scientists. Divisional activities are focused on research, educational displays and new findings reported by the Australian public.

Highlights

- · Purchase of the Lightning Ridge opalised fossil collection in which Australia's oldest fossil mammal has been discovered.
- · Completion of new mineral laboratory and storage

Collection Management

Dr Telford Conlan's generous donation to the Museum Trust enabled the purchase of a word-processor/microcomputer used to record, update and reorganise the palaeontological collections. Type and figured specimens featured in scientific literature are being systematically extracted and relocated for security and for better

The mineral collection is relocated in the new store, in cabinets with special roller drawers designed to eliminate jarring of fragile objects.

The rock collection has been moved into compactus units and the meteorite and tektite collections placed in temporary quarters. Despite the dislocations all the collections were kept available to visiting researchers.

Growth of the Collection

During the year over 1100 fossil specimens were registered, mostly type material transferred from the Department of Geology and Geophysics, University of Sydney, NSW, as part of an ongoing program. Other fossil donations included 150 specimens of an Ordovician sponge assemblage from central NSW by Professor Webby of Sydney University; seventy specimens of Carboniferous fossil fish from Indiana, USA by Dr Rainer Zangerl and a magnificent juvenile Diprotodon skull by Mrs Joyce Brooks of Tambar Springs.

Priceless fossil from Lightning Ridge Acquired.

A portion of lower jaw, from an animal the size of a cat, is probably the most important single fossil find in Australia this century. It is part of a large collection of opalised dinosaur, crocodile, turtle, pterosaur, fish and plant remains bought by the Museum in December for \$80,000. The purchase, from opal miners Dave and Alan Galman, was made possible by the generous sponsorship of Esso Australia Ltd and funds from the NSW Government and the Australian Museum Trust.

The 100 million-year-old jaw portion, completely replaced by opal, has three beautifully preserved teeth, each with the prominent cusps of a mammal, and is probably an early monotreme or egg-laying mammal. It shows that monotremes and marsupials are more closely related, and diverged later in geological time than was previously thought. The oldest previously known Australian mammal fossil was around 24 million years old. The

fossil proves mammals have been in Australia for over 100 million years. Selections from the Galman collection are now being studied by various scientists.

Special mineral acquisitions featured gemstones including a superb 1250 ct blue aquamarine crystal from Mr Surprise, Qld.; First release, rough diamonds from the Argyle diamond pipe, W.A.; a large cut peridot from Cheviot Hills, Qld. and a large, pink beryl crystal from Brazil. Several meteorites were donated for research purposes and a piece of Bon Accord, South African nickel deposit (a possible ancient meteorite or earth's core material) was purchased.

Flood erosion on the Tambar Springs property, the source of the juvenile Diprotodon skull donated by Mrs Joyce Brooks, also exposed Diprotodon leg bones. This find, reported to the Museum by Noel and Louise Dunn, probably belongs to the skeleton found nearby in 1979.

International Dialogue Between Scientists

Drs Lin Sutherland and Julian Hollis were joined for 3 months by Professor William Griffin, Professor of Geochemistry at the Mineralogy - Geology Museum, Oslo University, Norway. Their research on high pressure minerals bought up in the volcanic rocks of central Queensland will provide one of the most comprehensive studies of the earth's lower crust - upper mantle regions.

The mineralogical research on eastern Australian volcanic rocks is attracting increasing international scientific attention. The gemstone aspects have led to new concepts of the origins of diamonds, sapphires, garnets and moonstone feldspar, which were presented at the Australian Geology Conference in Sydney in August, 1984. A study of the origin of gem zircons in Eastern Australia by Drs Hollis and Sutherland appeared in the Museum Records and is being further developed with Raoul Caruba of the

Another important find, a large slab containing many turtle bones was recovered intact from Old Settlement Beach. The Lord Howe Island Board and the RAAF assisted in its recovery and transport back to Sydney.

Projects Completed

Volcanism in Eastern Australia was launched by Dr Wally Johnstone, (a Principal Research Scientist with the Bureau of Mineral Resources, Canberra). Edited by Dr Sutherland, Dr Franklin and Dr Waltho, the volume comprises papers presented at a joint Museum and Geological Society symposium in 1982.

Projects in Progress

Dr Ritchie continued his research into Devonian fossil fishes from Australia and Antarctica, as part of his focus on the origins, evolution and distribution of Ordovician and Devonian vertebrates in Australia.

New display modules have now replaced outdated cases as work on the new Mineral Gallery progresses. The exhibition is expected to open mid 1986.

Symposium Results to be Published

In March a one day symposium was co-organised by Dr Ritchie, TAMS and several scientific bodies, called 'In Defence of Science - the Case against Creationism'. The contributions are to be published by the University of New South Wales Press.

Community Involvement

The Division staff also gave talks to interested groups in the community. Excursions organised by the staff and TAMS visited Long Reef and Towler Bay: the Jenolan Caves and the Flinders Ranges.

Visitors to the Division

Thirty Australian and international scientists visited during the year.



geological collections. · Upgrading

major sections of the

the mineral collection to world class standard

A quartz crystal specimen, one of many held in the Mineral Collection.

Fieldwork Recent Lord Howe Island finds

University of Nice, France.

recall the past. In the 1920s, bones of the extinct horned turtle Meiolania were excavated for the Museum by Reginald Hines, following on even earlier family finds. The

family involvement was continued this year when Mr

Reg Hines' daughter Mrs Ilma Sainsbury reported more fossils, and allowed a field team led by

Dr Alex Ritchie to excavate a large pit from which they recovered bird and turtle fossils.

Invertebrate Zoology Division

he 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

The Division's activities focus on building up research collections of crustaceans, molluscs, starfish and their relatives, worms, insects and spiders. Research is carried out on these groups as well as on marine ecology. Collections are built up by field collecting, by donations and by exchanges.

Highlights

- · Appointment of a Queen's Fellow in Marine Science.
- · The Insect Gallery opens.
- · Chinese students in Hainan, South China, taught Scuba Diving.
- · The Dalhousie Springs Expedition.

Effort Rewarded in New Insect Gallery

The new gallery "Insects and Other Invertebrates of Land and Fresh Water" sponsored by Bayer Australia and opened in January 1985, has brought the lives of the animals which interest Division staff to the public in a fascinating exhibition. Insects, spiders, snails and other small animals have been presented in a simple and stimulating way. Explanatory text prepared in cooperation with naturalist writer Densey Clyne, presents concepts at the reading level of junior secondary school children. The gallery has been enthusiastically received by the public.

Collections Management

This year, Collection Managers were appointed for the first time. The collections are maintained in separate sections that specialise in particular invertebrates. The following have been appointed: Mike Gray - spiders and their relatives; Lyle Vail - Marine Invertebrates including crabs and their relatives, sea stars and their relatives and worms; Geoff Holloway - insects, and Ian Loch molluscs.

Computerisation of the crustacean and spider collection is underway, so as to provide better access to the collections and associated information.

Growth of the Collections

The invertebrate collections increased by more than 43,500 lots - more than a half a million specimens this year. This included 900 crustacean specimens lots, 1,600 spiders and their relatives, 1,000 polychaetes and other worms, 20,000 insects and 20,000 molluscs.

Donations and Exchanges Add Significantly to the Collections

he Museum attracted important donations from thirty-four individuals and institutions over the last year. Amongst these were new amphipod crustaceans from Fiji, water fleas from northern Australia and crustacean fish parasites, Western Australian earth worms and various invertebrates from the Calliope River, Gladstone. Western Australian and Queensland insects and Psocoptera (Bark-lice) were also donated. Donations of molluscs included; New South Wales and Kimberley land snails and sea-slugs from Hong Kong.

The Trust purchased a collection of South-East Asian estuarine snails.

As part of the exchange program a large collection of estuarine polychaetes was sent to the Shanghai Museum of Natural History.

Loans from the Collections Assist Scientists Around the World

If Australian or overseas scientists are unable to visit this institution, they may borrow the material that theyrequire for research. This extremely important part of the Museum's activities enables a much wider use of the collection resources than would be otherwise possible. This year 259 loans, involving many thousands of specimens, were made to workers around the world. They included ninety-six loans of insects, ninety-one of molluscs, thirty-two of Crustacea, twenty-eight of worms, five of spiders, five of echinoderms and sponges and two of coelenterates.

International Dialogue Between Scientists

aluable research work and the interchange of ideas is the result of the interaction between Australian and overseas scientists.

In January 1985, marine biologist Dr Neil Bruce, formerly a Visiting Fellow in the National Museum of Natural History, Smithsonian Institution, Washington, D.C., U.S.A., commenced his Queen's Fellowship funded by the Australian Government with the Australian Museum. His major interest is the taxonomy of fish lice parasitic on fish of the Great Barrier Reef.

Under the Museum's visiting scientist scheme, Dr Anders Waren of the University of Gotberg, Sweden, worked on a number of difficult groups of small marine snails. He is also working on joint projects with Dr Winston Ponder. Dr Dan Bickel, another visiting scientist is undertaking research work on long-legged flies.

Fifteen other overseas visitors came to the Division to study the research collections and discuss research problems. Many also made significant contributions to the value of the collections by identifying specimens and publishing information on the material.

Scientists in the Division benefit from overseas study, by being able to work with other collections and scientists. Dr Jean Just, from the Zoological Museum, Copenhagen, exchanged positions with Dr Jim Lowry during 1984. This gave Dr Lowry access to one of the world's most important amphipod collections and enabled Dr Just to collect and study the groups of amphipods with which he works. Dr Just collected over 30 new species during his stay in Australia.

While overseas, Dr Frank Rowe visited important collections and completed a manuscript with Dr D.L. Pawson of the Smithsonian Institution, Washington DC, U.S.A.

In December, Dr Hutchings chaired a session and presented a paper at a symposium in Denver, U.S.A.

Mr Holloway spent two and half months in North America and British institutions studying wasps. On his return he reported to the New South Wales Department of Agriculture on the latest overseas findings on the European Wasp, a species recently introduced to New South Wales. He also attended the International Congress of Entomology in Hamburg, (Germany) (FRG).

Scuba Diving Introduced to China

In 1984, Dr Pat Hutchings was a guest of the Institute of Oceanology, Quingdao, China. She spent two of her six weeks in China teaching marine biology students to scuba dive on the reefs off Hainan Island.

Dr Hutchings also studied the coral reefs of Hainan Island during her visit and collected sea worms for further study. The series of lectures she gave in China are being translated for publication there. She presented a paper on the Chinese reefs to the International Coral Reef Conference in Tahiti in May, 1985.

Field Work Dalhousie Expedition

This multi-disciplinary expedition to Dalhousie Springs in the far north of South Australia involved people from seven institutions. It was organised by Dr Winston Ponder together with W. Zeidler of the South Australian Museum. Over twenty scientists carried out one of the most comprehensive studies on artesian springs anywhere in the world. It is proposed to publish the results of this expedition as a handbook.

Field Trips Assist Specialised Collections

Dr Bill Rudman collected and studied sea-slugs on a field trip to South Australia with Ian Loch and Geoff Avern. Recording the shape and colour of living sea-slugs is essential for identification.

r Ponder and Phil Colman collected animals from artesian springs in western Queensland, and a survey was carried out of freshwater molluscs of Barrington and Gloucester Tops.

Mr Holloway's field work in Central Australia resulted in many insects being added to the collections. Mr Day and Dr Bickel collected insects in northern New South Wales.

Mr Loch collected marine molluscs from Osprey Reef, in the Coral Sea, and in North Queensland, and participated in a survey in the Swain Reefs.

Mr Colman and two volunteers made deep water dredgings off the Capricorn Channel, from HMAS Kimbla, collecting many undescribed marine invertebrates.

Research into the echinoderms of coastal New South Wales, Norfolk and Lord Howe Islands, assisted by a grant from the Marine Sciences and Technologies Advisory Committee, funded a visit to Lord Howe Island which revealed some new species.

Dr David McAlpine spent three weeks observing and collecting flies in West Malaysian rainforest, including some that mimic poisonous, distasteful or stinging insects.

Research Projects Completed

he end product of research projects are published papers, through which scientists communicate their findings. Some of the papers completed by scientists in the Invertebrate Division this year are listed below.

Dr Hutchings and Anna Murray described new polychaete species from the Hawkesbury River, mainly from samples collected on Dr Alan Jones' program; Barbara Duckworth and Mr Barry Day completed a study of butterflies of the Great Barrier Reef. Dr Hutchings completed a book with Peter Saenger on Australian Mangrove systems.

With PhD student Bill Kiene, who has been working in the Barrier Reef area, Dr Hutchings presented results of her investigations into sea-worms that bore into dead coral, to the Tahiti Conference on Coral Reefs in May, 1985.

Dr Ponder described the anatomy, biology and relationships of an ancient and unusual fresh-water snail belonging to a new superfamily. Three papers on Indo-West Pacific chromodorid sea-slugs were completed by Bill Rudman.

Dr Rowe presented a major paper on Australian tropical echinoderms (sea-stars, sea-urchins, etc) to the Fifth International Echinoderms Conference in Galway, Ireland, in September, 1984. With Ann Hoggett, he completed a manuscript describing the ciarid or pencil-spined urchins of New South Wales.

New Animals Described

Some results of studies of benthic communities in the Hawkesbury estuary by Dr Alan Jones were delivered in a paper on his work at the Australian Marine Sciences Association meeting in Geelong.

During the year, twenty-three new genera and four new families were described by scientists in the Division. These included 179 new species of insects, thirty-seven worms, twenty-seven echinoderms, twenty-five crustaceans, twenty-three molluses and thirty-three spiders.

Projects in Progress

he projects listed below are only some of those being currently undertaken by scientists:

Mr Gray's work on spiders include a revision of funnel web spiders and a joint paper with R.R. Forster and N.I. Patrick on a primitive group of spiders (Hypochiloidea), both of which are almost completed.

Dr McAlpine's research into Australian two-winged flies (Diptera) included studies of little known flies around the borders of the Australian region. He has focused his work on the newly discovered New Guinea "nobody fly" amd the ctenostylid flies, which have no mouth and produce live larvae instead of eggs.

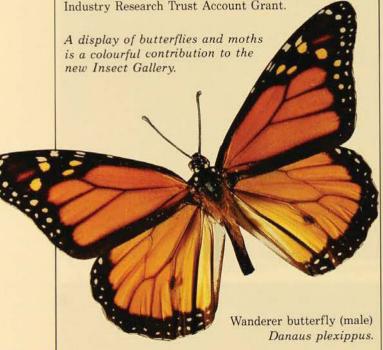
Dr Rudman's research into nudibranch molluscs (seaslugs), including the major project to revise the higher taxonomy and evolution of aeolid nudibranchs, is assisted by funding from Australian Research Grants Scheme.

Dr Ponder's research includes studies on hydrobird snails from artesian springs and a revision of Indo-West Pacific species of *Murex* (combshells) with Dr E. Vokes of Tulane University, New Orleans. Dr Ponder and Dr Waren are revising the higher classification of the two largest orders of prosobranch gastropods, a group including most sea-snails.

Dr Smithers' research on barklice will culminate in a monograph of the Australian species. Dr Rowe is involved in various studies of the taxonomy and biogeography of Australian echinoderms

Two major publications will result from the taxonomic study on the common polychaete family of worms, terebellids or upper surface feeders, by Dr Hutchings and Chris Glasby, supported by ARBS, and a revision of Antarctic terebellids funded by the Smithsonian Antarctic Co-operative Scheme.

Dr Hutchings is co-ordinating a benthic survey seeking evidence of exotic species introduced by Japanese ships into Twofold Bay; the study is funded by a Fisheries



New Diversity Emerges in Australian Amphipods

The study of Australian lysianassoid amphipod crustaceans by Dr Lowry and Helen Stoddart has revealed 110 species of the small crustaceans, making them the most diverse amphipod group yet studied in Australia. Ms Stoddart is also compiling a catalogue of Australian peracarid crustaceans for the Zoological Catalogue of Australia. This project is funded by the Australian Bureau of Flora and Fauna as part of the Australian Biological Resources Study.

Oakblue Arthopola centaurus centaurus.



Community Involvement

he staff of the Invertebrate Division have contributed to the community by identifying specimens for the public, Government departments, and for scientists and students in Australia and overseas. They also gave talks

Informal seminars on worms and estuarine wetlands and a residential weekend field trip were a success with TAMS and other interested groups.

Recently, Dr Rowe and Dr Vail contributed to the debate over the Crown-of-Thorns starfish, concluding that it is not a long-term threat to the Great Barrier Reef. Mr Holloway assisted in establishing a special interest course and in running a weekend workshop with Dr Courtenay Smithers.

Students Support

Four postgraduate students are working in the Division under the supervision of Drs Hutchings, Rudman, Lowry and Smithers.

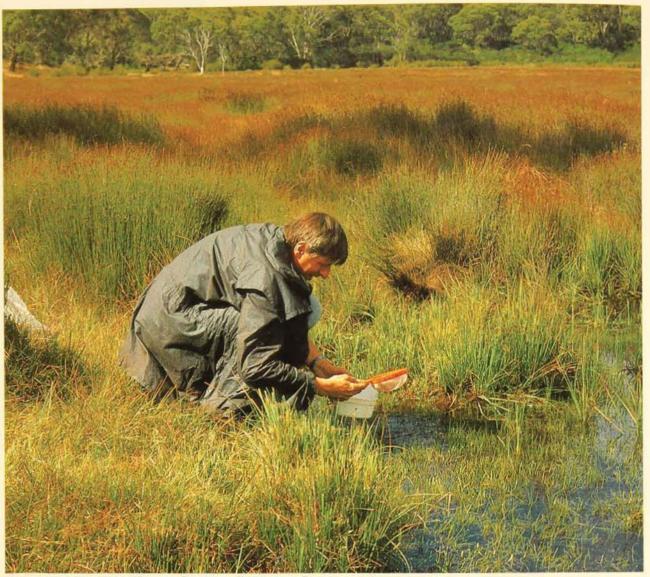
The Keith Sutherland Award, given annually to encourage research on molluscs, was given to Peter Fairweather (Sydney University) who is working on oyster drills.

Volunteers

The Division is grateful to the many volunteers who continue to provide a valuable source of assistance for curatorial and research programs. Some have been working in the Museum for many years and have considerable expert knowledge.

Future Plans

- Ongoing research into the systematics and evolutionary relationships of various groups of spiders, flies and wasps in the Australian region, sea-slugs, marine snails, polychaete worms and echinoderms in the Indo-west Pacific and polychaete worms of the Antartic.
- · Life history studies on amphipod crustaceans.
- Ecological studies will continue on invertebrates in the Hawkesbury River and on polychaete worms on the Great Barrier Reef.
- Studies on the ecology and evolution of invertebrates in artesian springs associated with the Great Barrier Reef.
- Computerisation of the crustacean and spider collections.
- Further work on the checklist of Australian peracarid crustaceans for the Australian Biological Resources Study.



Winston Ponder collecting at Barrington Tops.

Photo Julie Ponder



A. Opalised fossil jaw.

Vertebrate Zoology Division

he Division manages collections of vertebrate animals, primarily from Australia; provides information on the collections and on vertebrate animals to scientists and the community and encourages and engages in, research on the taxonomy and ecology of vertebrate animals of Australia and surrounding regions. Activity 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

- · Appointment of new Scientific Officer in Mammals.
- Participation in a special Australian exhibition in Japan.
- · Enlargement of major collections.

Growth of the Collections

he Division holds major collections which are the focus of strong research activity. All the collections were increased over the past year, and the Division wishes to express thanks to all those organisations and individuals who contributed.

In particular the Herpetology collection increased by 3,500 new specimens of reptiles and amphibians; more than 1,500 lots were added to the Ichthyology collection containing specimens of 8,700 adult and larval fishes; and 700 Ornithology specimens were registered with the Department over the past year.

Particularly significant additions were a very large specimen of the saltwater crocodile, *Crocodylus porosus*, and Australia's first specimen of the White-Necked petrel and second Australian specimen of the Streaked Shearwater.

Donations Add Significantly to the Collections

Approximately 2,200 specimens of New Guinea rodents, bats and marsupials were donated, primarily by post graduate students from the University of New South Wales. Nearly 20 of these mammal species had not been represented previously in the collections. Other important donations, particularly of bats, were received from institutions and individuals during the year.

Internation Loans and Exchanges of Material

A special exhibition of forty mounted mammals was sent on loan to the Osaka Museum of Natural History, Japan, where it was included in a display on Australia with special emphasis on fauna.

Loans from the Collections Assist Individual Scientists

For scientists in Australia and overseas unable to visit collections, a number of loans were organised. Over 400 fish specimens were exchanged with other scientific institutions as well as numerous exchanges of mammals, birds, reptiles and frogs.

International Dialogue Between Scientists

Numerous visitors including twenty-three overseas scientists, used the collections for research. Many were able to contribute significant identifications of items in their speciality.

International Study of Sea Snakes

Dr H.G. Cogger was a member of a team of scientists studying the biology, ecology and venom chemistry of sea snakes in the Pacific basin. Field work was carried out in New Caledonia, Vanuatu, Fiji, Tonga, American Samoa, Niue and Western Samoa.

Field Work

The possible existence of the Deniliquin Hairy-Nosed Wombat (thought to be extinct for a century) is being investigated by Dr Flannery after the discovery in June of fresh wombat droppings, Hairy-Nosed Wombat hairs and burrows in the Deniliquin area.

Divisional staff also participated in Dr Dawbin's project recording the 'sounds' of migrating Humpback Whales.

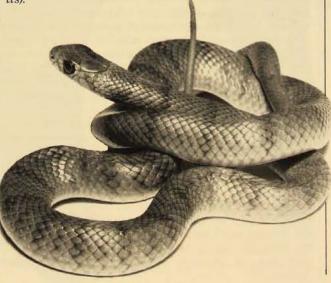
Field Trips Assist Specialised Collections

Special field trips have particularly increased the number of bats in the Mammal collections, reflecting greater interest in them in Australia.

A field trip around Lizard Island and Osprey Reef has led to a number of reef fish being incorporated into the research collection. Dr. Doug Hoese and Sally Reader collected fish from mangroves and rivers during six weeks in the Northern Territory.

A field trip collecting scinks of the genus *Lerista* was made during September and October for Dr Greer's study of limb reduction in this genus of scincid lizards.

Scientists from Herpetology are currently studying the relationships of Australian brown snakes, such as this young brown snake from NSW (Pseudonaja texti-



Research Projects Completed

hrough papers and published manuscripts, scientists are able to communicate the findings of their research. Last year, thirty scientific papers and five popular articles were published, as well as the book *Arid Australia*, edited by Dr Cogger and Ms Cameron; two books on reptiles in Australia went into second editions.

Members of the Division, working in co-operation with the Western Australian Museum, completed the first volume of the Catalogue of Australian Fish for the Bureau of Flora and Fauna, covering half the Australian fish fauna. Research for this project has led to many species being recorded from Australia for the first time.

The proceedings of the second Australian Herpetological Conference co-sponsored by the Museum will be published in 1985. Staff of the Mammalogy section have published several papers as well as contributing to the Australian Biological Resources Survey faunal directory. Mr Boles has begun a volume in the bird series being produced by the National Photographic Index of Australian Wildlife.

New Projects Begun with Appointment of Scientific Officer

Dr Tim Flannery, who gained his Ph.D. from the University of New South Wales through work on the evolution of the macropodoids or kangaroos, joined the mammalogy staff in November, 1984. He will be working primarily on the systematics of Papua New Guinean mammals.

An exciting result of Dr Flannery's research on New Guinea mammals is the discovery that the Grey Cuscus, *Phalanger orientalis*, includes two quite different groups of species. Work has also begun describing fossils of a 30,000 year old pony-sized marsupial which is New Guinea's largest Quaternary mammal. Zoogeographic insights are also being provided by the discovery of a new species of bandicoot from Kiriwana Island collected by a previous curator, Ellis Troughton, in 1945.

Other Projects in Progress Ecology and Land Management

Research into the ecology and behaviour of Australian vertebrates and the application of ecological principles in land management focused on wildfire effects, foraging ecology, honeyeaters and pollination ecology over the past year.

Techniques of attaching transmitters to birds which allow radio-tracking of the movements of honeyeaters have been developed.

Through pollination research on Christmas Bells at the Barren Ground Bird Observatory near Jamberoo, New South Wales, and subalpine plants in Colorado, Dr Pyke and Dr Michael Zimmerman of Oberlin College (U.S.A.) are exploring the adaptive significance of floral nectar production.

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

Mr Boles has nearly completed an investigation of the phylogeny of plumage patterns in Australo-Papuan robins.

Other areas of research include the systematics of fishes, notably of gobies; the systematics of gudgeons; the distributional ecology of reef fish larvae and taxonomy of larval snappers and fusiliers; the distribution of Sydney Harbour fish; the systematics of whalefishes; and the systematics of hoverers and kelpfish.

Mr Sadlier surveyed reptile and amphibian fauna and Mr Boles made an inventory of birds of the Willandra Lakes World Heritage Region for the New South Wales Department of Environment and Planning.

Research into factors controlling the abundance and movements of honeyeaters, which should also apply to the management of other bird species, is based in the Brisbane Water National Park, New South Wales.

Community Involvement Increased Through New Legislation

Numbers of identifications for the Department of Customs and the Australian National Parks and Wildlife Service have increased, as well as requests, particularly by organisations conducting surveys, for access to computerised data.

The Herpetology Department identified ninety endangered species from 231 items of reptile specimens and products confiscated by Customs.

Student Support



ith the support of the Division, students have made much use of the Museum's resources. The Museum funds a number of postgraduate student projects.

Through the Peter Rankin Trust, the Museum Trust provides small grants to students of herpetology. Projects funded include Mr G. Chester's study of frog-eating *Litoria aurea* and Mr D. Slip's study of diamond pythons. Other tertiary and postgraduate funding assisted Mr J Scanlon's project on burrowing snakes, Mr S. Donnellan's work on scincid lizards and Mr G Shea's studies of large scincid lizards.

Volunteers

The Division is grateful to the volunteers who continue to provide a valuable source of assistance for curatorial and research programs. Some have been working in the Museum for many years and have considerable expert knowledge.

Future Plans

- Rehousing of the fish collection in new storage facilities.
- Ongoing research into the systematics of adult and larval fish.
- Further work on Volume II of the checklist of fish for the Zoological Catalogue of Australia.
- Three month surveys of the mammals of the Admiralty, Bismarck and St Mathias Island groups and in Maluku Province, Indonesia.
- Computerised inventory and re-organisation of the ornithology collections.
- Expanded studies on the effects of honeybees on native bees, birds and flowers.

Administration

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

Highlights

- · Approval of major building development.
- Conversion of Consolidated Revenue accounts, Trust General Funds and staff records to computerised system.
- · Reorganisation of stores in newly leased premises.
- · Appointment of Museum Guides for the first time.

Building Maintenance and Renovation

Because the museum buildings have been constructed in stages since 1846 maintaining a reasonable standard of repair even without improvements, requires considerable effort. This year approximately \$1.4 million was spent on building maintenance and renovation.

Major works carried out include the renovation of subbasement for two laboratories and storage of the mineral collections; extension of the lift service to the cafeteria level; provision of fire sprinklers in older parts of the Museum; a new carpenters' shop; new storage areas for fish tanks, alcohol and other items; renovation of one public foyer; further stonework restoration and extension of air conditioning. A start was made on a new emergency communication system.

Accounts

This section provides general accounting services, and maintains financial records.

Progress has continued on conversion to the new Burroughs B20 microcomputer system and has almost reached completion. The computer memory storage capacity has been increased from twenty to forty megabyte, and a fourth workstation has been purchased.

A major submission is being prepared for forwarding to the Public Service Board for restructuring and regrading in this section, given its increased work and responsibilities.

Guiding, Security & Cleaning

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

Museum Guides were appointed for the first time during the year. Emphasis has been placed on the need for both Guides and Security Officers to make visitors feel welcome.

Staff in this section have helped enhance the outside appearance of the Museum with new landscaping work and a regular maintenance program which has resulted in well grown trees and shrubs.

Photography

During the year staff photographed eight outside activities for use in exhibitions and publications as well as scientific documentation.

Frank Hurley in Papua, edited by Dr Jim Specht and Mr John Fields, was launched by photographer Max Dupain in the Long Gallery at the Hurley photograph exhibition. Special guests were Frank Hurley's two daughters.

Photography staff visited the Australian War Memorial and the National Art Gallery to Canberra to learn of archival methods in photography collections.

Staff

The Staff Section provides a support system for the Museum's 163 permanent and up to 60 temporary staff. An important function is the provision of an efficient induction system for new staff members.



Database Manager

Services to the section and to the staff have also been improved by computerisation. The system is now fully operational.

Youth Employment Scheme

This scheme, funded by the State Government has been vigorously supported in the Museum, and has obviously met its objective of giving young people a chance to enter the work force. Several, including some from disadvantaged backgrounds have gone on to permanent employment from their start at the museum.

Stores

The section provides stores to the Museum, co-ordinates and maintains the vehicle fleet and handles the movement of goods. Staff are also responsible for transporting and maintaining four travelling exhibitions in the Museum on The Road program.

The annexe building leased in January has provided storage and handling areas in which the section has relocated and reorganised stores and facilities.

Training Given Strong Emphasis

B

oth the Accounts Manager and Data Base Manager completed the Burroughs B20 System Administrators course, to enable them to deal with any problems occurring in the

system.

Security officers also attended a course this year. It focused on a basic understanding of the Officer's security role particularly to guard the highly valued and irreplaceable objects; mutual trust and discipline and effective methods of evaluation and handling security risks.

Museum Guides have participated in various training workshops arranged by the Education Division. As well as providing basic training, the courses have introduced new guides to many aspects of the work that goes on in the museum.

In both the staff and stores section, systems analysis training courses were completed, to assist with computerisation of the records system.

Occupational Health and Work Safety

During the year the Museum commissioned the Sydney Hospital Occupational Health and Safety Service in conjunction with Riskex Pty. Ltd. to undertake a study of occupational health and safety of the Australian Museum. Recommendations from this study will be progressively implemented and action is being taken to establish a work safety committee in accordance with The Occupational Health and Safety Act, 1983.

Future Plans

- Development of new security keying system and control room,
- Relocating of the Accounts section to a larger area.
- Development of an assets replacement plan.

omputer facilities continue to grow within the Museum. There are currently in operation seven Decmate word processors, one Morrow, one Adler, three Rainbows, four Burroughs and two Commodore 64 microcomputers as well as two portable Tandys. In addition, external computer facilities on CSIRONET are used for collection

Installation of the Budgetary Accounting System for the Accounts Section has been a major project for the Database manager. However, entry of the fish, bird and herpetology collections continued on microcomputer. This information will also be added to the CSIRONET database.

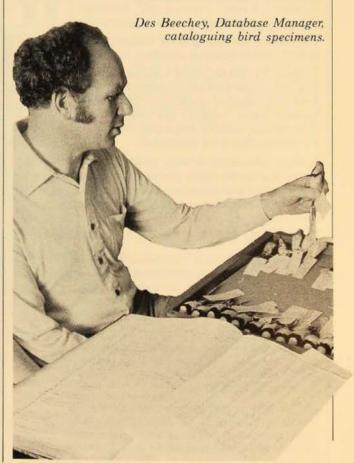
The vertebrate collection data is presently stored on the CSIRO Cyber 76, which will be unavailable after the end of November 1985. Selection of hardware and software for the Museum's own replacement computer system is underway.

The first phase of the database for the Australian Aboriginal artefact collection is now complete. The database contains twelve items of information on each artefact, and enables the information to be retrieved and printed easily. It is stored on a Rainbow microcomputer with hard disk.

Future Plans

databases.

 An in-house computer with sophisticated retrieval capabilities, to give rapid access to all the information previously stored on the CSIRO system will be acquired.



Finances

Contents

- i Year in brief all Funds 1984/85: budget all Funds — 1985/86
- Statistical Summary of trends over preceeding 5 years
- ii Supplementary Information
- iii Statement of Financial operation for the year ended 30 June 1985
- iv Statement of financial position as at 30 June 1985
- v Statement of Source and Application of Funds
- vi Shop Trading Account
- Coffee Shop Trading Account
- vii Notes to and forming part of the Accounts

Statistical Summary Year Ending 30 June

	1981 (\$'000)	1982 (\$'000)	1983 (\$'000)	1984 (\$'000)	1985 (\$'000)
Reserves	322	215	134	483	306
General Fund Receipts	708	889	991	1,310	1,329
Grant Fund Receipts	602	618	679	1,057	700
General Fund Payments	701	892	875	1,044	1,479
Grant Fund Payments	454	761	876	982	727
Consolidated Fund Payments	3,293	3,722	4,498	5,007	5,520
Statutory Endowment Receipts	130	137	125	140	148
Corporate Sponsorship raised during the year:	200	200	200	200	350
% of State Government funds to Total Funds Spent During the Year	65%	64%	71%	65%	69%
Permanent Staff	159	159	162	163	163

Year in brief, all funds — 1984/85: Budget, all funds — 1985/86

Receipts classified as percentage of total	Actual 1984/85	Budget 1985/86	Payments Classified as percentage of total	Actual 1984/85	Budget 1985/86
Gov. Subsidy, Endowment	6%	6%	Auxiliary Activities Education Activities	6%	7%
Sponsorship, Grants	10%	9%	Trading Activities	8%	8%
Trust Receipts & Auxiliary Activities	14%	19%	Exhibition Activities	16%	12%
Consolidated Fund: Maintenance/Working Expense Receipts	18%	17%	Administration Activities and Overheads*	32%	31%
Salary Receipts	52%	49%	Scientific Research Activities	36%	40%

^{*} Includes such items as rent, rates, electricity, etc., not charged directly to other activities.

Finances

Highlights

Year in Brief All Funds — 1984/85: Budget All Funds — 1985/86:

- State Government Special Projects Subsidy allocation increased to \$350,000 from previous level of \$200,000.
- Direct Trust expenditure of \$436,650 on exhibition development (excluding salaries and other indirect costs met from the Consolidated Fund).
- Purchase of opalised fossil collection for \$80,000 assisted by corporate sponsorship from Esso Ltd of \$27,000.
- Interest of \$56,544 on investments, 41% ahead of budget.

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 \$671,880 or 12.5% over the previous year—of this amount 44% related to increases in salary and allowance payments; 32% to increases in maintenance and working expenses; and 23% to increases in statutory endowment and the special subsidy payment. The statutory endowment was increased by \$8,000 to \$148,000 and there was a significant increase of \$150,000 in the special subsidy payment.

Despite a 6% 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. The Museum welcomes the significant increase in the amount payable under this scheme, especially as the previous level of \$200,000 had remained constant for several years.

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.

Trusts 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 \$1,328,908; an increase of 1% over the previous year. Major items contributing to this result were Museum Shop (30% of total funds); Australian Natural History Magazine (12%); Interest on Investments (4%); Statutory Endowment (11%) and Special Subsidy (26%).

Payments from the General Account amounted to \$1,479,002 an increase of 41% over the previous year. Major items contributing to this result were Collection Acquisition and Documentation (6%); Museum Shop (22%); Australian Natural History Magazine (13%); and Exhibitions (30%).

Trust Grant Account

Receipts in the Grant Account amounted to \$700,016. The main sources of this income were: Corporate Sponsorship for specific projects (7%) of total income; Marine Science and Technology Grant Scheme (15%); Australian Biological Resources Study (6%); Australian Research Grants Scheme (9%); National Employment Strategy for Aborigines (3%); Lizard Island Research Station (26%) and National Photographic Index (21%).

Summary of Accumulated Funds

Trust General Account — operations within this account resulted in an accumulated surplus of \$284,080 as at 30th June, 1985.

Significantly, the increased expenditure in the Exhibitions development area reflects the completion of major galleries and several temporary exhibitions.

Trust Grant Account — an accumulated surplus of \$22,469 was returned at the 30th June, 1985.

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

- Lizard Island Research Station: This project, as a result of operations during the year returned a significant surplus and reduced the accumulated deficit from approximately \$142,500 to \$89,500. It should, however, be noted that the items handled through the Museum's accounts do not reflect the full income and expenditure of the Station reference should be made in this regard to the separate annual report of the Lizard Island Reef Research Foundation, a separate entity established to raise funds for the Station.
- Insect Gallery: The deficit of \$12,500 being carried in this account will be fully met by further corporate sponsorship from Bayer Australia in 1985/86.
- Opalised Fossil Collection: The cost of this purchase initially stood at \$80,000. Subsequent corporate sponsorship from Esso Australia has reduced this to \$53,000. It is expected that the deficit will be met by sale of some items in the collection during 1985/86 and transfer of any remaining balance to the General Account.

Combined Reserves — The combined reserves of the General and Grant Accounts stood at \$306,548 — a result which was above budget forecasts.

Australian Museum Trust Statement of financial operation for the year ended 30 June 1985

	Notes	1985 \$	1984 \$	Increase (Decrease)
Revenue			*	70
Consolidated Fund — Appropriation for Working Expenses		5,520,431	5,006,550	10
Grants —				
Australian Government	15	252,312	218,740	15
Other Scientific	15	398,750	345,918	15
Education/Exhibitions	15	48,954	492,200	(90)
Trustees Accounts —				
Statutory Endowment	-	148,000	140,000	6
Special Projects		350,000	200,000	75
Dinosaur Exhibition Surplus	-		266,579	N/A
Trading Operations	4	584,696	544,904	7
Special Programs	5	3,374	11,002	(69)
Other Income	6	232,838	147,733	58
Rankin Trust Fund	12	2,380	2,666	(11)
Coffee Shop		123,314	199,161	(38)
Australian Museum Society	13	154,553	158,629	_(3)
		7,819,602	7,734,082	1
Expenses for Year Exceeded Revenue by		176,295	_	N/A
		7,995,897	7,734,082	3
		1,000,001	1,104,002	
Expenses				
Working Expenses met from Consolidated Fund -				
Salaries and Associated Staff Costs		4,074,305	3,775,751	8
Maintenance and Working Expenses	7	1,446,126	1,230,799	17
Grants —	- V 1	1,110,120	1,200,100	-11
Australian Government	15	251,976	100 000	35
Other Scientific	15	331,748	186,203	
Education/Exhibitions	15	142,950	418,822	(21)
Trustees and Special Accounts —	10	142,550	377,132	(62)
Collection Acquisitions		00.100	au suv	
Exhibitions		90,436	87,176	4
Trading Operations	9	436,650	101,773	329
Special Programs	4	518,343	493,070	5
Audit Fees	5	190,464	153,268	24
Other Operating Costs	14	7,200	12,500	(42)
Peter Rankin Trust Fund	8	235,909	196,224	20
Coffee Shop	12	971	1,975	(51)
Australian Museum Society	13	104,369	184,855	(44)
	13	164,450	150,675	_ 9
		7,995,897	7,370,223	8
Revenue for Year Exceeded Expenses by			363,859	N/A
		7,995,897	7,734,082	3
		1,000,001	1,104,002	_ 0

Australian Museum Trust Statement of financial position as at 30 June 1985

	Notes	1985 \$	1984 \$	Increase (Decrease) %
Funds Held —				
Trust General Account		284,080	434,173	(35)
Trust Grant Account		22,468	49,127	(55)
Peter Rankin Trust Fund		16,682	15,273	9
Coffee Shop		6,994	8,049	(13)
Australian Museum Society		28,844	28,741	
		359,068	535,363	(33)
Represented By —				
Investments	2	263,000	508,374	(48)
Accrued Income	10	17,487	62,894	(72)
Cash at Bank, etc.	3	85,781		N/A
		366,268	571,268	(36)
Less — Creditors and Accrued Expenses	11	7,200	6,500	11
Cash at Bank, etc (Overdrawn)		_	29,405	N/A
contraction which property against a property (No. yellow this application).		359,068	535,363	(33)

Statement in Accordance with section 41B(1)(f) of public finance and audit act, 1983

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

- (a) The financial statements and notes thereon exhibit a true and fair view of the financial position and transactions for the year ended 30 June, 1985.
- (b) The financial statements have been prepared in accordance with the provisions of the Act, regulations and the Treasurers directions; and;
- (c) We are not aware of any circumstances which would render any particulars included in the financial statements to be misleading or inaccurate.

K.K. Klugman, President of the Trust D.J.G. Griffin, Secretary of the Trust

Klugman Er September 1985

is Sykuler 198

Australian Museum Trust Auditor-General's Certificate

The accounts of the Australian Museum Trust for the year ended 30 June, 1985, 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, 1985 and transactions for the year then ended.

Sydney, October 1985

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

Australian Museum Trust Statement of source and application of funds for the year ended 30 June 1985

	1985 \$	1984 \$
Funds Were Obtained From —		
Consolidated Fund Appropriation—		
Working Expenses	5,520,431	5,006,550
Statutory Endowment	148,000	140,000
Projects Subsidy	350,000	200,000
Australian Government Scientific Grants	252,312	218,740
Other Scientific Grants	398,750	345,918
Education/Exhibition Grants (Note i)	48,954	492,200
Dinosaur Exhibition	SALES TRANSPORTED TO	266,579
Trading Operations	698,010	734,751
Interest	58,741	52,650
Special Programs	3,374	11,002
Coffee Shop Contribution to the Museum Trust	10,000	8,000
The Australian Museum Society	154,553	158,629
Other	176,477	99,063
	7,819,602	7,734,082
Decrease in Monetary Assets	176,295	1,104,002
	7,995,897	7,734,082
Funds Were Applied to —		
Administration Activities (Note ii)	2,582,861	1,618,599
Educational Activities	441,197	419,050
Exhibition Activities	1,277,052	1,438,694
Scientific Research Activities	2,907,625	3,065,280
Trading Operation Activities	622,712	677,925
The Australian Museum Society	164,450	150,675
	7,995,897	7,370,223
Ingresse in Monetowy Assets	1,000,001	363,859
Increase in Monetary Assets		
	7,995,897	7,734,082

Note (i) Receipts for 1984 include income received in relation to the Dinosaur exhibition as well as other education and exhibition sponsorship grants.

Note(ii) In 1985 all allocations which could not be directly related to specific functions have been charged to Administration: significant items include gas and electricity (\$137,096); workers compensation insurance (\$61,982); rent and rates (\$162,724); motor vehicle running costs (\$45,295); postal and telephone (\$72,073); and printing (\$245,370). In 1984, these costs were distributed between activities on varying bases, resulting in significant variations with the Activity costs for 1985.

Museum shop trading account — anne for the year ended 30 June 1985		985 \$)84 \$
Sales (i)		403,858		412,360
Less Cost of Goods Sold — Opening Stock 1/7/84 (at cost)	110,273		106,623	
Add: Purchases	299,112		316,552	
Less: Closing stock 30/6/85 (at cost)	409,385 125,194	$\frac{284,191}{119,667}$	423,175 110,273	312,902 99,458
Less Operating Costs — Part time wages (ii) Surplus (iii)		24,125 95,542		35,249 64,209

Notes

- (i) Sales includes income received from sale of Museum Gallery Guides.
- (ii) Salaries totalling approximately \$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 between income and expenditure as outlined at Note 4 is reconciled as follows:

	\$
Surplus	95,542
Add: Opening Stock	110,273
	205,815
Less: Closing Stock	125,194
	80,621

Coffee shop trading account — annexure for the year ended 30 June 1985	'B'	1985 \$		1	984 \$
Sales		1	119,954		197,847
Less: Cost of Goods Sold — Opening Stock					
1/7/84 (at cost)	1,762			410	
Add: Purchases	51,985			98,190	
	53,747			98,600	
Less: Closing stock 30/6/85 (at cost)	2,057		51,690	1,762	96,838
Gross Profit	-		68,264	December 1	101,009
Less: Operating Costs					
Salaries	41,282			69,105	
Durables	1,574			3,705	
Sundry	9,528		52,384	_13,855	86,665
Add: Other income — Interest on Investments			3,360		1,314
Surplus (i) and (ii)			19,240		15,658

Notes

- (i) Surplus funds are distributed equally between the Museum and the Australian Museum Society.
- (ii) Reconciliation with balance shown in Statement of Financial Position:

	\$	\$
Opening Balance		8,049
Add: Surplus	19,240	
Opening Stock	1,762	21,002
		29,051
Less: Distribution of Profits	20,000	
Closing Stock	2,057	22,057
		6,994

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, 1985 (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.

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, current Accounting Standards have been adhered to in preparing financial statements. Policies adopted are consistent with those applied in the previous year.
- 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 Treasurer and are not included in the Trust Accounts.
- 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.

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 the following assets are not reflected in the accounts:
 - land and building insurance coverage of which has been effected through the Treasury Fire Risks Account.
 - plant and equipment, fixtures, fittings and furniture for insurance purposes, plant and equipment is valued at \$678,000.
 - the Trust's collection of exhibits, etc. the value of which, based on a 1981 valuation, stands at \$76 million.
- F. Stock on hand at cost at 30th June 1985 was valued at \$125,194 for the Museum Shop, and \$2,057 for the Coffee Shop. Stock on hand is not included in the Statement of Financial Position.
- G. 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 Museum also rents premises at Rushcutters Bay and East Sydney for Scientific Research purposes and storage.
- H. Building maintenance and improvements totalling \$1.4 million undertaken by or for the Department of Public Works, were carried out during the year none of these costs are reflected within the accounts.
- No allowance has been made within the accounts for depreciation of any buildings or other assets.
- J. Long service leave and annual leave are paid by the Consolidated Fund when taken.

2. Investments of the Australian Museum recorded at cost as a	t 30 June compri	sed:	1985 \$	1984 \$
National Australia Bank			250,000	1,086
Primary Industries Bank of Australia			10,000	10,000
Australian Savings Bonds			3,000	203,000
Capel Court Securities				294,288
			263,000	508,374
These Investments are held on behalf of:			250,000	450,000
Trust Accounts			13,000	13,000
Peter Rankin Account			-	7,575
Coffee Shop The Australian Museum Society			-	37,799
THE MANAGEMENT STORY			263,000	508,374
3. Cash at Bank, including cash advances, as at 30 June compr	ised:			
3. Cash at Dank, including cash advances, as at 50 bane comp.			1985	1984
			\$	\$
			46,261	(23,094)
Trustees Accounts Peter Rankin Trust Fund			3,682	2,273
Coffee Shop			6,994	474
The Australian Museum Society			28,844	(9,058)
			85,781	(29,405)
4. Revenue and Expenses from Trading Operations for the year	r ended 30 June	were:		
4. Revenue and Expenses from Trading Operations for the year		985	1	984
		\$		\$
	Revenue	Expenses	Revenue	Expenses
A. Julian Natural History	171,797	194,910	118,475	139,097
Australian Natural History Film Sales	3,047	-	6,662	
Mineral Sales		-	1,636	1,181
Records and Memoirs of the Museum	4,068 403,858	323,237	4,440 412,360	351,801
Museum Shop	1,926	196	1,331	991
Other Trading	584,696	518,343	544,904	493,070
5. Revenue and Expenses on Special Programs for the year en	ded 30 June were	e:		
		1985	_1	984
		\$	D	\$ Funemona
	Revenue	Expenses	Revenue	Expenses
Sunday at the Museum	-	4,392	850	3,432
Museum as a Venue	3,374		4,305	27,773
Education Programs	-	19,382	5,847	9,169
Conferences		2,945	-	1,439
Honoraria	_	15,362		6,051
Minor Grants and Research Grants Scientific Assistance	_	13,277		16,536
Contributions to — Lizard Island Research Station	The state of	30,000		30,000 28,260
Visiting Curator		41,606 63,500	<u> </u>	29,008
Special Project Distribution	_	-	_	1,600
K.L. Sutherland Award	3,374	190,464	11,002	153,268
			Street,	
6. Other Income comprised:			1985 \$	1984 \$
			9,591	
Insurance Settlement				23,167
Recoupment of Exhibition Expenses			15,099	11,140
Donations			56,544	49,260
Interest Minor Grants				39 22,848
Transfer of Bird Gallery Sponsorship			36,706	22,040
Transfer of Aboriginal Gallery Sponsorship			10,000	- United to
Transfer of Mineral Gallery Sponsorship			5,000	
Transfer of Temporary Exhibition Sponsorship			12,901	
Transfer of Surplus Grant Funds Miscellaneous			86,997	41,279
Miscenaneous			232,838	147,733

7. Maintenance and working expenses met from Consolidated Funds comprised:		
	1985	1984
	\$	\$
Workers Compensation Insurance	61,982 4,270	4,766
Meals Rent and Rates	162,724	143,797
Maintenance	6,027	3,268
Travel	80,099	63,294
Motor Vehicle Running Costs	45,295 20,562	63,144 16,259
Freight and Cartage Advertising	120,006	120,000
Books	50,866	51,771
Postal and Telephone	72,073	78,303
Fees for Services Rendered	52,927 137,096	34,927
Gas and Electricity	259,740	113,787 200,195
Stores Printing	245,370	202,229
Laundry	_	1,526
Other Insurance	44,346	33,258
Minor Items	2,545 80,198	476
Plant and Equipment and other equipment for storage of Museum specimens		99,799
	1,446,126	1,230,799
*Payments not previously included in the Museum's Budget.		
8. Other Operating Costs comprised:		
	1985 \$	1984 \$
Advertising	48,463	34,606
Computer Fees Entertainment	16,967 21,510	28,779 23,140
Printing	17,102	22,607
Travelling Expenses	18,139	17,378
Video Film Purchases	1,429	6,458
Visitors Survey	6,133	13,425
Trustee Travel Miscellaneous	2,844 70,822	5,631 44,200
Shop Refit	32,500	-
	235,909	196,224
9. Expenses on Exhibitions comprised:		
	1985	1984
	\$	\$
Aboriginal Gallery	274,808	48,125
Insect Gallery Mineral Gallery	21,172	18,244
Temporary Exhibitions	45,987 62,255	5,642 9,944
College Street Foyer Refurbishing	23,645	6,108
Maintenance of Galleries	8,783	13,710
	436,650	101,773
10. Accrued Income at 30 June, 1984 comprised:		
	1005	1094
	1985 \$	1984
Australian Government Grants Interest from Investments	5,706	49,148
Debtors	11,781	13,746
	17,487	62,894
	41,401	24,50
11. Creditors and Accrued Expenses:		
	1985	1984
Audit Fee for 1984/85	\$	\$
	7,200	6,500

12. 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.

lian herpetologists. The Fund makes awards annually to	a tinually being	g sought by the Co	mmittee oversee	ing the Fund.	
Revenue			1985 \$	1984	
Donations			184	530	
Interest			2,197	2,076	
Other				60	
			2,380	2,666	
Expenses			1985	1984	
			\$	\$	
Scholarships			970	1,971	
Bank Charges			971	$\frac{4}{1,975}$	
			3/1	1,010	
13. The Australian Museum Society:					
The Society was established for the purpose of fostering in natural history and the work carried out by the Museum.	iterest amongst the	general public in			
Revenue			1985 \$	1984 \$	
Membership Subscriptions			53,587	32,329	
Merchandising			1,576 4,545	15,437 11,245	
Venues Functions			87,524	86,980	
Other			7,321	12,638	
Total			154,553	158,629	
Expenses					
Salaries and Honoraria			45,735 24,490	37,878 13,336	
Office Supplies Merchandise			1,945	7,339	
Functions			64,363	75,461	
Other			27,917	16,661	
Total			164,450	150,675	
14. Audit Fee:			1985 \$	1984 \$	
Audit Fee for 1982/83 paid 1983/84			-	6,000	
Audit Fee for 1983/84 accrued 1983/84				6,500	
Audit Fee for 1984/85 included in accrued expenses			$\frac{7,200}{7,200}$	12,500	
		NATION AND ADDRESS OF THE PARTY.			
15. Receipts from major granting organisations and expens for the year ended 30 June, 1985 were:	es incurred against	incurred against those amounts,		1984	
	Receipts	\$ Payments	Receipts	\$ Payments	
Australian Government			200		
Australian Biological Resources Study	40,111	36,602	50,715	23,317 78,637	
Marine Science and Technologies Grants Scheme Aust Research Grants Scheme	106,468 62,681	103,839 73,501	45,741 50,529	38,718	
National Employment Strategy for Aborigines	18,997	18,997	58,622	36,007	
Other	24,055	19,037	13,133	9,524	
	252,312	251,976	218,740	186,203	
Other Scientific	178,894	125,997	125,188	178,353	
Lizard Island Research Station National Photographic Index of Aust Wildlife	148,425	139,596	151,365	176,557	
Other	71,431	66,155	69,365	63,912	
	398,750	331,748	345,918	418,822	
Education/Exhibition Programmes	48,954	142,950	492,200	377,132	

New Building

he Museum site covers an area of 1.1 hectare bounded by College, William and Yurong Streets, and by Sydney Grammar School on the southern side. The site includes the main Museum buildings (constructed in various stages from 1846 to 1963) a six floor Spirit House (constructed 1968) and several older buildings which over many years, have been consolidated into the current site.

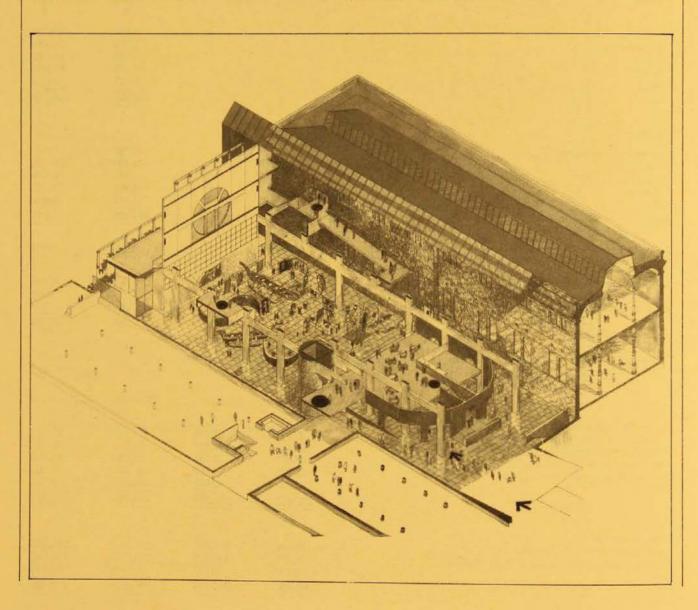
Over a period of years the Museum has sought to further develop the site. In 1976, a joint Museum/Public Works Department (Government Architect's Branch) brief was prepared, seeking development of the whole site, on a two stage basis.

Subsequent approaches by the Museum to the Government resulted, in approval for the development of a building within the courtyard area at a cost (at the time of approval) of \$10 million.

The purpose of this development is to provide adequate storage facilities for the Museum's priceless Pacific and other Anthropological collections; to provide an area where large overseas temporary exhibitions can be held as well as providing other areas for additional semi permanent exhibitions; and to help overcome existing overcrowding of both personnel and collection material.

A benefit of the development will be the linking of the south and north exhibition areas, making it much easier for visitors to move from gallery to gallery and to grasp the internal layout of the public areas of the Museum. A new coffee shop is to be included in the new area overlooking the main exhibition floor, together with another shop outlet and a library on the 5th floor.

The development is scheduled to commence in October with demolition of the existing Education block and site excavation works. Completion of the building is programmed for late 1987.



Ethnic Affairs Policy

he Ethnic Affairs Policy Statement 1984 of the Australian Museum, was accepted by the Ethnic Affairs Commission on 18th January, 1985. Initiatives developed within this document were completed either by June 1985 or in some cases will be by December 1985. The progress made reflects the Australian Museum's commitment to these initiatives.

Expansion continues of the Museum's information in relevant community languages. The Museum Guide has been printed incorporating text in eight languages. The development of self guided audio tours was commenced and emphasis has been made choosing "Front of House" staff who have a second community language. In October 1984 as part of a "Front of House" training course a half day workshop was conducted by an officer of the Ethnic Affairs Commission.

Equal Employment Opportunity

he 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 is being implemented with new objectives. The plan outlines specific objectives and strategies relating to Staff Management, selection and recruitment, staff development, and grievance resolution. The priorities in the last year have been the establishment of a suitable Staff Appraisal Scheme, the establishment of comprehensive induction procedures, and an increase in staff awareness of EEO issues. Work continued on all other aspects of the EEO management plan.

Progress in the past year has included the permanent appointment of an Aboriginal Liaison Officer, the permanent appointment of the first female Museum Guide and the re-establishment of the Grievance Committee. A blind receptionist/typist was employed under a Youth Employment Scheme, and the opportunity and experience gained enabled her to obtain a permanent position elsewhere upon completion of her employment term with us.

Education Division

he Division provides education programs which help create interest in subjects being studied, communicate knowledge and develop attitudes consistent with the Museum's fundamental purpose.

The division is responsible for a wide range of activities including class visit programs for school groups, Museum Train and Museum on the Road travelling exhibitions, Museum in a Box loan kits, Wandervan for the handicapped, school holiday and Sunday at the Museum activities as well as adult education.

Highlights

- Self-guided Visit packs produced for school visitors.
- New Circular 'Australian Museum Noticeboard' introduced to schools.
- Focus lessons on 'Aboriginal Australia', 'Insects', 'Conservation' and 'Evolution' held for schools.

888 Classes Taught by Museum Education Officers

25,917 school children participated in the Class Visits program, with special focus lessons each term, on Aboriginal Australia, Insects, Conservation and Evolution themes. Teachers Ideas Packs with activity sheets, were developed for most topics to help teachers prepare for their visit and also follow on at school.

Self-guided visits developed

ver the last year, 1,124 groups, comprising some 59,000 students, visited the Museum on an informal basis. To give these students better access to the exhibits, Self-guided Visit packs were produced, and volunteers are being trained to provide more help.

'Education News' redesigned. Information about the Museum's education programs and resources to school each term is now presented on a new poster with a 'Noticeboard' format. The response has been very positive and the audience has increased.

Support for Youth

All the Museum Divisions co-operated in placing students for work experience. 102 students participated from many areas in New South Wales. The Education Division also employed two young people under the National Employment Scheme for Aboriginals. They worked mainly on the preparation of teaching materials and with school and holiday groups undertaking Aboriginal studies they also gained general training.

Sharing the Education Facilities

Science teachers and trainee teachers were given lectures and demonstrations of the Museum's education resources. Lectures were also given to members of community clubs and various volunteer training courses.

The peer teaching program, which encourages students to use Museum resources to teach fellow students, has continued this year.

65,294 Visitors to the Museum Train

uring the year the train made visits to towns from Gunnedah to Singleton; Murwillumbah to Wauchope and from Dubbo through Narromine to Bourke. 22,750 visitors were school children and 42,544 were general public, showing an excellent response to promotion of the train.

The State Rail Authority transports and maintains the rail carriages which house the exhibition. The Commonwealth Banking Corporation of Australia continued to be actively involved in promoting the exhibition, which has received radio sponsorship, uses newspaper advertising, posters and letterbox drops backed by media coverage. Since late 1984, the Commonwealth Bank has provided a large banner to display across town streets.

During International Youth Year, the Train opened for a week in the May holidays at Central Station, Sydney, where over 4,300 people visited.

Museum on the Road

43,000 students and 60,000 members of the public visited the Museum on the Road exhibitions, during the year.

These travelling exhibitions comprise panels and showcases transported in a truck and set up in libraries, civic centres and shopping malls. The four exhibitions, "Arid Australia", "Papua New Guinea — the Abelam People", "Life in the Sea" and "Mammals in Australia" were taken to both Sydney suburban and country locations.

Museum in a Box

There are now 124 portable cases with specimens, pictures and notes which can be sent to schools for classroom use.

During the year 805 loans were made. All loans made since the end of 1984 have included a request for a \$10 donation to help defray costs. The response to this has been quite favourable.

Generous Sponsorship of the Wandervan Continues

Handicapped or disadvantaged people in 38 centres were visited by the Wandervan, which is sponsored by the Sydney City Council.

The program has been extended to disadvantaged schools, drug centres and intensive language centres. Country visits included Murwillumbah, the Central West and the South Coast.

Improved publicity brought an excellent response, and the Wandervan is now participating in a trial integration scheme for the intellectually handicapped, and is involved in special holiday centres and bushland and wildlife excursions.

Two regular volunteers assist the service which is also providing more follow-up activities, such as craft, music and games. A sample of invertebrate models created for blind children proved successful, and more models are being produced.

The Wandervan also participated in Sydney University Open Day, Carnivale, Parramatta Foundation Day and Community Information Week. Its Education Officer also provides a natural history segment to children on TV's Romper Room.

Special Activities for School Holidays

ach holiday period, children's activities are organised about Museum exhibitions. In September it was "Papua New Guinea", in January "Bushfire" and in May "Aboriginal Valuable learning time. The children enjoy a variety of activities which may typically include field trips, allied with other activities relevant to the gallery.

The Discoverer's Club Helps Argentine Ants Project

Children become 'Discoverers' once they complete a set of 'Walkabouts', answering set questions which involve them in an exploration of the Museum galleries. Some Discoverers have worked in scientific departments during January, and the Club has been assisting fellow Discoverer, Dr Murray Fletcher, of the Department of Agriculture, with fieldwork on Argentine ants.

Sunday at the Museum

icroscopes, lenses, craft materials and specimens to touch are amongst the items made available one Sunday a month as part of a planned family program related to the displays and natural science. Listening to tapes and meeting live possums and bats are some of the popular activities. Musical experiences were highlighted by performances on the guitar and the didgeridoo, and a demonstration by a violin maker.

Upgrading the Teaching Collections

Specimens are an integral part of teaching natural history, and the Division has been involved in repairing existing material as well as preparing some 400 objects, including new specimens obtained by field trips, for special lessons such as 'Insects and other Invertebrates'. As well as preserving specimens, the Division maintains some, like the Desert scorpions, alive.

Community Involvement

Division staff have contributed to various community and professional associations, serving on committees and advisory councils and participating in conferences on museum work, and environmental and Aboriginal education. Education Officers also chaired project teams for exhibitions in the Museum.

Many visitors contributed to the Division during the year, including Ms S Schultz, University of New York; Ms E Quade of the Milwaukee Public Museum, USA; Mr D Reynolds from the Auckland Museum, New Zealand.

Future Plans

- The Division has already begun organising the contents of its present centre for removal to the new Museum Education Centre to be located in the previous Hall of Fossils.
- Preparation of lesson plans and new teaching strategies.

Paul Burns in the Education Section's Discovery Room, along with children participating in the "Aboriginal Australia" holiday activities.



Exhibition Division

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

Highlights

- · Completion of the "Aboriginal Australia" gallery.
- Completion of "Insects and Other Invertebrates of Land and Freshwater".
- Workplace renovations commenced.

Aboriginal Australia Gallery

Many years of planning culminated with the opening of this semi-permanent exhibition on Aboriginal life, sponsored by B.H.P. Considerable innovation is incorporated in the design and it is hoped that it will lead others to replace outdated and patronising displays on Aboriginal culture.

Two major initiatives in this exhibition are the extensive use of audio labelling and the introduction of a children's guide.

The Insect Gallery

A semi permanent exhibition entitled "Insects and Other Invertebrates of Land and Freshwater", sponsored by Bayer Australia, was opened on 31 January 1985. Of approximately 65,000 species in Australia, 75 per cent are represented in this new Gallery, in forty-five individual cases.

As well as insects, snails, crustaceans, sponges, slugs, spiders and worms are shown in habitats designed to demonstrate how they live.

After the opening, evaluation was undertaken with the help of TAMS volunteers. A twenty question survey was taken of over 60 visitors. High interest and approval ratings from this survey indicate that the exhibit is very successful.

Variety in Temporary Exhibitions

Four temporary exhibitions were held during the year. Until September, the Long Gallery was home to a spectacular collection of photographs taken by Frank Hurley in the early 1920's.

Hurley's career began as an advertising photographer, but took an unusual turn when he joined Mawson on his Antarctic voyage. He subsequently made another trip to the Antarctic, spent time as a war photographer and joined the Smith brothers in Queensland on the last leg of their flight from England to Australia before making his first extended trip to Papua in 1920. He later returned to Papua to complete his film "Pearls and Savages".

In 1927 Hurley sold most of his glass negatives to the Australian Museum. From these a fascinating display was prepared, of life in or around European settlements and areas where change was underway in Papua and the Torres Islands. The exhibition also travelled to Darwin and Perth.

Another important temporary exhibition confronted an area of confusion and controversy between conservation groups and fire authorities. 'BUSHFIRE — In A Different Light' sought to diffuse controversy over the real effects of fire and methods of prevention. It also tried to

broaden discussion of fire in the Australian landscape and ways in which damage to or loss of human property and life can be minimised without relying solely on regular hazard-reduction burns. Information on the effects on native plants and wildlife and wildlife response to fires was given. Alternatives were explored, including the responsibility of land management authorities to ensure people purchasing land for building are not exposed to undue risks. This exhibition travelled to the Western Australian Museum, Perth.

First Exhibition from the Smithsonian

'Galapagos: Born of the Sea', an exhibition from the Smithsonian Institution Travelling Service (Washington D.C.) was on display at the Museum from 4 April to 27 May, 1985. The fifty-three dramatic, full-colour photographs by Feodor Pitcairn captured the rare flora and fauna of the Galapagos Islands and surrounding seas. As well as showing the pristine seas, lofty volcanoes and exotic wildlife, the photographs were a statement on the fragile and complex ecosystem of the Archipelago and the crucial relationship between the islands and the sea. The Galapagos Islands host a range of unique species, many of which cannot be found elsewhere in the world.

The Museum hopes to host more exhibitions from the Smithsonian in the future.

The Museum's research role was communicated to the public with an exhibition of twenty five photos which opened in April, 1985. The photographs by Kathie Atkinson showed some aspects of research on marine worms both at the Museum and on Lizard Island in the Great Barrier Reef.

Upgrading of Facilities

T

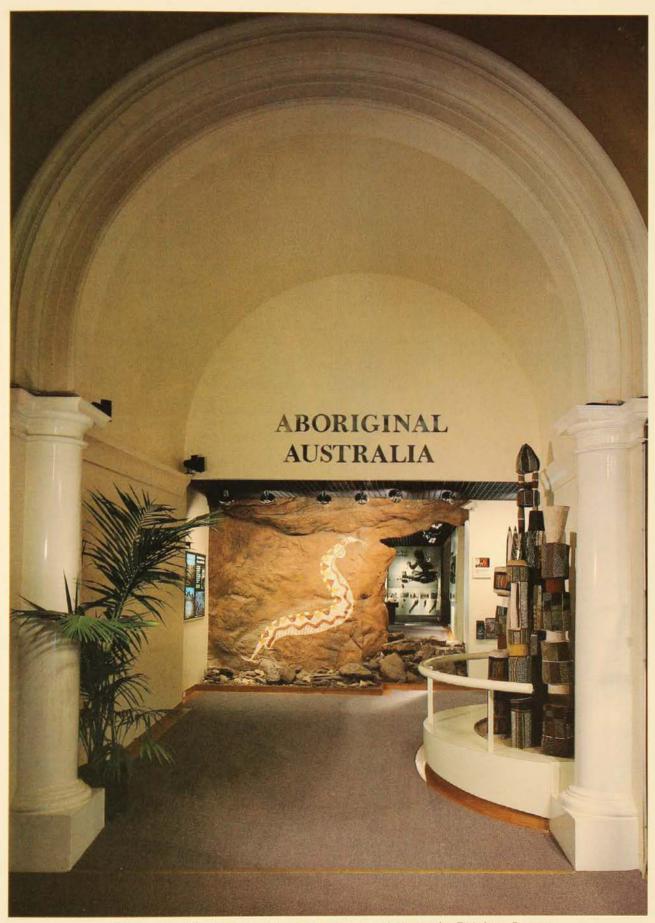
he Division has contributed to the important program of upgrading both public and work areas within the Museum.

A new sign system was installed and assistance was given in the preparation of a new Gallery guide.

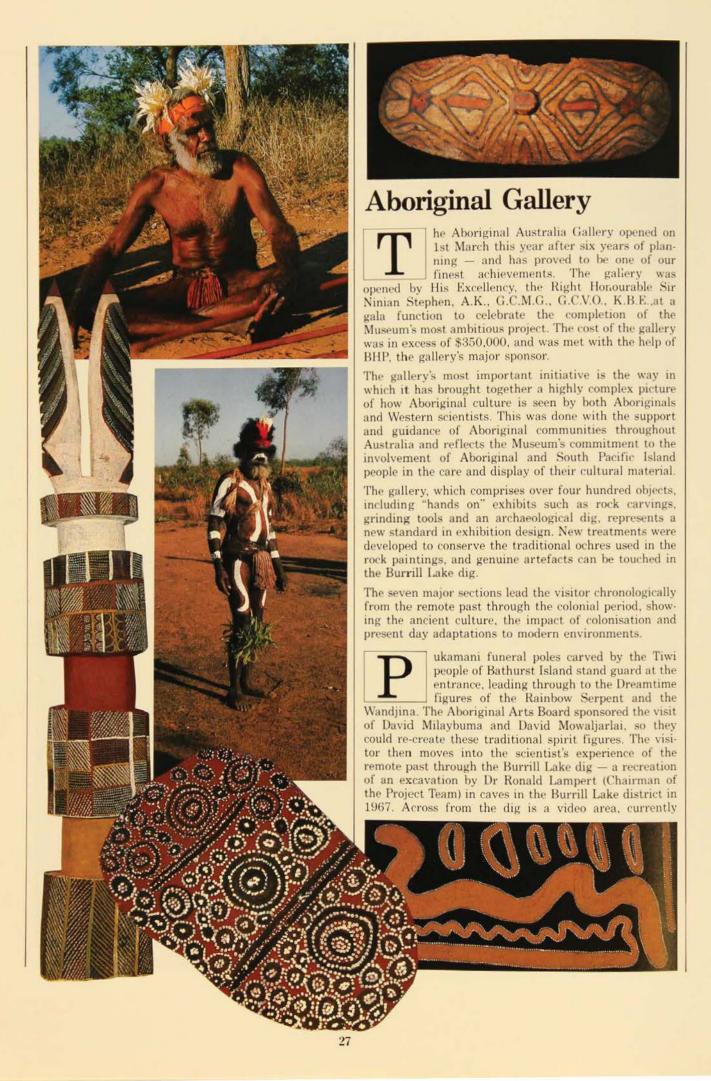
Renovation of work areas will result in new silk screening facilities; a modern carpentry shop and timber store; a spray painting room and audio visual studio.

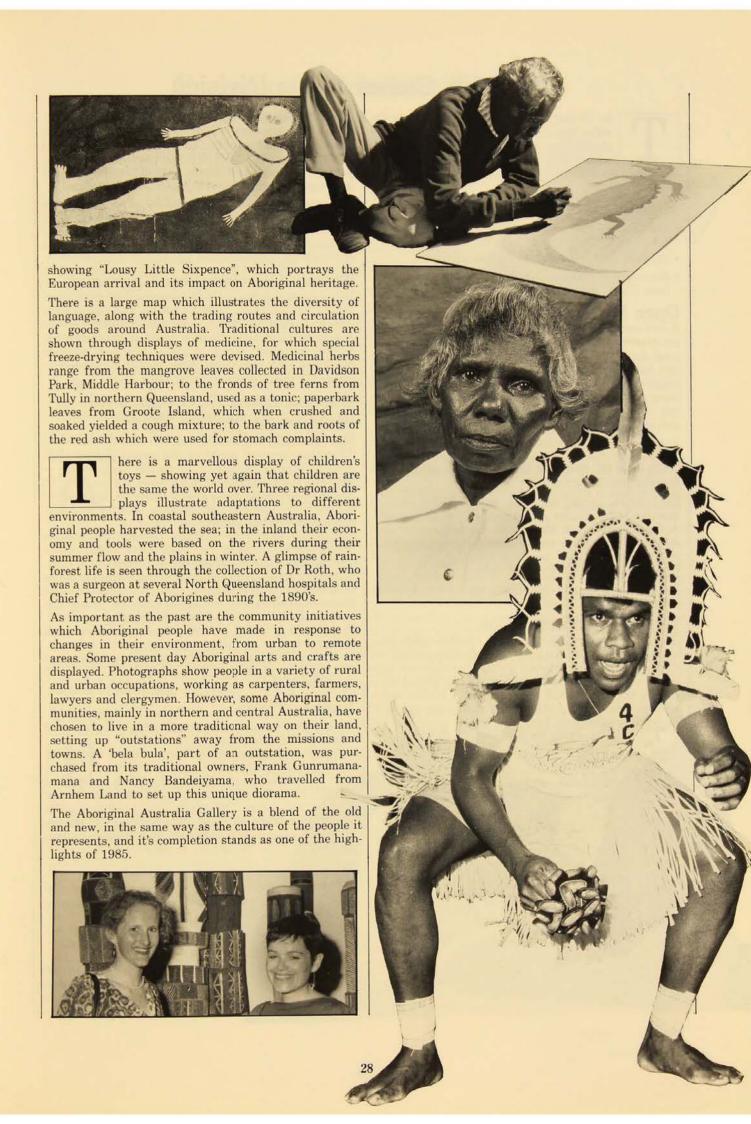
Future Plans

- A new Mineral Gallery will open in mid 1986 on the mezzanine floor above the Long Gallery.
- An exhibition based on the Aboriginal Gallery and sponsored by B.H.P. is planned for the Museum on the Road for 1986.
- The Fossil Gallery and collection store will be transferred to level 3 (the former Hall of Life). The new gallery will be carpeted and repainted, with new lighting and title graphics. The vacated site will make room for a new Education facility. A temporary exhibition, 'The Sydney Urban Environment' is scheduled for late 1985.
- Two permanent and two temporary exhibitions are being planned for 1988.
- A Discovery Room will be opened in 1986. This will provide a range of dynamic "hands-on" exhibits communicating through visitor participation.



Entrance to the Aboriginal Australia Gallery, showing the Rainbow Serpent.





Materials Conservation Division

he Division aims to prevent damage to the collections, conserves items of special importance, undertakes research necessary to increase the long term preservation of the collections and disseminates information on methods of conservation.

Highlights

- The "Aboriginal Australia" Gallery exhibition comple-
- · Ethylene oxide fumigation practices reviewed.
- · Water-damaged dug-out canoe brought to the Museum from Coffs Harbour.

Open Displays in New Gallery

A new consolidating agent was developed to protect the pigmented surface of the Pukamani Poles in the Aboriginal Australia Gallery display. In the open area of the bela bula (station camp), a complex range of materials, including feathers, tortoise shells and bird wings are being monitored to prevent insect, dust and light damage. So, too, are the rock paintings of David Milaybuma and David Mowaljarlai.

Eight hundred objects were conserved for possible use in the Gallery. The Division worked closely with Preparations in the design of mounts and installations of many of the artefacts.

For example, special mounting and protection systems were devised to display a very rare painted NSW shield. A dug-out canoe from Maningrida was restored for open display. A light filter was developed to allow spotlighting without exposing sensitive materials to the full intensity of heat or ultra-violet light.

These techniques will have wide application to other Museum displays.

Reviewing Fumigation

Because of the very toxic nature of ethylene oxide, used in the fumigation of collections, the division carried out a review to establish whether current practices are safe, appropriate and efficient. While safety emerged as satisfactory, the Division will follow up with a further investigation into insect problems and fumigation needs of the various collections. From this review guidelines will Waterlogged Canoe Recovered

A dug-out canoe was collected from the Coffs Harbour (New South Wales) region, The Forestry Commission has identified the wood used as being a species of Banksia. According to local Aboriginals, trees of this size have not been seen growing in the region for fifty years.

The canoe was transported to Sydney on an air mattress in a specially designed crate where it has been placed in cold storage to maintain its waterlogged state until methods have been developed to slowly dry and stabilise the wood and prevent insect and fungal damage.

Textile Conservation Upgraded

Experienced volunteers, with guidance from staff, conserved an Indonesian wedding canopy and completed a storage system for North American clothing. Storage and handling and conservation needs of the textile collections have been examined and a three year program developed. The volunteers have also made protective covers for the Aboriginal carved trees.

Computerised Environmental Monitoring System Proves its Worth

After three years of operation this unique computerised system has proved reliable, accurate and labour saving reducing the work load from 1.5 days per week to 10 minutes per week. Enquiries continue to be received from within Australia and overseas showing considerable interest in the system.

During the year staff members travelled overseas to attend various international conferences including the 7th Triennial Meeting of the ICOM Conservation Committee in Copenhagen, where Sue Walston was elected as Co-ordinator of the Working Group on Ethnographic Materials. Sue Walston and Karen Coote are to organise the next ICOM meeting to be held in Sydney in 1987. Dr M. Gilberg visited from the Canadian Conservation Institute.

In June, 1985 David Horton-James was guest lecturer at the Material Culture Unit, University of North Queensland.

Future Plans

· Continued research into conservation materials and fumigation procedures.

 Storage and display systems for Aboriginal bark paintings to be improved.

> Museum on the Road exhibition, Pacific exhibition and textile projects. · Organisation of the 8th Triennial Meeting of the ICOM Conservation Committee

to be held in 1987.



Karen Coote, Jenny Barnett and Heather Joynes discussing the treatment and mounting of the Indonesian wedding canopy.

Community Relations Division

he Community Relations Division, through effective marketing, is responsible for increasing the awareness of the Museum as a centre of scientific expertise, a source of relevant and 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. The Division's diverse range of responsibilities include publications, writing and editing, marketing, public relations, management of the Museum Shop and generating revenue from trading activities.

Highlights

- · Shop has major refit and increases surplus funds by
- · Australian Natural History magazine increases revenue by 45% and produces first profitable issue.
- Successful opening of the Aboriginal Australia exhibition attended by 500 people.

Australian Natural History Magazine

ver the last year Australian Natural History magazine has made outstanding progress, with advertising revenue being greatly increased, the inclusion of the magazine as part of the Museum Society's membership package, a marketing emphasis shift from press to direct mail and the introduction of word processing which reduced repetitive work and allows analysis of marketing strategies. Articles appearing in the magazine have included interesting and diverse topics such as Opalised Fossil finds at Lightning Ridge, Koala Disease, Vampirism: Fact or Fiction, Australian Aborigines Today and the first ever photographs of a male Cassowary at its nest.

Investigations into reduction of production costs, production of a larger, more saleable magazine and increasing level of advertising continued.

Museum Shop

uring the first quarter of the year shop trading was affected by the re-fitting of the new shop, a small temporary shop had to be set-up in the foyer until the new shop opened in September. The increase in surplus funds by 32% shows that the refit, new stock lines and the approach by management that this would be "the best Natural History Shop in Australia" is starting to achieve results. A new computer system for stock control and profit analysis has been installed and will be fully operational at the start of the new financial year. Both the Bi-annual mineral sale in October and the exhibition of African Artefacts in December proved exceedingly popular. The shop also hosted a number of book launches during the year including the Australian Mammal Society's "Possums and Gliders", National Photographic Index's "Waterbirds of Australia", Gunter Schmida's "The Cold Blooded Australians" a photographic study of reptiles, amphibians and freshwater fish, the two volume "Encyclopedia of Mammals" and the new large format edition of Neville Cayley's "What Bird is That?"

Marketing

The marketing of the Museum included major promotions for the Aboriginal Australia exhibition and the Insect gallery and television campaigns over the Christmas and May school holidays. These promotions were followed up with visitor surveys, including specific surveys on visitor reactions

to the Aboriginal and Insect exhibitions both of which rated highly. Media coverage gained on the Museum's scientific work included articles on the 'extinct' hairy-nosed wombat, opalised fossils from Lightning Ridge, mangroves, wetlands and worms, and the colonisation of New South Wales by nonindigenous marine species carried in ships ballast water.

Project Teams
Community Relations staff continue to be actively involved as members of the project teams developing new galleries and exhibits including the new Aboriginal and Insect exhibitions, and the temporary exhibition "Bushfire In A Different Light".

Museum Guide

A new Museum Guide has been produced and revenue from sales has more than doubled. Some of the features of this guide include a multilingual section, information on access for the disabled and details of two tours of the Museum these guide visitors on a highlight tour lasting about one hour and a leisure tour of up to three hours. Individual gallery brochures have continued to be reviewed and updated as they become due for reprinting. The bi-monthly brochure of forthcoming events continues to be highly popular.

Records

Volume 36 (311 pages) of the Records of the Australian Museum was published this year. This volume contains 15 scientific papers, 13 biological papers, one geological and one anthropological. Half of the papers are by Museum staff members and four were by overseas scientists. The Supplement series to the Records published two zoological monographs.

Future Plans

- Shop plans include the monitoring of gross profit levels and improving the range of items available. Items planned for include student microscopes, prepared slides and bird watching binoculars.
- Plans for Australian Natural History magazine include articles on saltwater crocodiles, Halley's Comet, Antarctica: past, present and future and a new column "Australian Wild Food".
- Continued participation in project teams for Aboriginal Museum on the Road Exhibition, Mineral Gallery, Sydney Urban Environment, and exhibitions for 1 1988.

Library

he various collections held in the Museum Library are unique in Australia and a major natural history literature resource. The aims are to conserve, organise and acquire new material, whether for permanent retention in the Collection or on an inter-library loan basis and to provide information to support the work of the Museum's Staff.

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

Highlights

- Plans for new library.
- Report on Archives collection.
- · Working area and reading room air-conditioned.

new library is to be incorporated into the proposed extensions to the Museum for 1988. The Chief Librarian is involved in the planning of the new library with the Government Architects. Far more storage space for the Collection will be provided including room for growth. There will also be more space for visitors and staff working areas.

The Staff Working Area and Reading Room, housing the Reference Collection, were air-conditioned in the last half of 1984. This has improved working conditions and also environmental conditions for the items housed in that area

In early 1985, at the Chief Librarian's request, a comprehensive report on our Archives Collection was made by Mr Peter Orlovich, Senior Lecturer in Archives Administration at the University of N.S.W. The report defined the problems and recommended plans for solving many of them. As a result, four students from the University, (under supervision), are currently working to achieve better organisation of the Collection, and greater access through the creation of new indexes, finding lists, guides, etc.

Work continues on the integration of the Linnean Collection into our collection. It is anticipated that at 30th June 1985, approximately half of the material donated by the Linnean Society will have been incorporated into

our collection and be readily accessible. The remainder of the collection, currently stored outside the Museum, will be brought here in stages. It is expected that complete integration will be achieved by the end of 1985.

Cataloguing of the Mel Ward Collection continues. As a large percentage of the old material is very old, copy cataloguing with the available resources is not a viable procedure. Thus the amount of time and expertise needed to complete the project is desirable.

Funds to cope with the considerable backlog of binding were again made available. Binding of much of the material in the Stacks and in Divisional collections has been completed, however, a large percentage of items in both the Mel Ward and Linnean Society Collections are in urgent need of binding. We anticipate that this will be carried out during the next financial year.

During the past year, numbers of computer literature searches were completed for Museum staff. The requests cover a diversity of topics, eg. Gibbons — behaviour in capacity, the use of LANDSAT satellite data to monitor land cover changes. In order to improve searching techniques, some staff members attended DIALOG training seminars. Requests from staff for the computerised literature search facilities are increasing, and the use of this facility has in turn led to an increase in the number of inter-library loan requests to other libraries.

Statistics

		1984-85	1983-84
Acquisition -	- Monographs acquired New serial titles	850	787
	catalogued	172	94
Loans -	- Staff loans	2300	1279
	Staff I.L.L. requests External I.L.L.	791	869
	requests	1304*	1502
Binding -	 Volumes bound 	2604	3337
		* 398 Unfulfilled	

Some figues are lower than for 1983/84, due to disruption caused by the installation of air-conditioning units.

Future Plans

• The future computerisation of many of the Library's records is being investigated. A full report on feasibility, options, costs and benefits is planned for completion by mid-1986.

 We plan in 1985/86 to have access to the AUSINET system of data bases, which will extend our range of sources and available information.

> The Museum is a unique blend of the old and the new, such as these rare books from the Library made more accessible with new technology.

31

Lizard Island Research Station

he Lizard Island Research Station is a facility of the Australian Museum. Its purpose is to support research into all aspects of the biology, geology, hydrology, history and conservation of the Great Barrier Reef. Accommodation, boats, diving equipment, a running seawater aquarium system and airconditioned laboratory facilities are available right on the reef, to support scientists and postgraduate students with research interests in tropical marine science.

Highlights

- RV Sunbird capabilities increased.
- · New laboratory opens.
- Third Reader's Digest Doctoral Fellowship awarded.

New Laboratory

The new laboratory was opened on 27 November 1984 by Sir John Proud, Chairman of the Lizard Island Reef Research Foundation. Fully airconditioned, it has an instrument lab, a radio-isotope lab, a store room, a new library and seminar room and offices for the Director and Secretary. The building is designed to withstand cyclones.

Assistance towards the \$125,000 costs came from the sponsorship of the Japan Foundation initiated by Suntory Ltd, and from ESSO Australia. Applied Industrial Plastics assisted in providing the fume cupboard and polypropylene waste plumbing system. Plans to renovate the original building are in progress.

Third Doctoral Fellowship Awarded

Mr Geoffrey Smith of the Department of Environmental Studies at Griffith University was awarded the third Lizard Island Research Station Doctoral Fellowship, sponsored by Reader's Digest and valued at \$4,000 per year, for three years. Mr Smith recently completed an M.Sc. degree at the University of Queensland on small mammal ecology. He is now studying the effects of food availability on seabird chicks, and some important aspects of ecology theory to provide data to assist in long-term management planning.

RV Sunbird

Last year, RV Sunbird spent forty-nine days carrying the Station's fuel and cargo. Ninety-nine days were spent supporting visiting researchers, who exploited the shallow draft, speed, stability, trawling equipment and diver support in a variety of research activities. The capabilities of the vessel have been greatly enhanced by the installation of the hydraulic system, an auxiliary diesel generator, deep freeze unit and compressor. The Director acts as skipper, but increasing demand leads to the anticipation of a new appointment to this position.

Laboratory Equipment

The Station now has two computers with the donation of a second Apple II by Alpha Research of Melbourne. A Brother HR25 daisy wheel printer and a Canon photocopier have been added to improve the efficiency of the Station office. A Sartorius top-grading electronic analytical balance has been added to the instrument room. An autoclave was acquired to support culture work. A fume cupboard was built into the radio-isotope laboratory during construction.

Research

Projects based on the Station's facilities ranged from a study of the feeding behaviour of crinoids or feather stars to the chemistry of deposition of oolites or calcium carbonate crystals in lagoon sediments.

Bette Willis and her team from James Cook University again observed the synchronous spawning of corals along the Barrier Reef on the fourth and fifth nights after the full moon in November.

The successful culture of giant clams was achieved by Rick Braley after aquarium fertilisation for the first time in Australia. This study has potential commercial application.

Thirteen living specimens of a Nautilus species were caught in traps deployed from RV *Sunbird* by B. Saunders and his United States team and were kept alive in aquaria at Lizard Island. This is the first collection of living Nautilus in Australia.

Lizard Island Research Station Doctoral Fellow Roland Pitcher studied two species of damsel fish and found indications that northern reef waters may be richer than and their fish larvae settlement processes different from those of southern reef waters.

During 1984-85 forty-seven Australian and thirty overseas researchers used Lizard Island Station facilities. A further thirteen postgraduate students brought the total number of visiting researchers to ninety.

Community Involvement

Twice weekly Lizard Island Lodge guests visit the Station for a short slide show followed by a tour of laboratory facilities where they can meet researchers.

The Director participated in the Crown-of-Thorns Starfish committee which reported to the Great Barrier Reef Marine Park Authority.

Future Plans

- Completion of extensions to the workshop to house machinery.
- Installation of a travelling crane for handling and cover of boats and engines during maintenance.

Management Committee

Professor D.T. Anderson, PhD, DSc, FRS J.T. Baker, OBE, MSc, PhD, FRACI D.J.G. Griffin, MSc, PhD B. Goldman, MSc, PhD

P. Ogilvie

Associate Professor P. Sale, PhD

The Committee is appointed by the Australian Museum Trust

National Photographic Index of Australian Wildlife



he Index is a special project of the Australian Museum Trust.

The Index assembles and maintains an expanding collection of well-documented colour photographs of Australian mammals, birds, reptiles and frogs. This resource is available for use by zoologists, authors and publishers. It also provides the basis of richly illustrated books which the Index produces.

Highlights

- Publication of The Waterbirds of Australia, text by John Douglas Pringle and Terence Lindsay.
- · Establishment of reptile and frog collections.

Collections

ith the exception of the historical collection, the photographs of the Index are all copies of photographs submitted by more than five hundred photographers as examples of their best work. Of some 33,000 photographs submitted since

1969, 16,000 have so far been incorporated into the collections.

During the past year, 356 photographs were added to the Mammals collection, increasing the number of species represented to 260, and the total number to 3,326.

The rapid growth of the Bird collection, by 1,644 to a total of 11,962, reflects our current publishing projects. Two bird species were added, bringing the number represented to 757.

Documentation and filing systems were set up to provide for the establishment and expected growth of Reptile and Frog collections. The Reptile collection began with 460 acceptances this year, representing 174 species. The Frog collection was established with 257 acceptances, covering sixty-nine species.

The historical collection comprises glass negatives, lantern slides and black-and-white prints, mostly of birds, from the first half of the twentieth century. During the year, Angus and Robertson Publishers donated about 2,500 prints collected in the 1920s by Neville Cayley. Mr J.P. Ramsay donated about 500 lantern slides made by his father, J. S. P. Ramsay, and a compact lantern slide projector. A large projector was received from Mr M. Sharland.

The historical collection has grown rapidly, to about 6,000 items. Of these about 3,000 have so far been identified by the two Honorary Archivists, Messrs. H.J. Disney and E.L. Carthew.

Publications

he Waterbirds of Australia, published by Angus & Robertson in December 1984, is the second of ten volumes being produced by the Index to include all Australian birds. It has been widely acclaimed by ornithologists and photographers as a beautiful, informative portrayal.

Throughout the year, the staff of the Index have been heavily involved in book production. Waterbirds went to press; Mr Strahan edited the text of Seabirds by Terence Lindsay and Waders and Gulls by John Douglas Pringle. Mr Lindsay compiled the technical synopses of these volumes.

Research

Mrs Mary Rose Gordon, archivist to the Index, sought extra photographs for the books throughout the year. During a private visit to Japan and Europe, she located a number of excellent photographs of migratory birds seldom photographed in Australia.

Expansion in Income Producing Activities

and Waders and Gulls was considerably above budget. Direct sales of Index books continue to bring in significant income. The Index continues to operate on income generated from its own activities.

Committee of Management

The Committee of Management of the Index, which is responsible for overall policy and financial management, met three times during the year under the chairmanship of Mr J. Broinowski, C.M.G. The Committee is appointed by the Australian Museum Trust.

Founding Chairman of Trustees The Hon Sir Percy Spender, KCVO, KBE, KStJ, QC Management Committee

J.H. Broinowski, CMG, FAC (Chairman) K.H. Cousins, CMG D.J.G. Griffin, MSc, PhD L Le Guay, FRPS, EFIAP, AIAP V.N. Serventy, AM, BSc, BEd R. Strahan, MSc, FSIH, FRZS, FANZAAS G. McKenzie, AASA, CPA

Donations

donors to the Museum.

onations of colour transparencies were received from the following people. H.&J. Beste (12); N. Chaffer (25); G.A. Hoye (47); B. King (79); J. Lochman (10); M. Seyfort (37); A.G.&B.A. Wells (10); R. Whitford (15); R.&A. Williams (20); A. Young (18). These 319 photographs have been valued at a total of approximately \$84,000. 133 sponsors donated \$19,950 towards the cost of production of Waterbirds; 150 donated \$22,500 for Seabirds; and 130 have so far donated \$19,500 towards the cost of Waders and Gulls. Sponsors who have contributed \$1,000 or more are acknowledged in the list of

The Australian Museum Society (TAMS)

he 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.

Highlights

- TAMS makes first donation of \$10,000 towards the new Mineral Gallery.
- Talk by the Governor of Easter Island, His Excellency Sergio Rapu.
- · Overseas tours to Vanuatu and India.

Membership

major focus of TAMS activity over the past year was membership development. A fifty per cent increase was achieved following many new initiatives. These include a mem-

bership year with quarterly renewals; the inclusion of Australian Natural History as an incentive to join, the availability of Bankcard and other credit facilities; a certificate of membership; and an attractive gift subscription voucher. The first New Members Night, held in October, was a success, with 200 new members attending to meet the staff.

An eye-catching display area within the Museum now explains TAMS activities for the visiting public.

A major direct mail campaign was also undertaken, following a tour by Mrs Susan Bridie of museums and galleries in the United States. This tour followed Mrs Bridie's representation of TAMS at the World Congress in July of the World Federation of Friends of Galleries and Museums.

Exciting Programs

wo overseas tours proved an outstanding success last year. Carol and Vincent Serventy led a tour to India, which had the good fortune to be joined by one of India's foremost naturalists. Dr Jim Specht, who has a close association with Vanuatu, led the TAMS tour there, giving members a special insight into the diverse, dramatic and colourful cultural heritage of the area. The Easter tour was a trip to the Flinders Ranges led by Dr Ronald Lampert and Dr Lin Sutherland.

Talks and lectures have again proved most popular. One of the year's highlights was the talk given by leading archaeologist Sergio Rapu, Governor of Easter Island. His talk led to a TAMS tour and an archaeological dig on the island. This in turn resulted in the Society donating a computer to the Island's Museum for registration of their materials and archaeological finds.

Apart from the tours, this past year's program has been one of the most popular, particularly the 'Human Body in Review' series, which presented an update on medical science in the 1980's.

The 'Evening with Spike Milligan' was an extraordinary event in the middle of the year, with Milligan and his musicians giving a concert in the Long Gallery.

The introduction of seminars to the program was well-received, the first two being the Ornithology Weekend Seminar in September and 'In Defence of Science', in March.

A Volunteer Media Officer

Mrs Sally Murray was appointed in April and has been arranging free coverage on radio and in the press.

The Volunteer Program

This program was again efficiently by the Volunteer Coordinator Mrs Herti Verge, who assisted in placing approximately 150 volunteers throughout the Museum.

Cafe

he Australian Museum Cafe is a fundraising concern administered by the society on behalf of the Museum Trust. Operation of the Cafe was interrupted by work on the lift service, but resumed on a modest scale to meet popular demand. Since May 1985 recommendations from professional consultants have been implemented to upgrade the Cafe including the appointment of a new manager, Mr Jurgen van Opdorp.

Future Plans

- Membership development will continue, particularly through direct mail.
- Further efforts towards increasing corporate benefactor membership.
- Exciting tours to China and Easter Island and a special Halley's Comet viewing.

The Australian Museum Society Council

President: C. Williams

Vice President: M. Hazel (to 26.3.85); R. Saunders (from

26.3.85)

Executive Secretary: S. Bridie Secretary: W. Wilkins, B.A.

Treasurer: A.B. Wilson

Councillors: D. Dickinson (to 26.3.85); D.J.G. Griffin, MSc, PhD; N. Ireland (to 26.3.85); T. Ireland (from 26.3.85); G. McIvor (to 26.3.85); L. Mahoney; S. Main, B.A.Dip, Ed.

(from 26.3.85); S.Murray, B.A., Hons. (from 26.3.85); P. Pearce, Teach. Cert. AAIM (from 26.3.85); C.G. Pennell (from 26.3.85); B. Ross-Wilson; V. Serventy, A.M., BSc.B.E.D.; F.L. Sutherland, MSc, PhD; (to September 84); J.W. Twyford (from 26.3.85).

Kristine Klugman, President of the Trust, with Craig Williams, President of TAMS, at the opening of "Bushfire -In A Different Light".



Australian Museum Volunteers July 1984-June 1985

The following people volunteered their services to the Museum during the year. Much valuable work could not

	have been achieved v	vithout their assistance.	
Anthropology	M. Lorrison	Ornithology	I. McAllan
J. Anderson	A. Mattea	T. Armstrong	N. Maxwell
N. Baker	T. Morell	E. Carthew	B. Miller
J. Bona	L. Oakes	H. Disney	J. Miller
		B. Godfree	A. Mount
M. Budding	J. Owen	D. Godfree	D. Reynolds
T. Corkill	A. Robinson	M. Henderson	P. Rowland
S. Florek	C. Sadlier	H. King	M. Tink
A. Henry	S. Sayes		R. Webster
P. Ikinger	J. Stuart	M. Kingsley	it. Webster
C. Jones	K. Westmacott	Vertebrate Ecology	
B 0 .		L. Albertson	T. Pople
Earth Sciences		J. Bosson	I. Radford
Palaeontology		M. Brouwer	K. Wale
B. Boogaart	J. Hodgson	J. Capel	K. Wesley
J. Frances	M. West	L. Hazel	P. White
M: 1 D - 1	Louis .		
Mineralogy and Petrol	ogy	Administration	
E. Hepburn		Photography	
C. Jones		B. Pulsford	M. Ward
Invertebrate Zoo	logy	Community Rel	lations
		J. Dunlop	ations
Arachnology E. Balmer	G. Copp E. Sheridan	D. Mordin	J. Wallin
12. Danner	B. Gheridan		
Crustacea and Coelent	erates	Education	D. Jarvis
S. Keable	E. Silk	J. Austen	B. Kemyon
R. Last	T. Trnsky	V. Carter	M. Moore
J. Riley	H. Ward	M. Copp	C. Murphy
5. 11103		J. Drew	E. Oakey
Echinoderms		B. Eyre	M. Poulos
H. Broughton		J. Farquar	K. Riley
M. Rowe		M. Gaden	P. Rundle
		K. Hancock	K. Rusten
Entomology	R. Lowmer	E. Hird	
R. Blanche	N. Lavidis	E. IIII	A. Sharpe
W. Carlov	N. Drydale	Exhibitions	H. Jansen
277 200000		A. Fanker	S. McIntyre
Malacology	R. Lardner	A. Paliker	S. McIntyre
S. Bull	A. Leroi	Preparations	
P. Burton	M. Melville	E. Bandy	J. Giffen
M. Christie	D. Pearson	A. Bowman	O. Hassler
G. Clark	E. Powell	W. Chao-Min	M. Kelly
H. Hewitt	G. Thornley	R. Cohen	T. Lumley
T. Ireland	J. Wise	I. Docking	C. McAdam
N. Ireland	J. Woodhouse	J. Graham	J. Miller
Iv. Heland	a. woodnouse	J. Granam	o. wither
Marine Ecology		Library	
D. Downes	G. Merrington	K. Blofed	M. Harman
R. Marsh	C. Sainsbury		
		Materials Conse	ervation
Worms	M. Cooper	H. Joynes	N. Turner
E. Blaxland	G. Hart	Di 4 11 Y	
X7 (1 (7)		Photographic In	
Vertebrate Zoolo	$\mathbf{g}\mathbf{y}$	E. Carthew	J. Coghlan
Herpetology		R. Cohen	H. Disney
M. Milston		The Australian	1 1 A - 1 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2 - 2
	N. M.	Vol.	Museum Society
Ichthyology	M. Thompson	Volunteers	
A. Daniel	G. Turner	J. Cocks	M. McCarthy
3.0	4 1/	- Membership Secr	etary S. Murray
Mammalogy	A. Meza	G. Godley	C. Van Raalte
			O. I WILL A STREET
J. Alexander	C. Munns	N. Ireland	
	C. Munns M. Nagy M. Thurlow	N. Ireland T. Ireland	H. Verge — Volunteer Co-ordinator

Staff

Director D.J.G. Griffin, MSc.PhD H. Stoddart, BSc(Hons) Research Assistant **Echinoderms** Deputy Director H.G. Cogger, MSc, PhD A. Hogget, BSc(Hons) Research Assistant F. Rowe, BSc(SpHons), C. Abraham Secretary to the Director Scientific Officer PhD, CIBiol, MIBiol, FLS E. Kortvelyesy Assistant to the Deputy Director L. Vail, MSc Collection Manager Assistant to the Deputy K. McRae Entomology Director D. Bickel, PhD Visiting Research Fellow B. Day Technical Assistant Anthropology Division B. Duckworth Technical Assistant L. Bolton, BA(Hons), Senior Technical Officer G. Holloway.BSc Technical Officer (Collection Manager) Technical Officer DipMusStud D. McAlpine, MSc. Senior Research Scientist N. Goodsell, BA PhD,DIC (Scientific) C. Smithers, MSc, PhD Scientific Officer P. Gordon Liaison Officer Malacology K. Khan, BA(Hons), Technical Officer G. Avern, BSc, DipEd Research Assistant DipAnthrop R. Lampert,PhD,FAHA (Scientific) P. Colman Technical Assistant Senior Research Scientist J. Gillespie, BSc Technical Assistant D. Losche, MA, M Phil, PhD Scientific Officer S. Hanslow, BSc Technical Assistant B. Meehan, BA(Hons), Scientific Officer B. Jenkins Technical Officer (Scientific) MA(Hons), PhD I. Loch Senior Technical Officer G. O'Donnell, BA(Hons) Technical Officer (Collection Manager) (Scientific) W. Ponder.MSc.PhD Principal Research Scientist J. Specht, MA, PhD Head of Division W. Rudman, MSc, PhD Senior Research Scientist Technical Officer S. Thomsett, BA(Hons), D. Winn.BSc Research Assistant DipMusStud (Scientific) Marine Ecology Z. Wakelin-King, BA(Hons) Senior Technical Officer A. Jones, MSc, PhD Scientific Officer (Collection Manager) A. Murray, BSc Technical Officer **Typist** (Scientific) Temporary Assistants: H. Apostolas; J. Avery; Worms N. Baker; K. Barnes; Research Assistant L. Bamber, BSc R.K. Bolzan; P. Burns; Research Assistant Glasby, MSc N. Dammerel; J. Day; P. Hutchings, BSc Head of Division. F. Duncan, BA; Senior Research Scientist (SpHons), PhD S. Florek, MA; S. Keable, BSc Research Assistant P. Ikinger, BA; F. Irving; Twofold Bay Project Y. Kelly; S. Knuckey; L. Matthews Museum Assistant L. Oakes, BA, DipMusStud; M. Reid.BSc Research Assistant B. Ohlssen; J. van der Velde. Research Assistant A. Szalay, BA(Hons). BSc(Hons) Twofold Bay Project Earth Sciences Division Technical Officer L. Walker, BSc (Scientific) Palaeontology L. Albertson, BSc; Temporary Assistants: R. Jones, MSc Technical Officer P. Albertson, (Scientific) A. Chapman, BSc; A. Ritchie.BSc.PhD Head of Division S. Reader, BSc. Mineralogy and Petrology Director's Research Laboratory J. Henley, BAppSc, Collection Manager H. Tranter, BSc Research Assistant **FGAA** R. Pogson, BAppSc Technical Officer Vertebrate Zoology Division (Scientific) (Hons) L. Sutherland, MSc, PhD Senior Research Scientist Herpetology K. Hollis; L. Oakes; T. Still; Temporary Assistants: H. Cogger, MSc, PhD Deputy Director W. Warren; M. White, MSc. Senior Research Scientist A. Greer, PhD Technical Officer D. Kent, BSc, Invertebrate Zoology Division (Scientific) DipAgricEnt Arachnology Research Fellow G. Mengden, BSc, PhD M. Gray, MSc Scientific Officer and Collection Manager R. Sadlier Collection Manager Deputy Director's Research Laboratory C. Horseman Technical Assistant E. Cameron, MSc Scientific Officer Crustacea and Coelenterates

Ichthyology

D. Brown, BA

S. Carter, BSc

Technical Officer

Technical Officer

(Scientific)

(Scientific)

Scientific Officer.

Scientific Officer

Visiting Scientific Officer

Acting Collection Manager

Queen's Fellow

N. Bruce, BSc (Hons), PhD

J. Just.PhD

J. Lowry, MA, PhD

R. Springthorpe, BSc

Technical Officer Photography J. Gates, BA Acting Head J. Fields (Scientific) Photographic Operator K. Handley D. Hoese, BA, PhD Head of Division Photographer Research Fellow K. Lowe J. Leis, BSc, PhD B. Hough; B. Ohlsson; Temporary Assistants: Technical Officer M. McGrouther, BSc(Hons) A. Pitman. J. Paxton, MSc, PhD Scientific Officer Technical Officer S. Reader, BSc Stores Collection Manager D. Rennis, MSc Storeman Driver W. Rixon Technical Officer S. Thompson, MSc Storeman Driver J. Rusten Temporary Assistants: S. O'Brien; W. Steele. Mammalogy T. Flannery, BSc, PhD Scientific Officer Security, Guides, Cleaners L. Gibson Collection Manager Museum Guide E. Adcock Technical Assistant D. Jones H. Barrows Gallery Security Ornithology Attendant Cleaner K. Bilbie W. Boles, BSE Senior Technical Officer H. Butler Gallery Security (Collection Manager) Attendant Cleaner D. Cameron D. Jones Technical Assistant G. Casey Cleaner Temporary Assistants: T. Armstrong; L. Hazel; Museum Guide R. Davies C. McAdam; I. McAllan; E. Drakoulaki Cleaner A. Thomas. Cleaner J. Elias C. Gianopoulos Cleaner Vertebrate Ecology Night Security P. Goodwin T. Armstrong, BAppSc Research Assistant Gallery Security Night Security W. Grice D. Bushell.BSc Research Assistant B. Griffiths Research Assistant S. Carter, BSc M. Hickie Senior Attendant G. Gowing, BSc(Hons) Senior Technical Officer A. Jones Gallery Security P. O'Connor, BSc(Hons) Research Assistant J. Laughton Attendant Cleaner G. Pyke, BSc(Hons), PhD Scientific Officer Attendant R. Lawson H. Recher, BSc, PhD Principal Research Scientist E. Mair Attendant Cleaner G. Serkowski Technical Officer E. Martin Gallery Security (Scientific) J. McGrath Museum Guide R. Milrov Gallery Security Administration Division G. Osborne Museum Guide J. Adams Scientific Typist W. Payne Gallery Security H. Apostolas Typist C. Picklum Gardener P. Dempsey Scientist Typist H. Pierson Night Security K. Denniss Assistant to the Secretary Night Security K. Randall T. Goh Scientific Typist E. Reynolds Gallery Security G. McKenzie, AASA, CPS Secretary to the Museum O. Seears Security Supervisor G. Pinto Scientific Typist D. Shallis Night Security Scientific Typist Scientific Typist J. Recher D. Shelton Night Security A. Thomas A. Szanto Attendant Cleaner E. Tong Scientific Typist B. Walsh Cleaner Temporary Assistants: P. Wearne; R. Chmielewski. W. Walsh Attendant Cleaner A. Youssef Museum Guide Accounts R. Anderson Grants Clerk Accounts Payable Clerk F. Cauchi Community Relations Division Z. Christofides Accounts Payable Clerk R. Cameron Editor, Australian A. Crame Grants Clerk Natural History J. Harty Cashier C. Deacon, BSc Publications Officer J. Kady Computer Committments M. Dingle Shop Manager Clerk G. Hickey, BSc Assistant Editor. N. Legg, BA(Ec) Accountant Australian Natural History G. Nicol Accounts Payable Clerk L. Hodgson, BSc(Hons) Assistant Editor (Records) M. O'Donnell Officer Manager M. Ingham Assistant to Head M. Ton Accounts Payable Clerk of Division Temporary Assistants: C. Lucas; G. Stott. J. McIntosh Circulation Officer Staff Office P. Pearce, Teach Head of Division Cert, AAIM K. Hawkey Receptionist Typist A. Lee Receptionist Typist P. Sharpe Shop Assistant V. Lee L. Whaite, BA(Comm), Staff Manager Publicity Officer **MPRIA** R. Norris Assistant Staff Manager A. Sommer M. Zanotto Telephonist Shop Assistant Temporary Assistants: P. Annetts; P. Asbury; Temporary Assistants: T. Dee; M. Jones; D. Imlah;

T. Powell; B. Salter; R. Thorman.

A. Baker; T. Dee; J. Hall;

G. Llewellyn; F. Cauchi.

Database Manager

D. Beechey, BSc(Hons), MSc

Education Division

H. Apostolas Typist

K. Buckle, DipEd **Education Officer** (Temporary)

Education Officer K. Cocks, BSc, DipEd

(Train) F. Coleman Typist

Education Officer Z. Harkness (Part time)

G. Hunt, BSc, DipEd, PhD **Education Officer** R. Inder Preparator

Education Officer S. Main, BA, DipEd P. McDonald, BEM, BSc, Head of Division

MEd, FMAA J. McDougall, BSc, DipEd **Education Officer**

(Temporary) J. McLeod, BA, DipEd, **Education Officer**

DipSpEd E. McPhee Typist

D. Millar Preparator S. Montgomery, BSc(Agr) Education Officer

(Train) **Education Officer** A. O'Neill, BAppSc,

CertEd N. Pallin, BA(Hons), **Education Officer** DipEd (Temporary)

Education Officer A. Saunders, BA, DipEd (Special Project) **Education Officer** A. Skates, BA, DipTeach S. Stephens, BSc(Hons) **Education Officer**

(Train) N.E.S.A. Trainees: P. Burns; A. Gleeson

Exhibitions Division

B. Betts, BSc(Anthrop) Museum Assistant M. Brammer, Museum Assistant

DipArt(Creative) G. Ferguson, DipArt Designer

(AppArt) **Exhibition Officer** J. Freeman, BSc(Arch)

K. Gregg Designer R. Joyner, ADIA Head of Division C. Kalucy Museum Assistant **Exhibition Officer** B. Matzick,

DipDesign(Display) Museum Assistant S. Morris,

Dip Art(Painting) Museum Assistant J. Powell.

Dip Art(Interior)

A. Richards, Designer **DipVisualArt**

T. Lindsey R. Ross-Wilson **Exhibition Officer** R. Strahan, MSc, MIBiol, Museum Assistant J. Samuels, DipArt, FRZS, FSIH, FANZAAS

BA(Visual) L. Sattler Museum Assistant **Exhibition Officer** R. Sim, DipFineArt

(Industrial Design) Audio Visual Technician D. Sweet W. Wilkins L. Sullivan Typist/Assistant

Preparation A. Carpenter Preparator

M. Dingley Preparator Chief Preparator G. Hangay

B. Horn Preparator J. Hood Preparator O. Keywan Preparator T. Lang Preparator R. Lossin Preparator H. Magor Preparator E. McLeod Preparator R. Moloney Preparator T. Ralph Preparator R. Scott-Child Preparator C. Min Wang Preparator

Library

N. Bain Library Technician G. Baker, ALAA Chief Librarian C. Cantrell Library Officer

Relieving Chief Librarian J. Harrison, BA, ALAA

Library Officer A. McConochie C. Pvne Clerical Assistant

H. Spitzer Typist J. Gates, BA; M. Dolega; Temporary Assistants:

P. van der Made: K. McLeod; O. Ploskodniak

Materials Conservation Division

J. Barnett, DipCons Consultant Technical Officer G. Batho, BSc (Scientific)

K. Coote.BA.BSc(Hons) Conservator Museum Assistant N. Dammerel Technical Officer S. Gatenby, BSc

(Scientific) Conservator D. Horton-James, BSc E. McFadyen,BA Technical Officer

(Scientific) V. Mohankumar Technical Assistant Technical Officer P. Rey, BAppSc (Scientific)

S. Walston, DipCons(Lond) Head of Division

Lizard Island Research Station

B. Goldman, BSc, PhD Director L. Goldman Secretary Maintenance Officer P. Pini Accomodation Officer G. Pini

National Photographic Index of Australian Wildlife

J. Coghlan Clerical Assistant Archivist M. Gordon Assistant Archivist D. Grieg H. Lawrence Typist Scientific Editor

Executive Officer

The Australian Museum Society

S. Bridie Executive Secretary Secretary S. Hamilton; F. Shinn; Temporary Assistants: A. Whittet.

Coffee Shop

Assistant T. Boncvz Manager J. van Opdorp

Publications

Aboussouan, A. and J.M. Leis, 1984. Balistoidei: development. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 450-459. American Society of Ichthyologists and Herpetologists, Special Publication No. 1, pp.760.

Archer, M. and G. Clayton (eds), 1984. Vertebrate zoogeography and evolution in Australasia. Hesperian Press,

Perth, pp.1203.

Bell, D. and Z. Wakelin-King, 1984. Living monuments: Aboriginal carved trees of New South Wales. Australian

Natural History 21(7): 302-305. Ben Eliahu, M.N., P.A. Hutchings and C.J. Glasby, 1984. Ceratonereis lizardensis n.sp. (Polychaeta: Nereididae) and Malacoceros indicus (Spionidae) from a mangrove habitat at Lizard Island, North Queensland. In 'Proceedings of the First International Polychaete Conference, Sydney, July, 1983' (ed. P.A. Hutchings): 91-97. Linnean Society of New South Wales,

Sydney. Berents, P.B., 1985. Warragaia rintouli n.gen. & n.sp. (Amphipoda: Urohaustoriidae) from New South Wales, Australia. Records of the Australian Museum 36(5): 253-257. Boles, W.E., 1984. Foreword. In 'Nests and eggs of birds found breeding in Australia and Tasmania, I'. A.J. North, 1904. Australian Museum Special Catalogue No. I. Facsimile edition. Oxford University Press, Melbourne.

Boles, W.E., 1984. Kookaburras. Radio script produced by the

Australian Broadcasting Corporation, Sydney.

Boles, W.E., 1985. Southern specimen records of the Broad-billed Flycatcher, Sunbird 14: 80-82.

Boles, W.E., 1985. Buff-breasted Paradise-Kingfisher.

Australian Natural History 21(7): 289.

Boles, W.E., 1985. Review of 'The atlas of Australian birds' by M. Blakers, S.J.J.F. Davies and P.N. Reilly, Australian Natural History 21(7): 311.

Boles, W.E., K. Bartram and G.P. Clancy, 1985. First specimen record of the White-necked Petrel for Australia. Australian Birds 19: 51-52.

Bolton, L. and J. Specht, 1984. Polynesian and Micronesian artefacts in Australia. Vol. II. New Zealand and Eastern Polynesia. Australian Museum, Sydney.

Bolton, L. and J. Specht, 1985. Polynesian and Micronesian artefacts in Australia. Vol. III. Western Polynesia. Australian Museum, Sydney.

Bruce, N.L., 1984. A new family for the isopod crustacean genus Tridentella Richardson, 1905, with description of a new species from Fiji. Zoological Journal of the Linnean Society 80: 447-455

Cogger, H.G., 1984. Reptiles in the Australian arid zone. In 'Arid Australia' (eds H.G. Cogger and E.E. Cameron): 235-252. Australian Museum, Sydney.

Cogger, H.G., 1984. Marine reptiles. In 'Reader's Digest Book of the Great Barrier Reef': 294-297. Reader's Digest, Sydney, pp.384.

Cogger, H.G., 1984. Australian reptiles in colour. 2nd edition.

Reed Books, Sydney, pp.122. Cogger, H.G., 1984. Reptiles of Australia. 2nd edition. Reed Books, Sydney, pp.24.

Cogger, H.G. and E.E. Cameron (eds), 1984. Arid Australia. Australian Museum, Sydney, pp. 338.

Coote, B.K., B. Bersins and J. Hodge, 1985. Photography, filming, and video in museums and historic institutions. Recommendations of the Council of Heritage Organisation (N.S.W.). Museums Association of Australia Inc., N.S.W. Davies, P.J. and P.A. Hutchings, 1983. Initial colonization, erosion and accretion in coral substrate: experimental results, Lizard Island, Great Barrier Reef, Coral Reefs 2: 27-37 Deacon, C., 1984. Exploring the Great Barrier Reef. Boosting fish numbers with artificial reefs. Marine reserves: conservation or recreation? Australian Natural History 21 (5):

188-190, 198-199. Deacon, C., 1984. The expatriate. Billy Blue 85: 10, 34, 38. Flannery, T.F. and M. Archer, 1985. The macropodoids (Marsupialia) of the early Pliocene Bow local fauna, central eastern New South Wales. Australian Zoologist 21: 357-84.

Flannery, T.F. and B. Gott, 1985. The Spring Creek locality. A late Pleistocene megafaunal site from southwestern Victoria. Australian Zoologist 21: 385-422.

Flannery, T.F. and C. Hann, 1984. A new macropodine genus and species (Macropodidae: Marsupialia) from the early Pleistocene of southwestern Victoria. Australian Mammalogy

Flannery, T.F., S. Van Dyck and M. Krogh, 1985. Notes on the diet, habitat and abundance of the new Guinea murid (Rodentia) Xenuromys barbatus (Milne-Edwards, 1900). Australian Mammalogy 8: 111-116.

Glasby, C.J., 1984. A review of the Dorvillea and Schistomeringos (Annelida, Polychaeta) chiefly from southern and eastern Australia, with a description of a new species of Schistomeringos. In 'Proceedings of the First International Polychaete Conference, Sydney, July, 1983' (ed. P.A. Hutchings): 98-111. Linnean Society of New South Wales,

Goldman, B., 1984. Fishes and conserving for the future. In 'Readers' Digest Book of the Great Barrier Reef': 242-293, 374-376. Readers' Digest, Sydney.

Gowing, G. and H.F. Recher, 1984. Length-weight relationships for invertebrates from forests in south-eastern New South Wales. Australian Journal of Ecology 9: 5-8. Grav, M.R., 1984. A guide to funnel web spider identification. Medical Journal of Australia 141: 837-840.

Gray, M.R. and B.Y. Main, 1985. Further studies on the

systematics of Australian Diplurinae (Chelicerata: Mygalomorphae: Dipluridae). Description of the male of Troglodiplura lowryi, with notes on its affinities. Psyche 92(1): 25-30.

Greer, A.E., 1985. The relationships of the lizard genera Anelytropis and Dibamus. Journal of Herpetology 19(1): 116-156

Greer, A.E., 1985. Facial tongue-wiping in xantusiid lizards: its systematic implications. Journal of Herpetology 19(1): 174-175.

Griffin, W.L., S.Y. Wass and J.D. Hollis, 1984. Ultramafic xenoliths from Bullenmerrie and Gnotuk maars, Victoria, Australia: petrology of a sub-continental crust-mantle transition. Journal of Petrology 25: 53-87.

Hickey, G., 1984. The Numbat: digging in for a last stand. Australian Natural History 21(7): 272.

Hickey, G., 1985. The Leathery Turtle. Australian Natural History 21 (8): 344.

Hickey, G., 1985. Australian Cassowary. Australian Natural History 21(9): 385.

Hodgson, L., 1984. Shark netting: a costly security blanket. Australian Natural History 21 (7): 293.

Hoese, D.F., 1984. Gobioidei: relationships. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 588-591. American Society of Ichthyologists and Herpetologists Special Publication No. 1, pp.760.

Hoese, D.F. and S. Reader, 1985. A new gobiid fish, Fusigobius duospilus, from the tropical Indo-Pacific. Special Publication of the J.L.B. Smith Institute of Ichthyology 36:

Hollis, J.D., 1985. Volcanism and upper mantle-lower crust relationships: evidence from inclusions from alkali basaltic rocks. In 'Volcanism in eastern Australia, with case histories from New South Wales' (eds F.L. Sutherland, B.J. Franklin and A.E. Waltho). Publications of the Geological Society of Australia, New South Wales Division, 1: 33-47.

Hollis, J.D. and F.L. Sutherland, 1985. Occurrence and origins of gem zircons in eastern Australia. Records of the Australian Museum 36(6): 299-311.

Horton-James, D., 1984. Comparison of a manual environmental monitoring system with a computer based system. In 'Proceedings of ICOM 7th Triennial Meeting in Copenhagen', Vol. II: 26-28.

Hunt, G.S., 1985. Taxonomy and distribution of Equitius in eastern Australia (Opiliones: Laniatores: Triaenonychidae). Records of the Australian Museum 36(3): 107-125.

Hutchings, P.A. (ed.), 1984. Proceedings of the First International Polychaete Conference, Sydney, July, 1983. Linnean Society of New South Wales, Sydney, pp.483.

Hutchings, P.A., 1984. A preliminary report on the spatial and temporal patterns of polychaete recruitment on the Great Barrier Reef. In 'Proceedings of the First International Polychaete Conference, Sydney, July, 1983 (ed. P.A. Hutchings): 233-237. Linnean Society of New South Wales,

Hutchings, P.A., 1984. Marine worms. In 'Reader's Digest Book of the Great Barrier Reef': 164-171. Reader's Digest,

Hutchings, P.A., 1984. Phylum Annelida. In 'A coral reef handbook. A guide to the fauna, flora and geology of Heron Island and adjacent reefs and cays' (eds P. Mather and I. Bennett): 52-53. Handbook Series No. 1. Australian Coral Reef

Hutchings, P.A., 1985. Why worms, Australian Natural History 21(8): 341-343.

Hutchings, P.A. and A. Murray, 1984. Taxonomy of polychaetes from the Hawkesbury River and the southern estuaries of New South Wales, Australia. Records of the Australian Museum Supplement 3, pp.119.

Jenkins, B.W., 1984. A new siphonariid (Mollusca:Pulmonata) from south-western Australia. Journal of the Malacological Society of Australia 6(3-4): 113-123.

Jenkins, B.W., 1984. Southern Australian Liotiidae. Australian Shell News 47: 3-5.

Jenkins, B.W., 1984. Northern Australian Liotiidae. Australian Shell News 48: 8-9.

Jones, A., 1984. Sedimentary relationships and community structure of benthic crustacean assemblages of reef-associated sediments at Lizard Island, Great Barrier Reef. Coral Reefs

Jones, A., 1985. The Hawkesbury: natural history of an estuary. Australian Natural History 21(8): 356-359. Jones, A., 1985. The Hawkesbury: a river under threat. Australian Natural History 21 (9): 404-407.

Just, J., 1984. Siphonoecetinae (Crustacea, Amphipoda, Corophiidae) 3: Concholestes Giles, 1888 and Africoecetes Just, 1983. Steenstrupia 10 (8): 225-234.

Khoo, K.C., 1985. The Australian species of Cyamops Melander (Diptera: Periscelididae). Australian Journal of Zoology 32: 527-536.

Leis, J.M., 1984. Family Diodontidae. In 'FAO species identification sheets for fisheries purposes: the Western Indian Ocean' (eds W. Fischer and G. Bianchi): 8pp. United Nations Fisheries and Agriculture Organisation, Rome.

Leis, J.M., 1984. Tetraodontoidei: development. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 447-450. American Society of Ichthyologists and Herpetologists Special Publication No. 1, pp.760.

Leis, J.M., 1984. Tetraodontiformes: relationships. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 459-464. American Society of Ichthyologists and Herpetologists Special Publication No. 1, pp.760.

Leis, J.M. and M.L. Bauchot, 1984. Catalogue critique des types de poissons du Muséum National d'Histoire Naturelle (Famille des Diodontidae). Bulletin de Muséum National d'Histoire Naturelle Paris, 4e séries, section A, No. 3, Supplément: 83-101.

Leis, J.M. and W.J. Richards, 1984. Acanthuroidei: development and relationships. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 547-551. American Society of Ichthyologists and Herpetologists Special Publications No. 1, pp. 760. Lindsey, T.R., 1984. New South Wales bird report for 1982.

Australian Birds 18(3): 37-69.

Loch, I.W., 1984. Raine Island: a foul hen roost. Australian Natural History 21(5): 181-183.

Lowry, J.K., 1984. Systematics of the pachynid group of lysianassoid Amphipoda (Crustacea). Records of the Australian Museum 36(2): 51-105.

Lowry, J.K., 1985. Two new species of Cerapus from Samoa and Fiji (Crustacea: Amphipoda: Ischyroceridae). Records of the Australian Museum 36(4): 157 168.

Lowry, J.K. and G.C.B. Poore, 1985. The ampeliscid amphipods of south-eastern Australia. Records of the Australian Museum 36(5): 259-298.

Lowry, J.K. and H.E. Stoddart, 1984. Redescriptions of Schellenberg's types of Lysianopsis subantarctica and Paralysianopsis odhneri (Amphipoda, Lysianassidae). Crustaceana 47(1): 98-108.

Lowry, J.K. and H.E. Stoddart, 1984. Taxonomy of the lysianassoid genera Phoxostoma K.H. Barnard, Conicostoma Lowry and Stoddart and Ocosingo J.L. Barnard (Amphipoda, Gammaridea). Crustaceana 47(2): 192-208.

McAlpine, D.K., 1984. Pollination of orchids by insects. Proceedings of A.N.O.S. Anniversary Workshop 11: pp.4.

McAlpine, D.K., 1984. The species of Pseudoleria introduced into Australia (Diptera, Heleomyzidae). General and Applied Entomology 16: 45-48.

McAlpine, D.K., 1985. Taxonomic notes on the genus Zale McAlpine (Diptera: Canacidae). Australian Entomological Magazine 11(6): 81-82

McAlpine, D.K., 1985. The Australian genera of Heleomyzidae (Diptera, Schizophora) with a reclassification of the family into tribes. Records of the Australian Museum 36(5): 203-251.

McAlpine, D.K. and G. Ferguson, 1984. New insect gallery for the Australian Museum. Australian Entomological Society News Bulletin 20: 115.

McDonald, P.M., 1984. Museums. In 'Collins Australian Encyclopaedia': 442-445. Collins, Sydney.

McDonald, P.M. and I. Willis, 1984. School groups are welcome. National Trust of Australia (N.S.W.), Sydney. Meehan, B., 1985. Bandeiyama. She keeps going. In Fighters and singers. The lives of some Aboriginal women' (eds I. White, D. Barwick and B.B. Meehan). Allen and Unwin, Sydney

Meehan, B., S. Brockwell, J. Allen and R. Jones, 1985. The Wetland sites. In 'Archaeological researches in Kakadu National Park 1981-84' (ed R. Jones): 103-153. Prehistory Department, RSPacS. Australian National University, Canherra

Moser, H.G., E.H. Ahlstrom and J.R. Paxton, 1984. Myctophidae: development. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 218-239. American Society of Ichthyologists and Herpetologists Special Publication No. 1, pp.760.

Murdy, E.O. and D.F. Hoese, 1985. Revision of the gobiid fish genus Istigobius. Indo-Pacific Fishes 4: 1-41. National Photographic Index of Australian Wildlife, 1985.

The waterbirds of Australia. Angus and Robertson, Sydney, pp.331.

O'Brien, S. and R. Thorman, 1984. Mangroves, people and factories: Sydney's Bicentennial Park 1988. Australian Natural History 21(7): 197.

Pain, C. and J. Specht, 1984-85. Tectonic stability of West New Britain, Papua New Guinea: evidence from cave sediments. Search 15(11-12): 343-4.

Parr, L., 1984 Fish populations threatened by inadequate quarantine laws. Australian Natural History 21(5): 197. Paxton, J.R., 1984. Family Monocentridae. In 'FAO species identification sheets for fisheries purposes: the Western Indian Ocean' (eds W. Fischer and G. Bianchi): 3pp. United Nations Fisheries and Agriculture Organisation, Rome.

Paxton, J.R., E.H. Ahlstrom and H.G. Moser, 1984. Myctophidae: relationships. In 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 239-244. American Society of Ichthyologists and Herpetologists Special Publication No. 1, pp.760.

Paxton, J.R. and D.F. Hoese., 1985. The Japanese sea bass, Lateolabrax japonicus (Pisces, Percichthyidae), an apparent marine introduction into eastern Australia. Japanese Journal of Ichthyology 31(4): 369-372.

Pogson, R. and J. Henley, 1984. Age dating — the atomic theory. Minerological Society of New South Wales Mineralogical News 87: 6-7.

Ponder, W.F., 1985. A review of the genera of the Rissoidae (Mollusca: Mesogastropoda: Rissoacea). Records of the Australian Museum (1984) Supplement 4: 1-221.

Ponder, W.F., 1985. South Australian Mound Springs. Relict faunas in the desert. Australian Natural History 21(8): 352-355.

Ponder, W.F., 1985. A revision of the genus *Botelloides* (Mollusca: Gastropoda: Trochaecea). Special Publication, South Australian Department of Mines and Energy 5: 301-327.

Pyke, G.H., 1984. Optimal foraging: a critical review. Annual Review of Ecology and Systematics 15: 523-75.

Pyke, G.H., 1985. Seasonal patterns of abundance of insectivorous birds and flying insects. The Emu 85: 34-39.

Quinn, H.R. and G.A. Mengden, 1984. Reproduction and growth of Bufo houstonensis (Bufonidae). South West Naturalist 29(2): 189-195.

Recher, H.F., 1984. Use of bird census procedures in Australia: a review. *In* 'Methods of censusing birds in Australia'. Royal Australian Ornithologists Union Report No. 7.

Recher, H.F., 1984. The 'conservation ethic' in practice. Australian Natural History 21(4): 152-154.

Reid, N., T.R. Lindsey, G. Carpenter, D. Harper and R. Kernot, 1984. New records of Rose Robins in South Australia, with comments on plumage and previous reports of Rose and Pink Robins. South Australian Ornithologist 29: 100-105.

Rennis, D.S. and D.F. Hoese, 1985. A review of the genus *Parioglossus*, with descriptions of six new species (Pisces: Gobioidei). Records of the Australian Museum 36(4): 169-201.

Richards, W.J. and J.M. Leis, 1984. Labroidei: development and relationships. *In* 'Ontogeny and systematics of fishes' (eds H.G. Moser, W.J. Richards, D.M. Cohen, M.P. Fahay, A.W. Kendall and S.L. Richardson): 542-547. American Society of Ichthyologists and Herpetologists Special Publication No. 1, pp. 760.

Ritchie, A., 1984. Conflicting interpretations of the Silurian agnathan, *Jamoytius*. Scottish Journal of Geology 20(2): 249-256.

Ritchie, A., 1984. A new placoderm, *Placolepis* gen. nov. (Phyllolepidae), from the Late Devonian of New South Wales, Australia. Proceedings of the Linnean Society of New South Wales 107(3): 321-353.

Ritchie, A., 1985. Ainiktozoon loganense Scourfield, a protochordate? from the Silurian of Scotland. Alcheringa 9: 117-142.

Ritchie, A., 1985. Opal fossils — flashes from Lightning Ridge. Australian Natural History 21(9): 396-398.

Rowe, F.W.E., 1984. Revised submission regarding the nominal genus *Diplosoma* MacDonald, 1859 (Ascidiacea), and proposed alternative designation of *Leptoclinum fulgens* Milne Edwards, 1841, as type species of *Leptoclinum* Milne Edwards, 1841, Z.N. (S). 1766. Bulletin of Zoological Nomenclature 41(4): 260-262.

Rowe, F.W.E. and L.L. Vail, 1984. Crown-of-Thorns: G.B.R. not under threat. Search 15(7-8): 211-213.

Rowe, F.W.E. and L.L. Vail, 1984. Forum (Discussion of Crown-of-Thorns on the G.B.R.). Australian Natural History 21(5): 195-196.

Rowe, F.W.E. and L.L. Vail, 1985. Reply (to R.H. Bradbury et al. 'The Crown-of-Thorns: coping with uncertainty'). Search 16 (3-4): 109

Rudman, W.B., 1984. The date and authorship of *Bornella* and *Ceratosoma* (Nudibranchia) and other molluscs collected during the voyage of HMS Samarang 1843-46. Malacological Review 17: 103-104.

Rudman, W.B., 1985. The Chromodorididae (Opisthobranchia: Mollusca) of the Indo-West Pacific: Chromodoris aureomarginata, C. verrieri and C. fidelis colour groups. Zoological Journal of the Linnean Society 83(3): 241-299. Sadlier, R.A., 1984. A new Australian scincid lizard, Menetia concinna from the Alligator Rivers Region, Northern Territory. Records of the Australian Museum 36(2): 45-49. Sadlier, R.A., 1985. A new Australian scincid lizard, Ctenotus coggeri, from the Alligator Rivers Region, Northern Territory. Records of the Australian Museum 36(3): 153-156. Shields, J. and H.F. Recher, 1984. Breeding bird censuses: an evaluation of four methods for use in sclerophyll forest. Corella 8: 29-42.

Shuter, E. and D.K. McAlpine, 1985. First known larvae of Teratomyzidae (Diptera). Australian Entomological Society News Bulletin 21:36.

Smithers, C.N., 1984. Notice of some interesting specimens of Danaus hamatus hamatus (W.S. Macleay) (Nymphalidae) and Pieris rapae (L.) (Pieridae) Lepidoptera. Australian Entomological Society News Bulletin 20(2): 48.

Smithers, C.N., 1984. The Psocoptera of South Australia. Records of the South Australian Museum 18(20): 453-495.

Smithers, C.N., 1984. New Australian records of Psyllipsocidae with comments on the spelling of Psocathropos Ribaga (Psocoptera: Psyllipsocidae). Australian Entomological

Smithers, C.N., 1984. The Neuroptera of Barron and nearby islands off the west coast of Western Australia. Australian Entomological Magazine 11(4-5): 61-68.

Magazine 11(1): 1-4.

Smithers, C.N., 1984. The Psocoptera of Barron and Bordie Islands, Western Australia. Entomologica Scandinavica 15: 215-226.

Smithers, C.N., 1985. Migration records in Australia. 5. Lycaenidae and Nymphalinae (Lepidoptera). Australian Entomological Magazine 11(6): 91-97.

Smithers, C.N., 1985. New records of *Pagonella bispinus* (Stal) (Hemiptera: Membracidae) from eastern Australia and Barron Island, Western Australia. Australian Entomological Magazine 12(2): 35-36.

Smithers, C.N. and W.H. Butler, 1985. Dragonflies and damselflies (Odonata) from Barron and nearby islands off the coast of Western Australia. Australian Entomological Magazine 12(1): 9-12.

Specht, J. and J. Fields, 1984. Frank Hurley in Papua: photographs from the 1920-1923 expeditions. Robert Brown and Associates, Bathurst.

Sutherland, F.L., 1985. Regional controls in eastern Australian volcanism. In 'Volcanism in eastern Australia with case histories from New South Wales' (eds F.L. Sutherland, B.J. Franklin and A.E. Waltho). Publications of the Geological Society of Australia, New South Wales Division, 1: 13-32. Sutherland, F.L. and J.D. Hollis, 1984. The composite lithosphere of eastern Australia — records from volcanic rocks. Geological Society of Australia Abstract Series 12: 503-504.

Temby, P.A., F.L. Sutherland and J.D. Hollis, 1984. Distribution and possible origin of diamonds in eastern Australia. Geological Society of Australia Abstract Series 12: 516-517.

Walston, S., 1984. Techniques for minimising environmental damage to wooden objects with particular reference to seasoning. *In* 'Proceedings of ICOM 7th Triennial Meeting in Copenhagen', Vol. II: 56-62.

White, I., D. Barwick and B.B. Meehan (eds), 1985. Fighters and singers. The lives of some Aboriginal women. Allen and Unwin, Sydney.

White, M.E., 1984. Australia's prehistoric plants. Methuen, Sydney, pp.32.

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 W. Starck, PhD F.H. Talbot, MSc,PhD,

FLS.FRZS.FRSA G. Theischinger M.J. Whitten, BSc(Hons), BA.PhD.FTS

J.B. Burch, PhD R. Catala, DSc W. Dawbin, DSc B. Egloff, MA, PhD F. Evans

M. Archer, PhD

J. Forshaw K. Huffman

F.D. McCarthy, DipAnthrop J.E. Marlow, BSc(Hons)

T.R. New, PhD J. Pickett, MSc, DPhilNat

A.A. Racek 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 J. Kerslake 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 Rose Lord. Typesetting by Keen Permofilm. Printed by Rodenprint.

All photography courtesy of John Fields & Kate Lowe of Photography Department, Australian Museum.

