



the australian museum
sydney

annual
report
1979-1980

COVER:

Sunset at Seal Rocks, Victoria where Museum field workers studied marine mammals in preparation for mounting a new Mammals Gallery in The Australian Museum in 1981. Photo John Fields/The Australian Museum.

The Australian Museum Trust Annual Report for the Year ended 30 June 1980

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THE AUSTRALIAN MUSEUM

Director D. J. G. Griffin, MSc, PhD

Deputy Director H. G. Cogger, MSc, PhD

Director Emeritus J. W. Evans, MA, ScD, DSc

Museum's Mission

The Australian Museum's mission is to increase and disseminate knowledge about and increase understanding and appreciation of man's natural environment and cultural heritage, especially in the Australian region.

As a natural history museum, The Australian Museum houses large collections of animals, rocks, minerals and anthropological artefacts. These constitute reference material which is used to identify, describe and classify the features of our natural environment and through further research to reach some understanding of the world around us; this is the Museum's scientific function. On the basis of this understanding, the museum creates exhibits and conducts educational programs through which people are encouraged to appreciate their natural environment and cultural heritage: this is the Museum's interpretive function. As a centre of expertise the museum provides information in response to requests from the public, industry and government: this is the Museum's service function. The museum seeks to be part of the community and, therefore, gives emphasis to good public relations and engages in promotional activities, including publishing, as part of its public responsibility to provide information about what it is doing.





Report of the President For the Year 1979-1980

The Honourable Neville Wran, QC, MP,
Premier of New South Wales.

Dear Premier,

I have pleasure in presenting to you the Annual Report of The Australian Museum Trust for the year ended 30 June 1980.

The Trust met ten times during the year, and in this period the following changes in composition of the Trust occurred:—

Mr R. C. Richard, a Trustee since February 1965, resigned in February 1980 having reached the statutory retiring age. Professor A. H. Voisey, a Trustee since October 1966, retired in April 1980. Mrs Irena Wojak, a graduate of Sydney University and a social worker within the Polish Community, and I were appointed to the Trust for four years from 21 April 1980. Professor D. J. Anderson, a Trustee since November 1974 and Mr J. A. Landels were elected to the Trust effective from 21 April 1980. Mr R. C. Richard and Emeritus Professor Alan Voisey have given long and distinguished service to the Trust and to the Museum. Professor Voisey has subsequently been appointed an Associate of the Museum.

During the year the Trust pursued its objective of projecting the Australian Museum in a manner to interest and involve the public of New South Wales, while still maintaining its highly respected international reputation. Internal exhibitions and rearrangements of facilities and displays have been planned to draw attention to the most significant aspects of Australia's natural and cultural heritage.

Externally, the Trust continues to give high priority to the needs of people on the outskirts of Sydney and in the more remote areas of the State. The public response to the Outer Urban Exhibition programme "Museum on the Road" and to the Museum Train clearly justifies these initiatives.

The Trust and senior staff continue to review all activities in order to achieve the highest efficiency in all aspects of Museum operations. In particular Trust and staff are deeply conscious of the need for constant improvement and extension of communication with the community at all levels, and so fulfil the objectives of this Museum.

In these deliberations the Trust has appreciated the interest and involvement of senior staff, and has particularly benefited from analysis of the carefully prepared objective report by the Director, Dr D. J. G. Griffin, subsequent to his visit to overseas museums during October, 1979.

One significant development which derived directly from Dr Griffin's visit overseas, was the establishment

of a number of sub-committees of the Trust. These sub-committees ensure a regular and continuing review of, and forward planning for, the major facets of the Museum—notably its staff, its finance, its role, its program and its buildings. Each sub-committee benefits by the involvement of senior staff and members of the Trust.

The Trust is responsible under the Act for the adoption of policies and programs consistent with the aims and objectives of The Australian Museum: the propagation of knowledge about the natural environment of Australia and the increase of that knowledge. Particular emphasis is to be given to biology, anthropology and geology.

The sub-committees are: (i) Finance and Staffing, (ii) Community Relations, (iii) Program Review, (iv) Buildings and Planning. In forward planning the Museum Trust has also established a special Bicentenary Committee to make recommendations on the role The Australian Museum should play in the 1988 celebrations.

Such forward planning characterizes the philosophy of the Trust, which greatly appreciates the support for its endeavours of you and your Government.

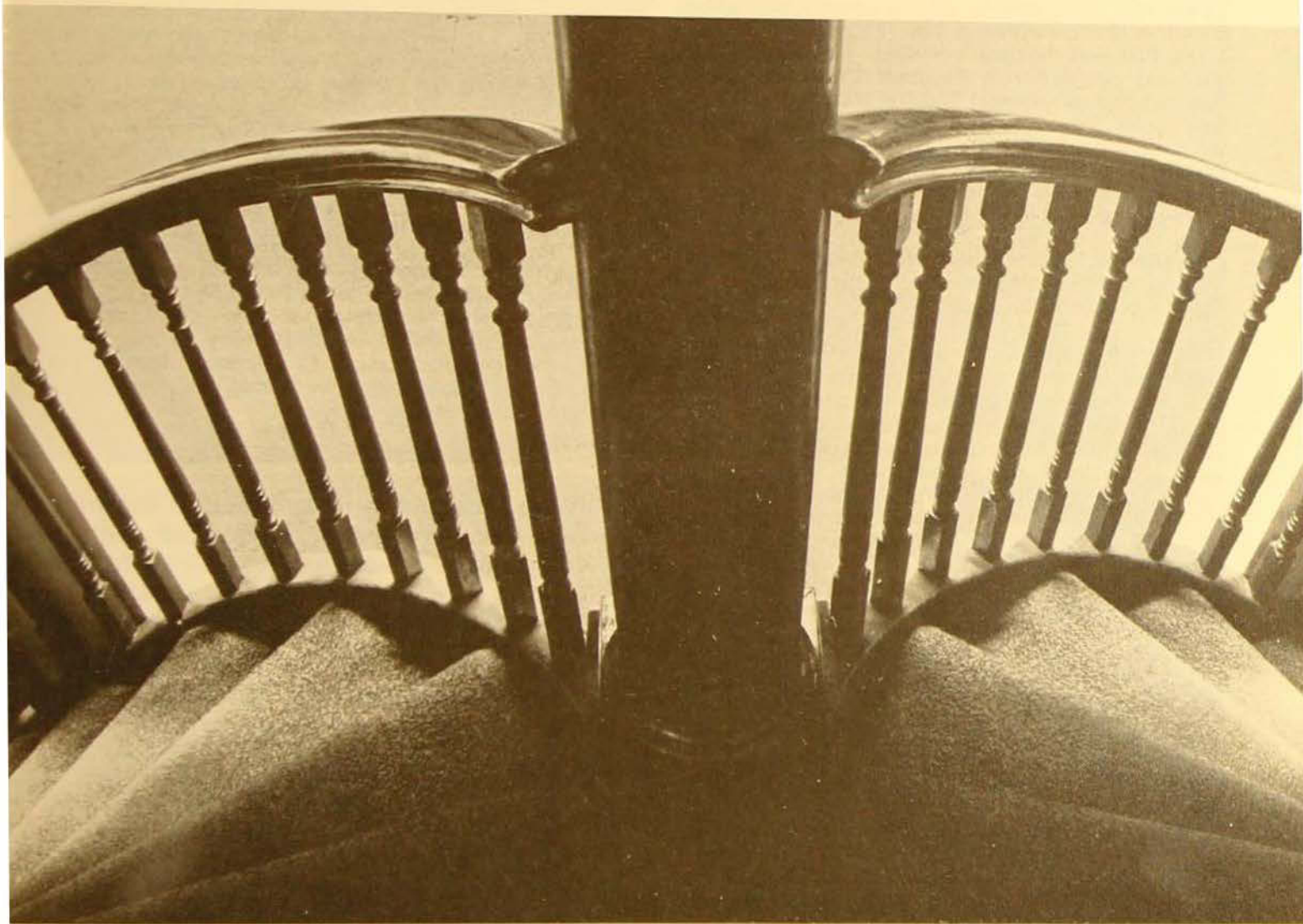
The subsidy on donations from private benefactors has stimulated efforts of the Trust in seeking funds for specific projects from private donors. To recognize this increasing private support of the Museum, the Trust has commissioned a benefactor's board to be displayed in a prominent place within the Museum. Already this board contains the names of ten major benefactors and we are confident that this number will increase significantly through the 1980's.

This annual report aims to accurately record the principal activities of the Museum and to encourage the greatest possible involvement of all sectors of the public of New South Wales in the continuing development of The Australian Museum.

The Trust hopes that you and your Government will continue to give significant recognition to the Museum's efforts, initiatives and achievements.

J. T. Baker,
President.

Right: Glimpses of past glories are seen in some of the original features of The Australian Museum interior decoration. This section of the beautiful twin winding cedar staircase in the Long Gallery is typical of the style which is undergoing restoration in the oldest section of the building. Photo by John Fields/The Australian Museum.



Report of the Director For the year 1979-80

The Museum continued a wide variety of activities during the year. Several new programs were introduced, exhibition planning was refined and the Corporate Plan was thoroughly revised. Significant assistance was obtained from the general community, from business and government and the introduction by the New South Wales Premier, the Honourable Neville Wran, of a new subsidy scheme for special projects funded from non-government sources. Of special pleasure to me was the continuing enthusiastic support given by the Trust to the Museum's staff.

I travelled to North America and England in October 1979 to observe management, public activities and national programs for museums.

Corporate Plan Review Three years after the Museum first adopted a detailed corporate plan a substantial review commenced of the objectives and policies, and an examination of the appropriateness of these in the light of current economic trends and community attitudes. Numerous discussions were held amongst museum staff and by the Trust. The new plan for 1980-1990 was adopted by the Trust on 22 November 1979. Without disturbing the statement of mission, responsibility for pursuing each of the various policies of the plan is now placed upon designated senior staff and the Director. Review of achievements within the four objectives—Management, Increase of Knowledge, Interpretation of Knowledge and Community Support—and the setting of realistic targets wherever possible will be the major concern of senior staff in the coming year. In summarizing the plan it was stated—

"If the Museum is to succeed in the next 10 years everyone associated with it will need to devote themselves to the task. The Trust will need to focus on its special responsibilities of policy formulation and review; management will need to increase its effectiveness and efficiency, scientific staff need to concentrate on programs which offer unique opportunities to the Museum, interpretation staff will need to effectively reach the community. The need for community support must be in the forefront of the minds and actions of everyone every day."

Travelling to Museums in North America and England put me in touch with a number of major museum programs being developed in the face of severe economic restraint. At museums in San Francisco, in British Columbia and Alberta I was able to learn of successful programs involving trained volunteers in the education activities of museums. Docents, volunteer educators, are trained and evaluated carefully and allow the museum to reach significantly more people than would otherwise be the case. In many museums visited, major developments have taken place in the way exhibitions are planned and evaluated, especially the Royal Ontario Museum and the British Museum

(Natural History). The success of these and other programs in promotion and publicity of museums is of considerable interest to The Australian Museum, and appropriate aspects will be incorporated in the immediate development plan.

In association with discussions on the Corporate Plan, scientific programs in the Museum were reviewed, commencing with biological research and curatorial programs. Involving outside reviewers with distinction in related fields of research and administration, these reviews sought out museum programs of most value to the museum and the community in areas where the Museum has special opportunities. Professor M. J. White, Department of Genetics, University of Melbourne and Dr A. J. Gilmour, FTS, acted as external reviewers. Thus, several areas in marine biology, where the Museum has amassed major collections and where there is a long history of research and well-planned and executed programs being carried forward, will receive special attention in the future as will programs concerned with terrestrial ecology of Australia's lizards, snakes and spiders. Reviews of geological and anthropological programs will take place in the coming year. Regular reviews of programs are planned to take place every three years.

"If the Museum is to succeed in the next ten years everyone associated with it will need to devote themselves to the task . . . community support must be in the forefront of the mind and actions of everyone every day."

Provision of additional funds to the Museum during the year combined with careful budgetary control allowed the introduction of several new programs.

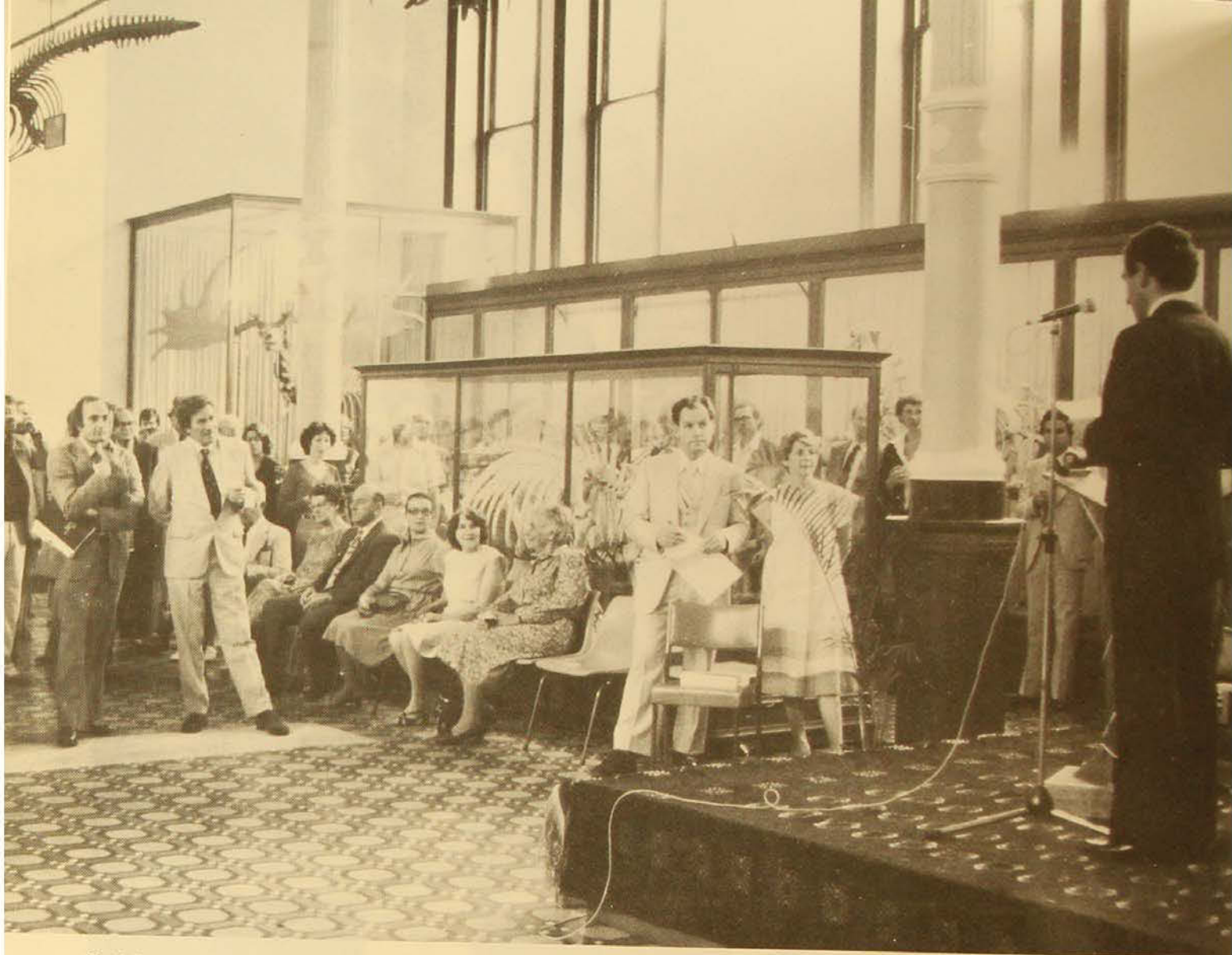
A visiting curator scheme was started under which scientists from other museums or from universities will visit The Australian Museum for up to a year to study major collections or carry out other research in areas of special interest.

Grants to post-graduate students were continued. Seven grants totalling \$5,000 have been awarded to students of universities in New South Wales, Queensland and South Australia. Research will be supported

Top: Dr Eugene Gaffney, a Visiting Curator from The American Museum of Natural History, shows members of the media the fossilized skull of the extinct, horned turtle *Melolania*, found on a collecting trip with the Department of Palaeontology to Lord Howe Island. Photo by John Fields/The Australian Museum.

Bottom: The "Sunday at the Museum" concerts, held the 2nd Sunday of each month, bring "life" into the Museum. Photo by Howard Hughes/The Australian Museum.





Paul Landa, then Minister for Planning and Environment, presents the opening address at the launching of the history of The Australian Museum, *Rare and Curious Specimens*. Photo by John Fields/The Australian Museum.

on catfishes, small crustaceans, rainforest insects, lizards, rosellas and sex change in coral reef fishes. This scheme was introduced three years ago to stimulate post-graduate research in zoology on topics of interest to the Museum.

A program of regular concerts and education activities for family groups was commenced in August 1979. "Sunday at the Museum" held once a month has drawn from 300 to 1 000 extra people to the Museum on the second Sunday of every month. Activities of this kind are now common in museums elsewhere.

This year saw the introduction of a new subsidy scheme by the Premier. For each two dollars raised from non-State Government sources by the Museum for special projects, the Government agreed to provide one dollar. Some \$97,000 was received as subsidy under this scheme, benefits flowing to travelling exhibitions, programs for handicapped children, exhibitions, Lizard Island Research Station and The National Photographic Index. Two major sponsorships were received late in the year. Unilever Australia Ltd generously agreed to provide \$50,000 towards the new exhibition to open late 1981 on the Abelam people of the East Sepik area of Papua New Guinea. BHP agreed to give a vital donation of \$50,000 to assist in the production of an exhibition on Aboriginal Australia to open late 1982. By 30 June 1980, some \$400,000 had

been raised in respect of 1980-1982 from private and non-State Government sources since May 1979.

During the year considerable progress was made with five major semi-permanent exhibitions, and plans were drawn up setting major guidelines for exhibitions, both temporary and semi-permanent to 1988. Additional funds made it possible to hire some staff on a short-term basis to assist with this active exhibitions program.

Progress was made during the year with preparation of a script for an audio-guided tour of the Museum's exhibitions. It is anticipated this will be introduced late 1980. Miss Patricia McDonald, Education Officer-In-Charge, made a major contribution to this.

"Museum people are to be more than commended for their dedicated efforts: the Museum's success, such as it has been, is due to them."

Further donations under the Commonwealth Government's Tax Incentives for the Arts scheme, including cultural material from the Abelam by Mr Stan G. Moriarty and Mrs Jean Mck. Moriarty, brought the total value of items acquired under this scheme to over \$400,000.

Within the area of education, whilst teaching of children in school groups continued as in previous years, "Drop-In After School" ended its third year funded

by the Bernard van Leer Foundation and the Bank of New South Wales renewed its sponsorship of the "Wandervan" travelling service for special groups including handicapped people. Also, a new program of "peer teaching", children teaching each other, has been introduced to The Australian Museum and in some museums overseas, and conducted with several schools here, it significantly assists children to a better personal understanding of the subject they have chosen. Following a pilot program in late 1979 four sessions are in hand for 1980, the second commenced in May 1980 and will conclude in August. The program has already demonstrated development of confidence in the children and stimulation of children to extend their knowledge, and has provided opportunities for children to speak with specialists at the Museum. Special class visits to gallery displays have been arranged, and specimens, colour slides, films and books have been loaned by the Museum for the peer teachers to use with classes at school. Children and teachers from schools in Annandale, Artarmon, Chatswood, Cromer, Killara, Neutral Bay, Ourimbah and Woollahra have enthusiastically joined the program.

Promotion of the Museum's popular science magazine, *Australian Natural History*, was considerably upgraded, and changes in the design of the magazine were implemented.

During the year great pressures were placed on existing staff, in particular through the reduction of the number of permanent staff positions. Little progress was made in the adjustment of salary rates for certain staff: discussions continue on this matter. No progress was made by me and senior colleagues in reviewing the plans drawn up in 1976 for redevelopment of the Museum: this will have to receive considerable attention in the 1980-81 year.

Although discussions continued with universities on closer involvement with museum scientists, especially in supervising postgraduate students, little progress was made in setting up any formal scheme. During the year I continued as Vice-President of the Museums Association of Australia, an appointed Councillor and member of the Executive of the National Trust of Australia (NSW), a member of the National Parks and Wildlife Advisory Council and a member of several other organizations including the Projects Committee of the World Wildlife Fund Australia.

Despite difficulties of space and limitations in numbers of staff, the Museum made considerable gains, not least in the regard held for it by the community. Museum people are to be more than commended for their dedicated efforts: the Museum's success, such as it has been, is due to them.

KEITH SUTHERLAND

Dr Keith Sutherland, OBE, DSc, PhD, FAA, FTS, ARIC, MIMMAust, FRACI, former Associate and Trustee of the Museum, died in January 1979 after a long illness. Dr Sutherland resigned from the Australian Museum Trust in June 1975 after nine years, having been President of the Trust for three years from 1972 to 1974.

Keith Sutherland, until his retirement Director of Research at CSR Ltd, was a distinguished scientist and administrator, having been the first Chairman of the NSW Science and Technology Advisory Council established in 1975. He was active in the Australian Academy of Science and the Australian Academy of Technological Science and from September 1977 until February 1979 he was President of the Australian and New Zealand Association for the Advancement of Science. As a Trustee of the Museum he was one of the foundation members of the Trust's committee for the Lizard Island Research Station. Keith had a particular interest in molluscs and accumulated a fine collection of them.

In recognition of the work of Keith Sutherland, the Trust has established an award to be made annually by way of grants for research studies in molluscs, to assist in travel, purchase of equipment and in any other way which would support an outstanding graduate student or talented amateur who would advance our knowledge and understanding of the classification or biology of molluscs.



Dr Keith Sutherland. Photo by courtesy E. Parkes.

The Next Ten Years Corporate Plan 1980-1990 Summary

The revised Corporate Plan for The Australian Museum sets out initiatives in the form of priorities for the Museum in the next 10 years to 1990: focus is on priorities for the next three years. The plan, based on that prepared three years ago for the period 1976-86, has again involved staff and Trust. Special features are the incorporation of a policy which is principally the responsibility of the Trust. The Plan is expressed through four objectives: management, increase of knowledge, interpretation of knowledge, and community support.

Central to the achievement of the management objective is involvement of the Trust in ensuring that policies and programs are reviewed, that details of the Plan are communicated to all staff and, that moral and financial support of the Museum is enhanced throughout the entire community.

The Corporate Plan will be implemented through four major divisions—Administration, Science, Exhibitions and Education. Publicity/Publications and Materials Conservation Sections will provide overall back-up and other arrangements, including delegation of authority which will encourage communication and the making of decisions as close to the "work face" as possible. Awareness of community attitudes is emphasized. Short-term planning procedures are to be continued. Within the context of "staff development", staff rotation and exchange schemes within the Museum and between the Museum and other organizations are to be pursued. Financial reporting systems are to be further improved, and the use of program budgeting is to be explored. Improvements in security are to be effected. The consequences of increasing prices and shortages of petroleum are to be taken into account especially through the conversion of the Museum's vehicle fleet from exclusive reliance on petroleum. Space for staff and visiting museologists and volunteers is to be improved where possible. Further financial support is to be sought from the private sector and granting agencies, where appropriate with the assistance of The Australian Museum.

Within the objective to increase knowledge, allocation of resources will be based on regular reviews of progress and on opportunities. Research and other programs which significantly overlap those conducted by other agencies will not proceed. Recently introduced visiting scholar programs will be continued and expanded, and schemes for assisting postgraduate studies in fields of special interest to the Museum will be maintained. Further emphasis will be given to the

use of computers in data storage and retrieval relating to the collections. The role of the Museum in ecological studies is to be reviewed, and the Museum will continue an interest in environmental planning. Research in materials conservation will concentrate on particular processes which lead to deterioration of cultural items, and attention will be paid to preservation and "revitalization" of indigenous arts. Financial support for acquiring outstanding items for the collections will be increased.

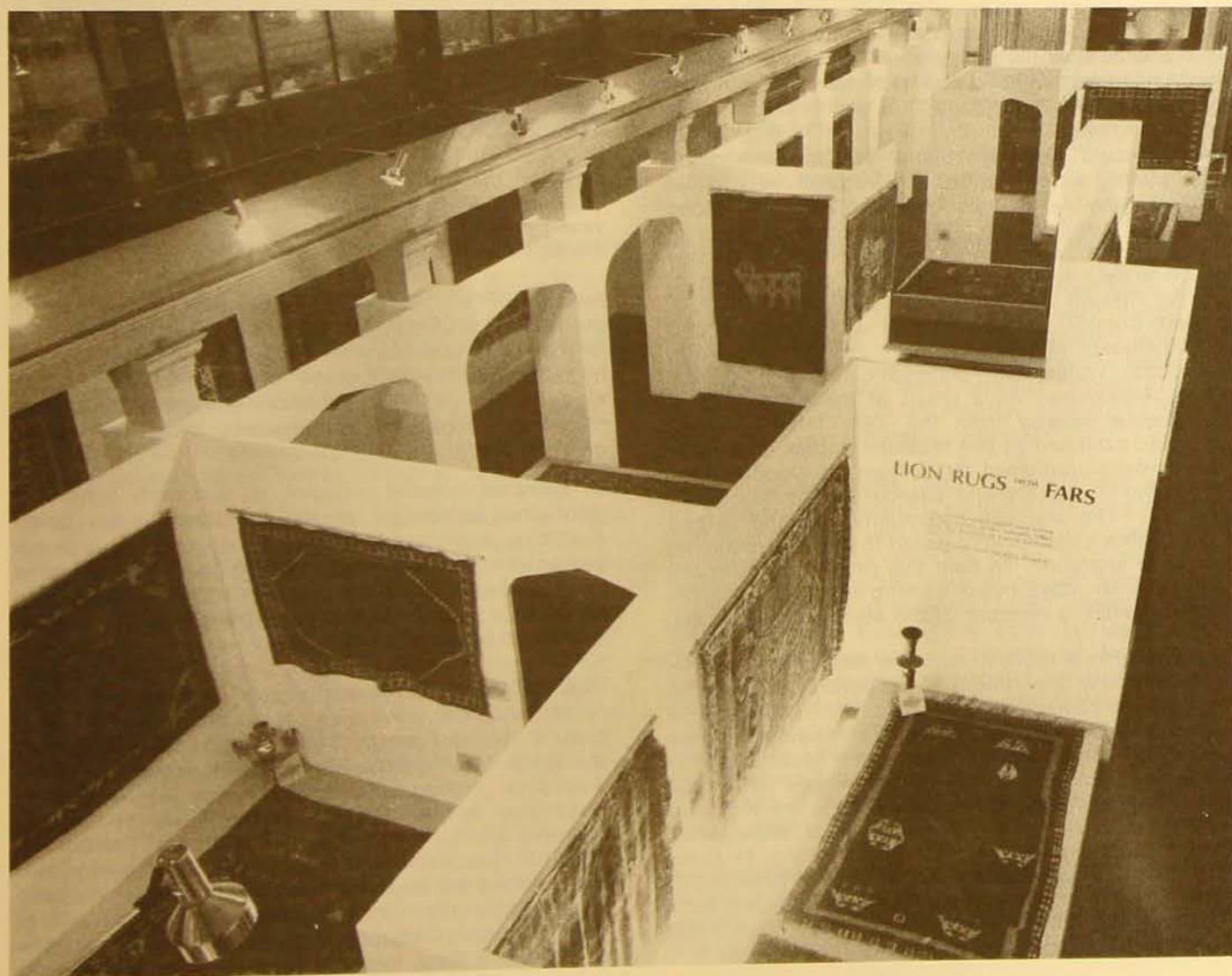
In the area of interpretation, whilst maximum attention will be given to achieving a program for semi-permanent exhibits of high quality, programs for a variety of temporary exhibits on subjects of topical interest, research programs and exhibits on exchange from other museums will continue; involvement of community groups will be sought and small portable exhibits will be developed for loan. Audio-guidance systems will be introduced. Surveys of exhibit effectiveness will be introduced. Extension services, a diversified program of international standing, will be continued through the outer urban exhibits scheme and the Museum Train. The "Wandervan" and the "Drop-In After School" programs will be continued with assistance of special funding and the expansion of the "school case" service is planned. At the same time services provided to school children visiting the Museum will be improved and continued efforts will be made to expand the awareness of teacher trainees of the educational opportunities offered by the Museum.

Special attention will be paid to improving the public space of the Museum to enhance visitor relaxation and enjoyment.

Community support of the Museum's programs will be sought through effective public relations including encouragement of the Museum Society. Publicity and promotion will be pursued through distribution of printed information, effective use of the media and advertising. Special attention will be paid to increasing the role of the Museum Shop in both education and revenue generation. Emphasis in publications will continue to be given to the "popular" magazine, *Australian Natural History* and the scientific series, *Records of The Australian Museum*; production of guides, catalogues and booklets will be increased. Effective marketing arrangements for publications will continue to be pursued.

Top: Anne Saunders, of the Education Section, acquaints a group of children with some of the mounted animals held at the Museum for closer inspections. Photo by John Fields/The Australian Museum.

Bottom: This view overlooking the Long Gallery shows the richness and variety of the examples of a unique art from Iran. Photo John Fields/The Australian Museum.



Department of Anthropology

This year the department consolidated earlier work. The Australian Aboriginal section's stone artefacts were moved to another location to make them more accessible. Visits to Aboriginal communities increased, purchases made and help given. Important acquisitions included both Aboriginal and non-Aboriginal artefacts, paintings and carvings. Donations received assisted with development of two new galleries, the Aboriginal and Abelam Galleries, and research was conducted on the development of western New Britain and Aboriginal settlement of the Flinders Range, South Australia. Universities used collections for research and teaching.

The department's chief concern is the indigenous cultures of the Pacific and Australia while other areas of interest include Indonesia, Africa, Asia and North America. It seeks to comment on the prehistory, traditional life styles and contemporary aspirations of these indigenous people, largely by gallery displays and research conducted in the field and among the Museum's substantial reserve collections. These activities are linked with a policy to acquire not only significant examples of truly traditional artefacts, but also items that reflect present cultural changes.

The Australian Aboriginal The section worked towards making its collections and register information readily accessible, and its entire collection of stone artefacts, housed in some 60 large steel cabinets at College Street, was moved to the Rushcutters Bay storage areas. In line with last year's redirection of activities, liaison with Aboriginals increased. Dr R. J. Lampert, Curator, visited communities on Bathurst and Melville Islands, at Wilcannia, Maclean and Redfern in New South Wales, and communicated with several other communities. As a result of these contacts, a photographic display from the Yuin Tribe, Wallaga Lake, was exhibited in this Museum and several large carvings were purchased direct from the wood carvers from Bathurst and Melville Islands for the Museum's collection. The Maclean community is being helped to establish a small local museum to display traditional Aboriginal artefacts. To help this project, the Department gave ten days basic training in curation to Ms Lynette Randal, a member of the Maclean community.

Responding to a request from the Redfern Aboriginal community, the department is temporarily storing the community's collection of artefacts in the Museum's Rushcutters Bay storage area. Extensive reference material on Aboriginal holdings in the Museum's collection were supplied to craft advisors and other representatives of Aboriginal communities in the Northern Territory at Elcho Island, Groote Eylandt, Millingimbi, Maningrida and Katherine. Ms Zoe Horning, in association with Mr Wandjuk Marika, Aboriginal Arts Board, prepared the Museum's 1980 calendar, featuring bark paintings from East Arnhem Land. More than 4 000 copies of these calendars were sold.

Collections Acquired Important collections were acquired including: a donation by Mr W. Bowmore, Newcastle, of a further twelve superb African items; a donation by Mrs D. Chitty, Pwllheli, Wales, of the Jones Collection of 19th century Aboriginal wooden artefacts originally from Naracoorte, South Australia. An historically important Japanese sword, once the property of the late Professor Sir T. Edgeworth David, was donated by Miss Mary David; a further sixty 19th century Aboriginal wooden artefacts, from northern New South Wales and southern Queensland, were purchased from Mr J. Magers and purchases of Indonesian material included 40 Balinese paintings, through Professor A. Forge, and 18 other items from Borneo, Sumatra and Sumba.

Mrs J. Moriarty donated six important carvings from the Abelam people of Papua New Guinea under the tax incentive scheme for the Arts.

New Galleries The development of two new galleries received additional impetus through donations. Unilever Australia Pty Ltd gave \$50,000 towards the Abelam Gallery. Ms D. Losche, temporary Curator, visited the Abelam people (East Sepik Province, Papua New Guinea) to obtain display items for the gallery. BHP gave \$50,000 towards the cost of a new Aboriginal Gallery.

Among other gallery developments, the three foyer cases displaying aspects of Indonesian culture were relocated and expansion of the exhibit begun. From October 1979 to February 1980 a display of African Tribal Art, selected from the collection donated last year by Mr W. Bowmore, featured in the Treasures of the Museum section.

Research Dr J. R. Specht continued his research on the history of settlement and economy of western New Britain with two months' field work devoted to the archaeological investigation of sites located during earlier visits. Together with other authors he also completed the preparation of an extensive research report on Long Island, Papua New Guinea.

Dr Lampert initiated research on the early history of Aboriginal settlement of the Flinders Range, South Australia, a project designed to dovetail in with his earlier research on Kangaroo Island. Two field trips were made to the area, one exploratory, the other in association with a geomorphologist, Dr P. J. Hughes, Australian National University.

Staff Activities Dr Specht served as President of the Anthropological Society of New South Wales, as a member of the Foreign Affairs Standing Committee for the South Pacific Culture's Fund, as a member of the Australian National Commission for UNESCO sub-committee for the Project for the Study of Oceanic Cultures and as editor of the newsletter of the Conference of Museum Anthropologists. Dr Specht also represented the department at the Museums' Association of Australia annual conference in Perth and at the Australian Archaeological Association Conference at Howmans Gap, Victoria. He was external examiner



Emeritus Professor A. P. Elkin.
Photo by Colin Roach/AIAS.

A. P. ELKIN

Emeritus Professor A. P. Elkin, one of the world's leading anthropologists, died on 9 July 1979. Professor Elkin was a member of the Australian Museum Trust from 1947-1972 and President of the Trust from 1962-1968.

Born 27 March 1891 at West Maitland, Adolphus Peter Elkin obtained his Bachelor of Arts degree at Sydney University in 1915 and was ordained as a minister in the Church of England. In 1927 he was awarded the degree of Doctor of Philosophy from London University for his thesis "Myth and Ritual in Australia". He worked for five years in the field among the Aborigines in the Kimberley region of Western Australia and in northern areas of South Australia. He became a member of the Australian National Research Council and a fellow of the Royal Anthropological Institute. Among his publications were *The Australian Aborigines*; *The Individual, Society and Change*; *Aboriginal Man of High Degree*; *Citizenship for the Aborigines*; and *The Diocese of Newcastle*.

Professor Elkin received numerous academic honours including the James Cook Medal presented by the Royal Society of NSW for outstanding work in science and human welfare. Following his retirement from the Chair of Anthropology at Sydney University in 1956 he devoted more time to writing and to field trips to Arnhem Land and Papua New Guinea. It was during this time that much of his energies were directed to The Australian Museum and Trust.

for a PhD thesis in the Department of Prehistory, Research School of Pacific Studies, Australian National University. Mr G. O'Donnell and Dr Lampert presented papers at the 50th ANZAAS Congress in Adelaide. The second National Conference of Museum Anthropologists, held at Brisbane, was attended by Ms Z. Horning, Ms H. Czuchnicka, Mrs T. Corkill, Ms D. Losche, Mr G. O'Donnell, Dr J. Specht and Dr R. Lampert.

Dr Lampert also represented the Museum on the Aboriginal and Historical Resources Advisory Committee of the National Parks and Wildlife Service, New South Wales and on the Landscape Planning Committee of the National Trust, New South Wales. He chaired the Advisory Committee on Human Remains of this Museum and continued to serve as a member of the Prehistory Advisory Committee of the Australian Institute of Aboriginal Studies, the council of the Australian Archaeological Association, the National Committee of Aboriginal History and the committee for investigating the proposed Sydney Rock Art Museum.

Dr Lampert was external examiner for a BA Honours thesis in the Department of Prehistory and Archaeology, University of New England, and for a PhD thesis in the Department of Prehistory and Anthropology, School of General Studies, Australian National University.

Aboriginal Trainee Mr P. Gordon joined the staff as a trainee under the National Employment Strategy for Aborigines, funded by the Commonwealth Employment Service, and is familiarizing himself with a wide range of departmental and other Museum activities to gain both anthropological knowledge and to fit him for employment as a museum assistant.

Temporary Assistants Mrs T. Corkill was employed as a temporary assistant, sorting the Australian ethnographic collection and relevant data as a step towards better accessibility through using a computer. C. Sadlier and T. Corkill were employed temporarily to assist moving the collection of stone artefacts from the batten cellar to Rushcutters Bay. M. Gunn and T. Corkill supervised by the Conservation Section, were employed temporarily to combat a serious moth infestation of the Australian and Pacific storage areas. Ms L. M. Bolton, funded by the Australian National Commission for UNESCO, completed her pilot survey of collections of Oceanic cultural property in major public institutions in Australia. This is the subject of a completed report, *Oceanic Cultural Property in Australia*.

Universities Several universities regularly used anthropological collections for research and teaching, notably the Anthropology Department, Sydney University. One third-year honours class studied compara-

tive human anatomy through the Museum's osteological collection during term, supervised by Professor R. V. S. Wright, and another third-year class studied the Museum's collection of Aboriginal Bark Paintings under the tutelage of Ms M. Dallas.

Doctorates Awarded At the same ceremony of the Australian National University at which Dr Lampert received his PhD, Dr F. D. McCarthy, a former Curator of Anthropology at the Museum, was awarded a DSc *honoris causa* for distinguished creative achievement as a scholar. A revised fourth edition of Dr McCarthy's classic memoir, *Australian Aboriginal Rock Art*, first published by the Museum in 1958 was launched this year.

Visitors England—Dr Quantrell, London. French Polynesia—F. Ollier, Musée de Tahiti et des Îles, Papeete. Germany (F.D.R.)—Dr I. Herrman, Stuttgart; Dr G. Mackensen, Übersee Museum, Bremen; and Dr T. Schultze, Westrum, Munich. Hungary—Professor G. Vargyas, Hungarian Academy of Sciences, Budapest. Indonesia—Mr Kacasungkana, Surabaya; Mr Scidar-minto, Semarang; Mr Soetrisno, Jogjakarta. Japan—Dr Koyanna, Osaka. Kenya—Dr F. Gerrits. New Hebrides—Mr J. McClancy, Port Vila. New Zealand—Dr P. Lincoln, University of Auckland; Dr B. F. Leach, Otago University, Dunedin; Ms J. Davidson, Dunedin; and Dr P. Sutton, Dunedin. Papua New Guinea—Ms P. Swadling; Mrs C. Wright, National Museum and Art Gallery, Port Moresby; Mr G. Mosuwadoga, National Museum and Art Gallery, Port Moresby; and Mr H. Holzkecht, Morobe Research Centre, Lae. Philippines—Mr Ragadon. Poland—Mr W. Zukowski, Poznan. Scotland—Ms D. Idiens, Royal Scottish Museum, Edinburgh. USA—Dr V. Piskacek, Cornell University; Dr C. Schrire, New York; and Professor A. Schutz, University of Hawaii, Honolulu.

Department of Arachnology

Work concentrated on the funnel web spider *Atrax venenatus* both in the field and in research with visits being made to Tasmania and taxonomy being studied at Macquarie University. Spider fauna of caves also continued to be studied. Numerous enquiries from the public on funnel web spiders were handled and collections identified for several institutions. Important accessions were made.

This activity helped the Department's aims to contribute to knowledge of the systematics, zoogeography and biology of Australian spiders; to collect and maintain collections of arachnids and related groups for scientific purposes; and to provide information about arachnids to the public and scientific/educational groups.

Tasmanian Visit Field work was limited this year, the main activity being a two-week trip to Tasmania for the purpose of collecting funnel web, *Atrax venenatus* and *A. pulvinator*, and amaurobioid spiders, notably *Phryganopus*, and examining the funnel web and amaurobioid holdings of the Tasmanian Museum, Hobart, and the Queen Victoria Museum, Launceston. Collecting was concentrated around the Hobart region and Lake Pedder National Park. The amaurobioid work is part of a continuing study of this section of the Australian spider fauna. Work on the genus *Phryganopus* and its relationships has been completed. A study of the Australian representatives of the specialized family Filistatidae has been started.

Taxonomy of Funnel Webs Chenotaxonomic work is proceeding as part of a study of funnel web spider taxonomy at Macquarie University. Initial work has concentrated on an enzyme/buffer screening program to determine which enzyme systems may be taxonomically useful. Isozymes of both abdominal, largely digestive gland, and cephalothoracic muscle tissues are being examined and techniques for a study of cuticular proteins are also being investigated.

Cave Spiders Studied Interest in the spider fauna of caves was continued with short trips to Jenolan and Abercrombie Caves where general collections were made. Additional information on the feeding behaviour of the cribellate gradungulid spider *Progradungula carraiensis* was obtained at Carrai Bat Cave and the first male specimen was collected.

Public Information Enquiries were particularly numerous again this year with much media and public attention being given to a death from funnel web bite during the Christmas period. Information and material were provided to ambulance associations, hospitals and other interested groups. Mr Gray gave five lectures to medical/nursing groups during the year. A small museum exhibit on funnel web spiders was prepared in co-operation with the Exhibitions Department. Plans for the arachnid section of the Invertebrate Gallery were reviewed.

Identifications Collections were identified for several institutions including the New South Wales Department of Agriculture, the University of Sydney, the National Parks and Wildlife Service, the Tasmanian Museum, the South Australian Museum, the Macleay Museum and the Australian National University. In co-operation with the Education Department, several work experience students were helped and two peer group teaching sessions were held.

Volunteers Appreciation is expressed for the efforts of two volunteers, Mrs G. Coops and Mrs E. Sheridan who have worked in the Department this year. A Museum Discoverer, Natalie Holmes, provided able assistance with sorting work. Outside assistance with collecting activities was provided by Messrs C. Carter, E. Kay, K. Keck and J. Edwards.

Preparing For Computer Substantial accessions were made during the year. Most of this material has been entered directly on to computer data sheets. However, as yet no progress has been made in obtaining funds for the transfer of this data on to computer. A storage/catalogue system for the permanent dust free/dry maintenance of scanning electron microscope material has been started.

Transfer to Museum A week was spent in sorting the arachnid collections of the Macleay Museum. These were identified, catalogued and re-bottled mainly at family level. Only a few of the missing Bradley type specimens originally housed with this collection could be located. It is proposed to transfer the type material to this Museum's collections.

Department of Entomology

Much time was spent in the taxonomic study of platystomatid flies of Papua New Guinea and of acalyptrate flies of Australia and a major project involving the Psocoptera of the Melanesian arcs reached an important stage. The department has been active in servicing the needs of individuals and organizations and has vigorously assisted students. A breakthrough has been accomplished in the never-ending work of routine curatorial work with the rehousing of the moth collection.

The objectives of the department are primarily to add to the knowledge of the diversity, habits and evolution of the insects of Australasia and to make this knowledge available both to the public and to scientific research workers.

Research—

Australasian Flies The long-term research project of Dr McAlpine on the systematics, evolution and biology of Australasian acalyptrate flies is intended to make this little understood, but numerically, and ecologically significant section of our fauna better known. Acalyptrate flies comprise about 40 of the families of "higher Diptera" including the true fruit-flies, leaf-mining flies, *Drosophila*, picture-winged flies, and many others, but excluding house-flies, blow-flies and bot flies. The fauna includes old, relict elements, some of which may be classed as living fossils. On the other hand, and especially in Papua New Guinea, a fauna of relatively late development exists which is rapidly radiating and speciating.

Papua New Guinea Flies Most of Dr McAlpine's research time has been devoted to taxonomic study of platystomatid flies, picture-winged flies, of Papua New Guinea which has an exceedingly diverse and species-rich platystomatid fauna with many strange structural adaptations. Keys to the 43 genera of Platystomatidae, to the Papua New Guinea species of the genus *Lamprogaster* and of an unnamed genus, and to the New Britain species of *Giraffomyia*—strange, elongate flies restricted to the Bismarck and Solomon Islands with, as the name suggests, remarkably long necks—have been drawn up. These keys have been privately circulated pending formal description and naming of the numerous new taxa. Descriptions have been prepared for many new species of Papua New Guinea platystomatids to be used in a series of revisionary publications.

Other flies, Moth Larvae Miss Kent has continued her study of flies of the family Sphaeroceridae, using material from Lord Howe Island and southern New South Wales. Dr McAlpine has studied moth larvae on the native araceous plant *Alocasia*, elephant's ear or cunjevoi, as an adjunct to work on the Diptera utilizing this plant.

Psocoptera of Melanesian Arcs One of Dr Smither's major projects, on the systematics and zoogeography of the Psocoptera of the Melanesian arcs, has reached an important stage. As the psocopteran fauna of the arcs was poorly known, it was necessary to spend several years gathering material through a planned field work program. This has been followed by a systematic program of working through the material, family by family, so that now, some synthesis is possible, although not all of the systematic work has been completed. A preliminary zoogeographic paper has been prepared dealing with the Papua New Guinea fauna.

A series of taxonomic problems have been encountered in working through the Melanesian arc material and these have had to be solved "*en passant*", so that a variety of minor ancillary taxonomic studies have been made. These have involved study of material from Singapore as well as revisionary work on such genera as *Sigmatoneura* and *Clematostigma* which have wide distributions.

Work has been completed on other borrowed material, such as large collections of Psocoptera from Norfolk Island and Kakadu National Park, collected by Queensland Museum staff. An ecological collection from trees in South Africa has been studied.

Data on Wanderer Migration data on the Wanderer butterfly is now in the final stages of examination and the accumulated data on Caper White butterfly migration is being analyzed, as time permits.

European wasp survey Mr Holloway has continued his survey of the introduced European wasp, a species with considerable potential pest status: he is also carrying out work on the Hymenopterous family Ichneu-

monidae as part of his post-graduate studies, using mainly the Museum collections.

Field work has continued in support of current research and towards increasing collection coverage.

Rainforest Insect Fauna Dr McAlpine and Mr Day investigated the insect fauna of rainforests on the far north coast of New South Wales, with special emphasis on Acalyptrate Diptera. Rainforests at Mount Wilson, Robertson, Mooney Mooney Creek and Maitland Bay were also visited. Considerable data on distribution of rainforest flies is now becoming available and is proving significant.

Dr Smithers has collected in the New England area and in the high country of the south-east of the State. Mr Holloway collected in western New South Wales and South Australia.

Work for publication At the request of the publishers, a synopsis of knowledge of the Psocoptera has been prepared for inclusion in a large work on the fauna and flora of the world.

A bibliography of literature on Australian Neuroptera is now nearing completion and preliminary keys to the genera of some Neuroptera families are being drafted.

Associates and Volunteers Amateur entomologists and retired professional entomologists, as well as voluntary workers without previous entomological experience, have continued to help the department as the demands on the collections and services of the department in general increase yearly. We have been fortunate to have the continued help of Mr C. Chadwick, who has spent a considerable amount of time in the department; his wide experience as an entomologist of long standing is an invaluable asset. We have received considerable help also from Messrs N. Rodd, V. Robinson, R. de Keyser, G. Daniels, M. Moulds, M. Nikitin, Mrs J. Holloway and Mr and Mrs K. Carnaby. Without these associates and volunteers productivity of the department would be seriously hampered.

Services to Individuals and Organizations One of the major functions of the department is to assist individuals and organizations needing specialist advice and help. We provide this help from data in the collections, from our own research, from specialist literature and, last but not least, from staff experience. Bibliographic work for Dr Hubbard, USA, on the works of the Spanish entomologist R. P. L. Navas proved fruitful. The Papua New Guinea Atea cave material was distributed to those specialists who could be found willing to study it. As a result, many identifications were provided.

Fraternal Co-operation Collections of Psocoptera from Kakadu National Park, Lord Howe Island and Norfolk Island have been studied on behalf of the Queensland Museum as part of surveys being carried out by its staff. Pest species of insects from Norfolk Island were listed for the Commonwealth Plant Quarantine Service. Contents of reptile stomachs were analysed

for the Museum's Herpetology Department and specimens identified for the Commonwealth National Parks Service. The opinion of staff members has been sought on many specialist scientific papers prior to publication and the manuscripts of two books referred for publishers. Specialist identifications have been carried out for the Universities of Sydney, New South Wales, Macquarie, Adelaide, Western Australia, La Trobe, Monash and New England as well as for the Departments of Agriculture in most Australian States, the Department of Primary Industries, Papua New Guinea and CSIRO Division of Entomology.

Help to General Public and Students General public enquiries have not been individually recorded, but would amount to almost 2 000 during the past year. The policy of assisting students has been vigorously pursued and Dr Smithers is presently helping to supervise three postgraduate students. Mr Holloway has been lecturing to students at Sydney Technical College and students from the Newcastle College of Advanced Education, University of New South Wales and Bankstown Technical College have also been given instruction in the department. Students from the Newcastle College of Advanced Education Art School have received lectures and instruction in natural history illustration from Dr Smithers and Mr R. Joyner of the Exhibitions Department. Dr McAlpine has lectured to the Royal Zoological Society of New South Wales and the Australasian Native Orchid Society.

The Entomology Department, through its extensive collections, and widely experienced staff, has continued to carry out an active educational and instructional role.

Curation and Collections General curation activity has involved the acquisition of about 22 000 specimens with registration of 190 types. More than 76 loans, representing more than 10 000 specimens, have been sent out. Routine curatorial work is a continuing and never-ending task. From time to time, something like a recognizable stage or milestone is reached. For some years the process of rehousing the Australian collections of unit trays and new cabinets has been under way. Many of the minor groups have been completed, but this year has seen the completion by Mrs Brewer of the rehousing of the Australian moth collection. This has involved the rehousing of specimens of nearly 4 000 species, representing nearly 1 200 genera in about 60 families. At the same time, species lists have been drawn up to facilitate planned acquisition.

Other Activities As part of the policy of encouraging entomological activity beyond the Museum, staff have continued to be involved in scientific society affairs. Dr Smithers continued in his second term as President of the Australian Entomological Society and has continued to serve on the Council of the Linnaean Society. Mr Holloway is presently Treasurer of the Australian Entomological Society.

Camden Haven Wildlife Refuge Study Under the supervision of Dr Smithers, the Camden Haven Wildlife Refuge Study was completed and a report published.

The report summarized research results, indicated the implication for forestry management and provided guidelines for future research.

Donations The policy of encouraging collectors to deposit their material in the Department for future research workers has been pursued. An important collection of about 1 000 species of oecophorid moths was donated by Mr V. Robinson, Wollongong. These tiny species are immaculately prepared with full data and named, where possible. The geometrid collection of the late C. W. Frazier was incorporated into our collections. Valuable donations were received from: Mr N. W. Rodd, Hymenoptera; Dr J. Bock, Diptera; Mr R. de Keyser, Philippine Hymenoptera; Coleoptera; Mr D. A. Doolan, Australian Coleoptera; Dr H. Roberts, New Guinea Diptera; Mr M. Mackay, Coleoptera; and Mr G. Daniels, Diptera. The material from Mr Daniels and Dr Roberts have provided important data in current research work. Mr M. Moulds has contributed important material in several groups from widely scattered parts of Australia.

Study Material Donations Encouraged Many projects are undertaken in Universities using insect material. Almost invariably the material is discarded or lost when the student project is completed and a thesis written so that there is no material available for subsequent comparison. The Department has encouraged students to deposit reference material from their studies in our collections. As a result we have received series of specimens of the ladybirds bred by Dr J. Anderson, University of New South Wales, during her post-graduate studies as Macleay Fellow of the Linnaean Society. The material would be important to anyone later undertaking work on the same species. The importance of deposition of such "voucher" material in permanent collections is not as widely appreciated as it should be among students and other research workers.

Curators are the custodians of collections, and though these may not all be used in current research, the collections must be maintained and be available for specialist study. The many overseas entomologists who visit the department testify that such collections are performing an important part in world research. The collections have, of course, been used extensively by local research workers.

Overseas Visitors Visitors from overseas included Dr J. Kukalova-Peck and S. Peck, Canada; Dr and Mrs H. E. Evans, USA; Drs R. A. Savill and R. Fuberson, New Zealand; Mr and Mrs V. B. McHenry and Dr R. Bohart, USA; Drs T. S. Medvedev and V. F. Zaitzev, USSR; Dr D. L. Hancock, Zimbabwe; Dr M. Mansell, South Africa; Dr I. Lansbury, Britain; and Dr H. Kuschel, New Zealand.

Acknowledgments The Department acknowledges the help of Dick Smith and the Forestry Commission of New South Wales for financial help, enabling Mr Milledge to complete the Camden Haven Wildlife Refuge Study.

Department of Herpetology

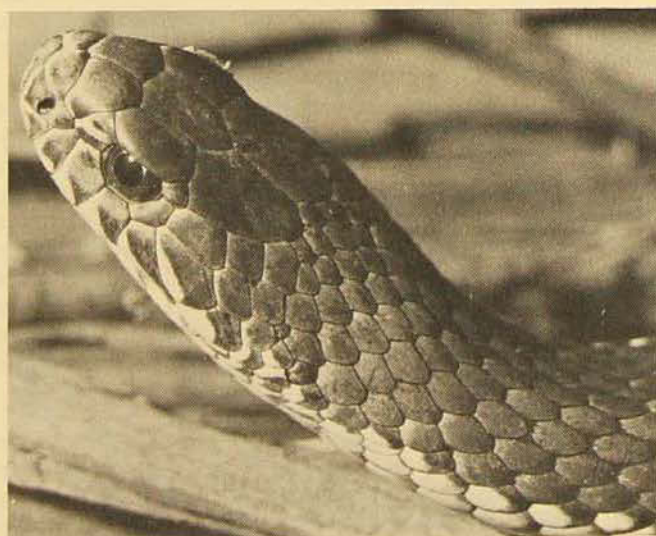
Work continued on the zoogeography of the herpetofauna of Northern Australia, reports on several faunal surveys were finished and specimens in the British Museum (Natural History) were examined. A major phylogenetic subdivision of Australian skinks has been proposed, critical thermal maximum temperatures in skinks analysed and a study of the skinks of New Caledonia began.

The objective of the Department is to undertake research, to educate and consult on the reptiles and amphibians of the Australian region, and to maintain and increase the collections of specimens of these two groups. The Department holds the largest and most representative collection of reptiles and amphibians in Australia.

Education Dr Greer lectured to students from the University of New South Wales and to officers from the Bureau of Customs. The Department participated in the peer group teaching scheme for Primary School students and the work-study scheme for secondary students and continued its open door policy for promising secondary and tertiary students.

Collections Curatorially, the emphasis was on consolidation and rearrangement of the collection and on editing and minor program changes to the computerized registers. All the information for the collection is now on computer. Approximately 9 000 specimens were added to the collection during the year.

Among the living specimens presented in an exhibition of venomous Australian wildlife was this copperhead snake *Australops superbus*. The exhibit, mounted during May, 1980, was compiled privately by Paul Webber and John Edwards, and included spiders and marine life as well as snakes. This exhibit attracted great interest during its week of showing. Photo John Fields/The Australian Museum.



Consulting Dr Cogger served on: The International Commission on Zoological Nomenclature, as a Commissioner; the International Union of Biological Sciences, of which he is the newly elected Secretary of the Division of Zoology; the Survival Service Commission of the International Union for the Conservation of Nature, as an honorary consultant; and the advisory committee for the CSIRO journal *Australian Wildlife Research*. Dr Cogger was also appointed to the International Committee of Systematic and Evolutionary Biology and to the Research Committee of the Zoological Parks Board of New South Wales.

Dr Greer was a regular consultant to the Bureau of Customs in its efforts to monitor the importation of rare and endangered species. More than 400 specimens—mainly turtles and crocodilians—were examined.

Difficulties Two difficulties were encountered during the year. Firstly, the Department was without an assistant for about three months, but this difficulty has been overcome with the appointment of Mr Ross Sadlier. Secondly, the tank store area was disrupted through renovations. This disruption began in April and continues to the present.

Research and Field Work Dr Cogger's research on the zoogeography of northern Australian reptiles and amphibians continued with further field work in Cape York Peninsula funded by Comalco Ltd. He presented an invited paper on this research at a Herpetological Symposium held at Melbourne Zoological Gardens in May, 1980.

Detailed reports were also prepared, in collaboration with Mr Ross Sadlier, on herpetofaunal surveys which were carried out in May–June 1979 of Christmas and Cocos (Keeling) Islands for the Australian National Parks and Wildlife Service.

European Study In July–September 1979, Dr Cogger travelled to Europe to study Australian reptiles in the British Museum (Natural History) and to attend meetings of the International Commission on Zoological Nomenclature and the International Union of Biological Sciences at Stenoffa, Sweden, and Helsinki, Finland.

Lizard Evolution Dr Greer's research centred on the systematics and evolution of scincid lizards—the largest family of lizards in the world—and on the relationships of dibamid lizards—one of the smallest and most enigmatic families of lizards. Dr Greer described a number of new species of skinks, concentrating on those that appeared most helpful in understanding the evolution of this diverse family. He also continued his work on the geographic variation in reproductive mode in skinks and began a project on the taxonomic and ecological significance of tooth number in skinks.

Mr Sadlier, new assistant, in the Department began an analysis of the taxonomy and ecology of the skinks of New Caledonia and also a study of geographic variation in the Cunningham's Skink, *Egernia cunninghami*.



Paul Webber points out to young visitors to the Museum some of the information known about Australia's venomous wildlife. His travelling exhibit, housed in the Museum during two weeks in May, included numerous live specimens as well. Photo by John Fields/The Australian Museum.

Computer Use Dr Cogger and Miss Elizabeth Cameron have collaborated in producing a computer-based bibliography of Australian herpetology and have nearly completed a primary checklist of Australian reptiles and amphibians.

Peter Rankin, a young Australian herpetologist of great promise, was killed in New Caledonia on 2 January 1979 while collecting gecko lizards. Peter's family and friends have decided to perpetuate his memory with a Trust Fund to provide grants for travel and equipment to aid young Australian herpetologists who demonstrate the kind of promise that Peter showed. The Fund will be administered by the Trustees of The Australian Museum and has as its initial goal \$10,000. Once this sum is obtained and invested, the Trust will call for applications for grants-in-aid not to exceed \$1,000.00 per annum.

To qualify for a grant from the Peter Rankin Trust Fund for Herpetology, applicants must be under 30 years of age, be permanent residents in/of Australia, and must not already hold a position as a professional biologist.

Department of Ichthyology

The research projects of the department include studies on the taxonomy and ecology of gobioid fishes by Dr Hoese and Ms Larson and deep sea fishes by Dr Paxton and Ms Blake. Dr Hoese is also studying rocky reef fishes and distribution of juvenile fishes in estuaries. Dr Paxton works on the anatomy and ecology of luminescent fishes and fish distribution in Sydney

Harbour. The department maintains a large research collection of Australian and Indo-Pacific fishes that is used by visiting workers and other researchers through an extensive loan program.

Fish Checklist Work began this year by Drs Paxton and Hoese on a new major project with Dr Allen of the Western Australian Museum to prepare an annotated checklist of the fishes of Australia. Synonomies and details of distributions will be prepared for the approximate 3 000 species. The project will take a number of years to complete.

Field Work in Japan and the Philippines Dr Hoese spent three months working in the Philippines and Japan. Half of the trip involved field work in the Philippines, the Ryukyu Islands and Southern Japan. Material of about 200 species of gobioid fishes was obtained to aid studies of the systematics and ecology of the group. Other material was also obtained for the Museum collection.

The remainder of the trip involved examination of collections in museums and universities and discussions with Japanese workers were initiated. Considerable valuable information was obtained regarding studies relevant to Australian fishes. Much assistance was provided by His Imperial Highness the Crown Prince of Japan.

Great Barrier Reef Study Dr Leis' study of fish larvae of Lizard Island and the Great Barrier Reef progressed well. More than 150 plankton samples were taken during four trips to the reef; most have been sorted and the larvae are being identified. Concurrently, the taxonomy of spiny puffer fishes of the family Diodontidae are under study. Three manuscripts were completed during the year.

Manuscripts on Whalefish Family Study of the systematics of the whalefish family Cetomimidae by Dr Paxton and Ms Blake advanced with two manuscripts being submitted and a third nearing completion. This bizarre family of bathypelagic fishes has many more new forms than previously thought.

Loan Program Grows The loan program continues to grow with 77 loans of 590 lots, 1 400 specimens, despatched to other specialists. While this growth means more Australian fishes are being studied, the time spent both on dispatch and relabelling new identifications upon return is becoming significantly high. Exchanges totalled 18 for the year. Of the 30 visiting scientists working in the department, ten were from overseas and nine were Australian graduate students. TAMS volunteers, Ms A. Daniel and Ms M. Male, gave the department considerable assistance.

Staff Activities Dr Hoese continued to advise two visiting students from the University of New South Wales and gave lectures to the Workers' Educational Association. Dr Paxton continued as Research Associate of the Los Angeles County Museum of Natural History and Honorary Associate in Biology at Macquarie University. Two students for whom he acted as

outside advisor completed their PhD theses during the year and Dr Paxton continues to advise Masters students at Macquarie and the University of Sydney. Advice was given to Commonwealth authorities concerning the importation of aquarium fishes, and lectures given to TAMS, WEA, a Lord Howe Island Symposium held at the Museum and at the inauguration of the Canberra branch of the Australian Society for Fish Biology. Drs Hoese, Leis and Paxton and Mss Blake and Larson attended the annual meeting of the Australian Society for Fish Biology at Port Stephens, Ms Blake being Treasurer of the Society.

Acknowledgments of Co-operation State Fisheries of NSW; University of Sydney Electron Microscope Unit; Marine Science Centre, University of the Philippines; Crown Prince's Palace, Japan; His Imperial Highness, Prince Akihito, Tokyo, Japan; Mr F. Meguro and K. Sakamoto, Crown Prince's Laboratory; Mr M. Hiyaski, Yokosuka City Museum; Dr and Mrs I. Nakamura, Kyoto University; and Dr T. Uyeno, National Science Museum, Tokyo.

Donations Type specimens of fishes were donated to the Museum by: G. Allen and B. Hutchins, Western Australian Museum; B. Collette, US National Marine Fisheries Service; J. Gomon and T. Roberts, US National Museum of Natural History; P. Last, Tasmanian Fisheries; R. Lubbock, Cambridge University; R. McKay, Queensland Museum; J. Randall, Bishop Museum; and B. Russell, Macquarie University.

A number of important fish collections were donated during the year including: Victorian fishes by T. Berra, Ohio State University; Northern Territory fishes, D.

Dr John Paxton, Curator of Ichthyology, gives an on-site lecture, complete with live specimens obtained from trawling, to WEA (Workers' Educational Association) students aboard the *Kapala*. Photo by A. Tink.





Grey, Northern Territory Fisheries; Florida fishes, D. Hensley, Florida Atlantic University; Tasmanian deep-water fishes, P. Last, Tasmanian Fisheries; and Thailand fishes, A. Natuwathana, Thailand Fisheries.

Other donations were: Japanese gobies, T. Nakabo, Kyoto University; New Guinea freshwater fishes and Indo-Pacific gobies, T. Roberts and E. Lachner, US National Museum of Natural History; Chilean fishes, R. Rosenblatt, Scripps Institution of Oceanography; Queensland freshwater fishes, P. Saenger, Gladstone Electricity Commission; Scott Reef fishes, F. Talbot, Macquarie University; and Thames River fishes, A. Wheeler, British Museum Natural History.

Important deepwater fishes were collected by: FRV *Kapala*, K. Graham, NSW State Fisheries; and FRV *Courageous*, L. Hodgson and P. Young, CSIRO Fisheries and Oceanography. N. Coleman and R. and A. Kuiter continued their fish donations.

Computer Files Computerisation of the collection advanced reasonably, with the new registration of 1 500 lots and about 1 500 lots of backlog on to computer sheets. All of the old species records and 75 per cent of the collection records are now on computer sheets. The system should be running by the end of the year.

Overseas Visitors Israel—Dr A. Ben-Tuvia, Hebrew University of Jerusalem. New Zealand—Dr P. Castle, Victoria University of Wellington; Dr R. McDowall, New Zealand Fisheries. Thailand—Ms S. Monkolprasit, Kasetsart University. USA—Dr T. Berra, Ohio State University; Dr E. Clark, University of Maryland; Dr and Mrs R. Cressey, US National Museum of Natural History; Dr D. Cohen, National Marine Fisheries Service; Ms J. Gomon, US National Museum of Natural History; and Dr B. Nafpaktitis, University of Southern California.

The WEA—Australian Museum course, "Sydney's Inshore Waters", organized by the Museum's Education Section, brought adult students and scientists together in a fruitful search for knowledge. Photo by A. Tink.

Department of Malacology

Collections were augmented by important material from both Australian and overseas sources. The assistance of volunteer helpers has been invaluable, particularly in curatorial activities. Past curatorial problems are being overcome, and work continues. Research continues to concentrate on micromolluscs and opisthobranchs with field activities taking place in Australia, the Pacific and South-East Asia.

The Department is responsible for building and maintaining research collections of Mollusca as well as pursuing research on molluscs.

Acquisitions Many important acquisitions were received, including valuable material collected by Mr K. Graham of the New South Wales State Fisheries on FRV *Kapala* and collections from Campbell Island by Dr J. Lowry and other members of his team. Cocos Keeling and Scott Reef material was collected by Dr F. and Mrs S. Talbot, large collections came from Malaysia and Singapore made by Dr Ponder and D. P. Fairfax, and Dr Ponder gave material from the Loyalty Islands. Terrestrial collections from East Africa were also received from O. Griffiths.

Collections Large and important specialist collections of micromolluscs and opisthobranchs are being built up with most of the opisthobranch acquisitions being accompanied by colour notes and photographs of the living animals, thus greatly increasing their scientific value.

Volunteers Volunteer helpers continue to give a great deal of support. In particular, the assistance received in curatorial-related activities is considerable and the department would have difficulty functioning without this help. Major gains in the curatorial program this year include: the non-marine curatorial project by Mr J. Stanisic, funded by ABRS (now terminated), the processing of the bulk of the collections housed at Rushcutters Bay by B. Jenkins, Trustees' grant, and the conversion of the wooden cabinets in the mezzanine floor to metal cabinets. An additional wet storage area for large material is now being built, which should relieve, temporarily, the wet-storage space problems.

Curatorial Past major curatorial problems have now been largely overcome. However, the problem in processing benthos and other samples continues, and the solution will receive a high priority in the coming year. Mr E. K. Yoo, employed on ARGC funds as Dr Ponder's research assistant for seven years, resigned and has been replaced by Miss S. J. Hall.

Research Concentration on micromolluscs and opisthobranchs research continues. Dr Ponder's work on micromolluscs included the completion of a paper on the Hydrobiidae, fresh water snails, of Lord Howe Island, continuation with work on a review of the genera of the Rissoiidae and work was begun on an anatomical survey of the Rissoacea. In addition, three other manuscripts were submitted for publication one of which is a revision of the world species of Xenophoridae, carrier shells. Work on Antarctic Rissoiidae and Eatoniellidae is well advanced. Dr Rudman's research on opisthobranchs included the completion of two papers, one on the anatomy and ecology of coral-feeding nudibranchs, the other on alcyonarian-feeding aeolids and their evolution of zooxanthellae symbiosis. Further work continues on the Indo-West Pacific Chromodoridae and on zooxanthellae symbiosis in nudibranchs.

Field Activities Members undertook marine collecting in Victoria, Rudman; northern New South Wales, Ponder, Rudman, Loch; NSW Continental Slope, Loch, Colman with NSW State Fisheries; Lizard Island, Ponder; Lifu, Loyalty Islands, Ponder; and Malaysia-Singapore, Ponder. Terrestrial work included: northern NSW, Colman; Kempsey, Colman; Jenolan Caves, Ponder; and Arnhem Land, Colman.

Dr W. Rudman visited the National Museum of Victoria in April to work on opisthobranch collections. Ponder was a co-organizer of a symposium on Lord Howe Island held at the Museum from November 30 to December 1.

Overseas Loans The collections continue to be used at a satisfactory rate with 40 loans being made to scientists in Australia and overseas, involving 777 lots and totalling 3 683 specimens. Exchanges made during the year numbered 18, involving 175 lots and totalling 454 specimens.

Acknowledgments Co-operation was received from Sydney University Electron Microscope Unit, New South Wales State Fisheries, Department of Primary Production of the Commonwealth Division of Agriculture and Stock, New South Wales Department of Tourism, Zoology Department at University of Singapore, Taronga Zoological Park, Western Australian Museum, British Museum (Natural History), Los Angeles Museum of Natural History, and Australian Biological Resources Study. Help was received from J. Voorwinde, J. Kerslake, N. and T. Ireland, J. Wise, J. Hirschhorn, H. and D. Steggles, H. Haneiman, D. Pearson, T. A. Garrard, S. McGeach, G. Boston, S. Bull, B. Jenkins, K. Graham, T. Gorman, K. L. Sutherland, E. Connell, G. Thornley, J. Dean, A. Nicholson and N. Shay.

Donations J. Hunter, H. Woodward, G. Avern, C. Finney, A. and R. Kuiten, G. Whittle, B. Brandley, J. Hirschhorn, N. and T. Ireland, J. Kerslake, J. Wise, D. Pearson, B. Jenkins, K. Barrow, R. Burn and J. Kessner. J. Farquharson, C. E. Chadwick, Mrs P. Schwerin, P. Pechar, K. Keck, D. P. Fairfax, B. Parkinson, J. Walker, N. Coleman, J. Hollis, Professor C. Phipps, J. Graham, M. Shea, O. Griffiths, C. Pregoner, K. Graham, S. and F. Talbot and D. Beechy.

Overseas Visitors Mr L. Price, New Zealand; Mr G. Day, New York; Dr D. Roberts, Queens University College, Belfast; Messrs B. Parkinson and P. Pechar, Rabaul, New Britain; Dr A. G. Beu, New Zealand Geological Survey; Dr A. Solem, Field Museum, Chicago; Dr R. V. Cosel, Frankfurt, West Germany; Dr R. K. Dell, National Museum of New Zealand; Dr A. Waren, Göteborg University, Sweden; Dr H. Just, Zoological Museum, Copenhagen; Dr R. Willan, New Zealand; and Lt Cmd. D. P. Fairfax, Singapore.

Department of Mammalogy

Rare specimens were received and a TYPE specimen of a new species of Australian rodent has been lodged in the collection, but difficulties pertain to the accession and preparation of large specimens. A new Mammal Gallery is being built. A new publication is being prepared and aid has been provided to various government and private bodies.

The department is responsible for the acquisition and curation of a representative collection of mammals, both from Australia and overseas. The department is responsible for the initiation and implementation of research projects and the publication of results of such

research to increase knowledge of all aspects of the biology of mammals. Education of the general public as to the biology of mammals through displays in exhibition galleries and answering public enquiries is a vital function of the department.

Computer Files Details of the total collection of mammals have now been placed on computer files and the task begun of correcting and inserting current nomenclature into the system. About half the total registrations have been checked and it is anticipated that the whole program will be completed in the coming year.

Specimens Received A number of rare specimens have been received, including a pigmy hippopotamus from Taronga Zoo Park and a young dugong that had been washed up on Manly beach. A film of the rarely photographed mammal, the marsupial mole, was purchased from Malcolm Douglas. The TYPE specimen of a new species of Australian rodent, *Pseudomys pilligaensis*, was lodged in the collection by Barry Fox, University of New South Wales. The large number of specimens, at present held at Rushcutters Bay store, was catalogued by Kim Baker, employed with a grant from the Trustees. The department has experienced difficulties in the accession and preparation of large specimens due to lack of adequate facilities.

Publication A new publication, an Identification Manual of the Terrestrial Mammals of Australia, is being prepared.

Gallery The construction of a new Mammal Gallery has begun and Miss Gibson, Technical Officer, is assisting the scientific consultant for the project, Dr Michael Archer.

Whale Studies Dr W. H. Dawbin, Research Associate with the department, has been given a grant by the Australian National Parks and Wildlife Service, to study the population dynamics of the large cetaceans off the east coast of Australia. Mr Marlow, Curator, assisted Dr Dawbin in locating a rare specimen of the Southern Right Whale off the New South Wales coast. Miss Gibson also assisted with observing and photographing this mammal's behaviour.

Assistance The following government departments and private companies have been helped by the department identifying specimens and providing information: Department of Agriculture, Department of Customs, Forestry Commission, National Parks and Wildlife Service, Museum of Applied Arts and Sciences and BHP. Garry Martin, from the University of New England, visited the department for a week in February to study the curation and preparation of mammal specimens. Katie Cessor, an exchange student from the United States, and Sandra Ingleby, a student from Macquarie University, assisted with the curation and recording of the collection on computer.

Staff Activities Mr Marlow again served on the selection panel of the National Photographic Index of Australian Wildlife, gave an address on mammals of India

organized by TAMS in conjunction with the Indian Tourist Bureau and spent a week in Perth examining the distribution records and specimens of mammals held by the Western Australian Museum. Mr Marlow will retire from the position of Curator, on 31 October, 1980.

Mr Marlow and Miss Gibson attended the symposium on Carnivorous Marsupials held at the University of New South Wales on May 12-14, and the Annual Meeting of the Australian Mammal Society on May 15-17, 1980.

Miss Gibson participated in four days of field work in conjunction with a survey being carried out by Macquarie University on behalf of the Department of Main Roads. She is currently preparing a list of the TYPE specimens held in the mammal collection.

Overseas Visitors Dr J. Menzies, formerly of the Zoology Department, Maseru, Lesotho; Dr A. Keyser, Geological Survey of South Africa, Pretoria; Dr J. Kirsh, Curator of Mammals, Museum of Comparative Zoology, Cambridge, Massachusetts, USA; and Dr K. E. Stager, Natural History Museum, Los Angeles County Museum of Natural History, California, USA.

Department of Marine Ecology

Studies are being made of the benthic, or bottom-dwelling community of sections of the Hawkesbury River system, including assessing the effects of dredging and disposal of soil. Studies were made of lagoons on two Great Barrier Reef islands with many new species and even some new genera found. Some results of this work will be presented at a Port Moresby symposium. Computer programs were developed and upgraded in connection with preparing papers for publication.

The aim is to conduct marine research to provide basic information and answer specific questions that relate to management, planning and impact. Research areas include the Hawkesbury River Estuary and selected Great Barrier Reef islands. Both estuaries and the Reef are environmentally sensitive and vulnerable. Both require major research efforts to provide the ecological framework for adequate management. Long-term information for instance is virtually absent. Research has concentrated on the benthic animals, considered to be the most reliable indicators of pollution and impact as they are relatively immobile and live in the sediments where toxins and nutrients are concentrated.

Hawkesbury River Research Three research projects are under way. The first, initiated in 1976, seeks to describe and analyse the benthic community of a relatively untouched estuary. As estuarine communities

vary so much in space, responding to salinity gradients and changing sediments, and in time, both seasonally and annually, an adequate baseline description must encompass both aspects. Thus this study includes sampling sites from the junction of the Hawkesbury River with the Colo River to the mouth. Four samplings a year are being taken and this activity will intensify.

Studies on Great Barrier Reef As the Great Barrier Reef becomes an increasingly sensitive issue, and research in sedimentary areas on the Reef virtually absent, a trip was made to Lizard Island in conjunction with the Department of Crustacea in October 1978. Ms Charlotte Short and Mr Jock Young conducted a small study of One Tree Island and Heron Island lagoons in October 1979. Both aim at describing the benthic communities and gaining some understanding of the effects of factors such as sediment type, fish predation and proximity of mangroves.

New equipment was designed and built and new sampling techniques devised. Taxonomic difficulties have hindered completion of this project with many new species and even some new genera found. However, a section of the results are now being prepared by Dr Jones for publication and presentation at the forthcoming Port Moresby Symposium on Mangroves and Coral Reefs.

Effects of Dredging Assessment The third project, located in the Hawkesbury estuary, near Brooklyn, aims at assessing the effects and recovery of the benthic community following maintenance dredging of the boat channel and disposal of spoil. A grant from the State Pollution Control Commission will expedite completion of the study.

Staff Activities Dr Jones has devoted considerable time to preparing papers for publication. This has led to collaboration with staff of the CSIRO Division of Computing Research in developing and upgrading the TAXON library of computer programs. He has both lectured to Hawkesbury Agricultural College students and directed their estuarine field projects. Dr Jones continues to be involved in the preparation of Museum submissions, the assessment and refereeing of reports, proposals and articles and the organization of Museum seminars.

Ms Charlotte Short has concentrated on the taxonomy of Lizard Island invertebrates, especially the polychaete worms with help from Ms Hannelore Paxton, Macquarie University. Ms Short has supervised all volunteers and work experience students and led the field trip to One Tree and Heron Islands and has visited taxonomists at the National Museum of Victoria.

Volunteers The Department is grateful to volunteers Jock Young, Roger Springthorpe, Charles Gray, Fabian Byers and Ralph Ginger. The first two were also employed temporarily and Jenny Gates worked as a summer vacation assistant.

Acknowledgments The taxonomic assistance of other Museum personnel and Ms Jan Carey's analyses of Lizard Island sediments and Mr David Hain's computing assistance are all gratefully acknowledged.

Department of Marine Invertebrates (Crustaceans and Coelenterates)

More than 160 people from 15 countries attended an International Conference on the Biology and Evolution of Crustacea in May 1980. The conference was convened by the Director's Research Laboratory and the Department of Crustacea in conjunction with The Australian Museum Trust.

Sixty-four papers and 22 posters were presented during the five-day conference which was a highlight of the year's activities. Approximately 25 papers presented at the conference are being edited in a special volume of the *Memoirs of The Australian Museum*.

The conference was an expression of the aims of this department which studies Crustacea, their taxonomy, ecology and zoogeography, and underlined its interest in teaching students about crustaceans and co-operating with other scientists in pursuing similar goals.

New Species Long term studies of the amphipod crustaceans of the subantarctic islands of New Zealand and Australia were continued. Dr and Mrs Lowry, Ms Stoddart, Research Assistant, and Mr Terrill, Technical Officer, worked at Campbell Island between December and March collecting marine invertebrates. About 250 marine and freshwater samples were made and nearly 100 of the samples were sorted in the laboratory provided by the weather station. Nearly 100 species of amphipods were discovered and are being incorporated into the subantarctic study.

Mr Tony Friend, University of Tasmania, received one of the first Australian Museum Visiting Curatorships. He worked in the department for five months studying the large unidentified collections of terrestrial amphipods from New Guinea, New Caledonia and Australia. During this time he curated the collection and prepared a paper on several new genera and species.

The department continues an active interest in teaching. Dr Lowry presented a series of lectures and laboratories at the University of Sydney on the biology of the Amphipoda. Dr Lowry and Mr Friend gave lectures during the year to the Australian Museum seminar series, the International Conference on Biology and Evolution of Crustacea held at The Australian Museum and the Australian Littoral Society.

The department continued to receive interesting collections from the NSW State Fisheries vessel *Kapala*. It recently received several specimens of two rare deep sea lobsters *Projasus* and *Puerulus* from Jervis Bay fisherman Mr A. Bell.

International Visitors Drs R. and H. Cressey, Smithsonian Institution, Washington, D.C., USA; Dr E. Dahl, University of Lund, Lund, Sweden; Dr J. A. Day, University of Cape Town, Cape Town, South Africa; Sir Charles Fleming, New Zealand Geological Survey, Wellington, New Zealand; Dr B. A. Foster, University of Auckland, Auckland, New Zealand; Professor R. Y. George, University of North Carolina, Wilmington, N.C., USA; Dr J. Haig, Allan Hancock Foundation, Los Angeles, California, USA; Dr J. Just, Zoological Museum, Copenhagen, Denmark; Dr B. Kensley, Smithsonian Institution, Washington, D.C., USA; Dr C. L. McLay, University of Canterbury, Christchurch, New Zealand; Dr A. Myers, University of Cork, Cork, Ireland; Dr M. de Saint Laurent, Museum National d'Histoire Naturelle, Paris, France; Dr J. Sieg, Universität Osnabrück, Vechta, West Germany; Dr W. Vader, Tromsø Museum, Tromsø, Norway; Dr T. H. Waterman, Yale University, New Haven, Conn., USA.

Department of Marine Invertebrates (Echinoderms)

Three new species of crinoids (or featherstars), from Madagascar were described during the year. This important discovery was made by staff members when working on a borrowed collection of crinoids from Madagascar. A detailed study of the Tasmanian echinoderm fauna has begun and a manuscript describing a new species in the seastar genus, *Podosphaeraster*, has been completed.

The fundamental aim of the Department is to study the systematics and zoogeography of shallow-water (<200m) Indo-West Pacific echinoderms, but particularly the fauna of the Australian coastline.

The identification of ascidians, sea squirts, is carried out on a limited scale but the poriferans, sponges, can only be curated and not identified due to the lack of systematic expertise within the Department.

Expeditions of the State Fisheries vessel *Kapala* along the New South Wales coast continue to add much understanding to knowledge of the deep-water fauna along the coastlines.

Tasmanian Fauna Study Begins After accumulating lists of echinoderm collections held in several State Museums over the past 5 years, Dr Rowe has stepped up his longstanding aim to revise the echinoderm fauna of Australia by beginning a detailed study of the Tasmanian fauna.

To this end, Lyle Vail was employed as a Technical Officer for three months, assisting by researching the literature, drawing up draft keys to the species, and carrying out a preliminary taxonomic study of the species of *Comanthus* and *Comanthoides* from the region.

Dr Rowe, with Professor D. Nichols, Exeter University, Britain, has also completed a manuscript describing a new species in the aberrant pea-shaped seastar genus *Podosphaeraster*. A detailed description of the external and internal morphology of the genus is still being prepared by Dr Rowe, Dr Jangoux of the Université Libre de Bruxelles, Belgium, and Professor Nichols.

Revision of Seastar Genera Mr Wolfgang Zeidler, South Australian Museum, and Dr Rowe have discussed in detail their joint revision of the endemic southern Australian seastar, *Nectria*; and Mrs L. M. Marsh, Western Australian Museum, and Dr Rowe discussed their revision of several genera of ophiasterid seastars. It is hoped that these revisions will be completed within the next 12 months.

Dr Rowe has completed a section on the southern Australian holothurian sea cucumbers, to be included in a volume describing sea-shore life of that region.

Manuscript on Madagascar Fauna By borrowing a collection of crinoids from Madagascar, Malagasy Republic, Indian Ocean, previously examined by Ms Jan Marshall while working in the Paris Museum during 1978 and supported by a French Government Scholarship, Dr Rowe and Ms Marshall completed a manuscript on that fauna in which three species have been described.

Ms Marshall also drafted a manuscript describing the crinoid type-specimen collection of the Paris Museum with Dr Guille, of that Museum, who will complete the manuscript as co-author. Her paper on the crinoid collection in the Geneva Museum has been published.

Staff Activities Dr Rowe visited James Cook University of NE Queensland in August where he examined and discussed collections of echinoderms, especially the sea-cucumbers, amassed by Alastair Birtles of that university, who is conducting benthic studies in the area.

Jan Marshall spent two weeks on R/V *Professor Bogorov* with Dr B. Wilson, Director, National Museum

of Victoria, collecting echinoderms for the Museum and as a reference collection for Soviet biochemists who are studying products from marine invertebrates.

Projects Delayed Continued heavy involvement by Dr Rowe in gallery production, has delayed completion of several projects. During the year the Marine Outer Urban Exhibit, Life in the Sea, was completed and opened early in December. The Marine Invertebrate Gallery should be completed and opened early in December. Appointment of Mr Lyle Vail considerably countered the delay on the Tasmanian project.

State Fisheries Help NSW State Fisheries has continued to provide large collections of echinoderms collected during *Kapala* expeditions along the coast of New South Wales. A report, including ophiuroids collected by the *Kapala* over several years, was published in 1980 by Dr A. N. Baker, National Museum, Wellington, New Zealand. Type-specimens of two new species described in that paper have been deposited in our collection.

These collections are extremely important since they will lead to a much greater understanding of the 400–100 m deep-water fauna along the coastline. The large numbers of specimens being retrieved will make possible more exchanges of material with other institutions.

Volunteers' Valuable Aid The echinoderm collection has been checked with the help of vacation assistant Peter Jones, Sydney University, and TAMS volunteers Mrs Berry Marshall, Mrs Mary Boow, Mrs Nadia Prince and Mr Noel Coughlin, who are also assisting with other general Departmental activities. The assistance given to the Department by these people has been extremely valuable and is most appreciated.

More than 2 000 specimens were added to the echinoderm collection with major additions from: Kangaroo Island, South Australia, Museum staff; North-West Shelf, CSIRO, Cronulla; Lizard Island and NSW, Dr A. Waren, Sweden; Great Barrier Reef, R/V *Bogorov*, Ms J. Marshall, Japan, Dr Kobayashi, exchange; Norfolk Island, Miss I. Bennett; and Macquarie Island and Campbell Island, Dr Lowry, Crustacea Department.

Ascidians and Sponges Collections Collections of ascidians and sponges have been received from Macquarie and Campbell Islands, the Macquarie Island sponges have been sent to Dr Koltun, Leningrad, USSR, for identification. A collection of sponges from Lizard Island made by Dr Hutchings, has been sent for identification to Dr Jerry Bakus, Allan Hancock Foundation, University of Southern California, USA.

Visitors Drs G. J. Bakus, University of Southern California, USA; Dai Roberts, Queen's University, Belfast, Northern Ireland; F. Lafargue, Banyuls, France; A. Waren, Goteborg, Sweden; F. Conand, ORSTOM, New Caledonia; and L. Eldredge, University of Guam, USA.

Department of Marine Invertebrates (Worms)

The major project begun is the study of the rates of bioerosion of coral substrates at Lizard Island. A key to New South Wales estuarine polychaetes, bristle-worms, has been prepared and the collection enlarged by specimens from these areas. A major effort has been made to interest students in polychaetes. A neglected New Zealand type collection of polychaetes has been relabelled and catalogued.

In addition to the general responsibilities of acquiring material, maintaining a collection and public/scientific education the first specific objective of the Department is to describe the polychaete fauna of Australia by revising individual families and describing the polychaete fauna of restricted geographical areas or habitats as material becomes available. Well-illustrated keys for use by non-polychaete specialists will be prepared in conjunction with these taxonomic studies. The second main objective is to study the recruitment and establishment of polychaete communities in coral substrates and their roles in coral reef ecosystems in reef areas.

Key to Estuarine Polychaetes A key to the estuarine polychaetes of New South Wales has been prepared in collaboration with Dr Rainer of CSIRO, Fisheries and Oceanography. An extensive collection of polychaetes from South Australia is presently being identified and will be compared with that of estuarine areas in eastern Australia. Taxonomic studies on two genera within the family Capitellidae have continued, and the revision of the genus *Mediomastus* is nearing completion.

Studies of Coral Substrate Communities Dr Pat Hutchings, Curator, has continued to receive support from Australian Research Grants Committee to study polychaete communities of coral substrates. The study has revealed distinct seasonal recruitment of polychaetes with between-year variations in recruitment at Lizard Island. Some species are preferentially recruited to windward sites and others to leeward sites.

Dr Hutchings with Dr Frankel, Geology Department, University of Sydney, has received support from AMSTAC to study rates of bioerosion of coral substrates. This study is being carried out at Lizard Island and initial experiments were set up in June, 1980.

Efforts to Interest Students A major effort has been made to interest students in polychaetes, as these are a major component of many marine communities. The Museum Trust has funded a short-term appointment of a student to study polychaete taxonomy.

New South Wales Estuarine Collection An extensive collection of polychaetes from estuarine areas in New South Wales collected by State Fisheries has been

incorporated into the collection, together with a representative collection of the fauna collected during the Port Phillip Bay Environmental Survey. These two collections greatly expand the Museum collection of estuarine polychaetes of eastern Australia.

Staff Activities Dr Hutchings spent two weeks in November at the Otago Museum, Dunedin, New Zealand, relabelling and cataloguing the type collection of W. B. Benham, a notable polychaete worker of the early part of this century. This very valuable collection has been very much neglected since Benham died in the early 1950s. Dr Hutchings presented papers at the Coral Reef Workshop held at the Australian Institute of Marine Sciences in September, at the National Seagrass Workshop held at University of Sydney in February and at the Australian Marine Sciences Association meeting in Adelaide in May. Dr Hutchings is a Councillor of the Great Barrier Reef Committee for 1980.

Visitors Dr Yossi Loya, Senior Queen's Fellow from Tel Aviv University, visited the Department to discuss recruitment to coral reefs and the role of polychaetes in coral reef ecosystems. Dr David Gibson, parasitologist from the British Museum, was another visitor in 1979.

Department of Mineralogy and Petrology

Two notable gold nuggets were acquired as well as gemstones and other valuable minerals which have enhanced the collections. New cases have been completed, a Mineral Stamp display was mounted in the Gallery foyer and mineral sales have been successful. Secondary uranium minerals from Pine Creek are being identified. An illustrated brochure of the geological construction of Tasmania was produced. Papers were presented at the Geological Society of Australia Convention held at Hobart. Staff expanded their work with the media and field trips were made to Tasmania and South Australia as well as parts of New South Wales.

A fundamental objective is to progressively maintain, upgrade and enlarge the collections and to carry out research into geological problems. The department aims to introduce the public to the world of minerals and gemstones with emphasis on Australian specimens. The systematic display collection, arranged according to chemical composition, provides a comprehensive source of reference with examples from world-wide localities. In its educational capacity, the department acts as a liaison between academic institutions and between the professional scientists and the general public.

New Displays After considerable delay due to faulty locks and poor dust-proofing of new cases, Stage II of the Mineral Gallery has begun; the "Introduction to Minerals" and "Broken Hill" cases have been completed. In the Gallery foyer, a Mineral Stamp display has been mounted in the new wall case.

Mineral Sales The Mineral Sales program has continued, and material has been imported from overseas to increase the range available for public purchase. The success of the sales has led to mineral specimens being sold year-round in the Museum Shop.

Gold Nuggets Acquired The most notable purchases were two gold nuggets—one, 38 oz, from Hill End, New South Wales and the other, 19½ oz, from the Ovens River, Victoria. Other purchases included: two cut gemstones, a 25 ct peridot from Burma and a 24 ct, chrysoberyl from Brazil; an anglesite specimen from Tsumeb, South West Africa; a banded malachite from Kolwezi, Zaire; a fine native silver from Mexico; and a collection of rare minerals from Tasmania.

A series of Japanese minerals were obtained by exchange with the National Science Museum, Tokyo. Resulting from the taxation incentives for the Arts scheme, the department received as donations a piece of an iron meteorite weighing 617 kg, a large selection of minerals from Western Australia and also a Boulder Opal specimen from Queensland. In addition, numerous smaller gifts have been received throughout the year from both Australian and overseas sources.

Special Research Projects Active research is being conducted into xenolithic rocks from the deep lithosphere in Eastern Australia. Mr Lin Sutherland continued his research into the relationship between mantle hot spots and the distribution of volcanic rocks in Eastern Australia. Dr Julian Hollis, supported by a research grant from The Potter Foundation and the NSW Government, made an extensive collection of volcanic inclusions. Electron microprobe analysis of minerals in these deep-seated rocks was carried out at Australian National University, Canberra, and at Macquarie University.

Mr R. Pogson has been employed on a short term Trustees' grant to identify a suite of secondary uranium minerals collected on a 1977 Museum field trip to Pine Creek, Northern Territory. Classical X-ray optical methods are being used in the study.

Staff Activities Lin Sutherland, in conjunction with Sally Robinson, of the Exhibitions Department, has produced a compact, four-page illustrated colour summary of the geological construction of Tasmania which was launched at the Geological Society of Australia Convention in Hobart in January, attended by Mr Sutherland, Dr Hollis and Ms Robinson.

In December 1979 Mr Sutherland attended the XVII General Assembly of the International Union of Geodesy and Geophysics held at Australian National University, Canberra and the 3rd South-West Pacific Workshop Symposium at the University of Sydney, and acted as a Session Chairman at the Lord Howe Island Symposium held at the Museum.

Work with the Media Responding to requests from local clubs, Lin Sutherland spoke to the Port Hacking Lapidary Club and the Sutherland Rotary Club; Julian Hollis spoke to the Northside Gem Club. L. Sutherland appeared on the ABC Children's television program ARVO, and with R. O. Chalmers appeared on Channel 10's Good Morning Sydney Show and Channel 9's Mike Willesee Show, respectively. R. O. Chalmers has taken part in the ABC Radio Science Show and was interviewed on 2BL Radio on the subject of Ashton high yield diamonds in the Kimberley Province. Mr Chalmers has also written an article, History of the Department of Mineralogy, Australian Museum, Pt. 1, 1827-1901, which appeared in the first issue of a new publication, *Journal of the Mineralogical Society of New South Wales*, launched last year.

Field Trips Several field trips have been made. Ms G. Brady and Dr J. Hollis accompanied Dr B. Mason from the Smithsonian Institution, Washington D.C., on a trip to South Australia. Mr Sutherland, Dr Hollis and Ms S. Robinson visited important mineral and rock localities in Tasmania and in March 1980 Mr Sutherland accompanied Dr L. Barron from the Geological and Mining Museum on a short trip to Kosciuszko National Park, to investigate volcanic rocks recently discovered by Park Rangers. Also in March, Mr Sutherland acted as leader on a trip to Flinders Island, organized jointly by the Mineralogical Societies of Victoria and Tasmania.

Work with TAMS The Department worked closely with TAMS. Ms J. Hingley helped conduct a party round the city examining building stones, while Mr R. Pogson acted as geological adviser, in conjunction with Mr Arthur Linder, Southern Pacific Petroleum, on a trip to Joadja, New South Wales. Mr Sutherland continues as a member of TAMS Council.

Mr Sutherland was again a judge at the Northside Gem Club and is now an Honorary Member. In April, he was called on as part of a team concerned with preserving Bobmo Quarry as a Geological Site. He is also a Trustee of the Hatton's Corner Geological Reserve, New South Wales. In addition, Mr Sutherland holds numerous other positions: Australian representative on the Museums Commission of the International Mineralogical Association, a Museum representative on the Geological Co-ordination Committee for New South Wales Government Departments; on the editorial board of the *Australian Mineralogist*; patron of the Mineralogical Society of New South Wales; panelist in the New South Wales Lapidary Club; Council Member, Royal Society of New South Wales and an Associate of the New South Wales Institute of Technology. Ms J. Hingley and Mr R. Pogson are committee members, Mineralogical Society of New South Wales.

International Visitors Dr B. Mason, Smithsonian Institution, USA; J. Ferdyn, C. Scotese, Dr R. Flower, New Mexico Bureau of Mines, USA; A. Mason, New Zealand; Dr W. Cooper, British Museum, England; Dr J. Zdenek, Director, Research Centre for Synthesis and Chemistry of Minerals, France; A. Impens, Geological Survey of Belgium; and Dr G. Nottes, Friends of Mineralogy and Geology, West Germany.

Acknowledgments The Department is indebted to its voluntary helpers, especially Mr J. Pixley, Mrs B. Clark, Mr and Mrs A. H. Chapman, members of the Mineralogical Society of New South Wales and everyone who has helped with the Mineral Sales. Thanks also go to personnel in the Geological and Mining Museum, at Macquarie University and Australian National University, Canberra, for their continued co-operation and support in joint projects.

Department of Ornithology

Important specimens were acquired on extensive field trips and through donations and exchanges. Specimens came from Queensland and Western Australia, and significant exchange was made with Canada. The history of flycatchers continued to be studied, and also that of honeyeaters. The collections maintained in spirit were rehoused, the egg collections were rearranged and substantial progress was made towards full computerisation of the collection data.

The Curator of Birds, Mr H. J. Disney, retired after 17 years' service, but will maintain a close association with ornithology.

The major aim of the Department is to promote and encourage knowledge of birds in the Australasian region through research and by offering a broad spectrum of scientific resources for other researchers. As part of this effort, the department is expanding the kinds and coverage of its collections and is investigating the application of new and varied techniques to the study of birds.

Valuable Specimens Gained Collections expanded with 1 200 registered specimens and others acquired on field trips, through donations and exchanges. Important specimens collected included some previously unrepresented juvenile plumages and several undescribed forms from mid-east Queensland. Good series of poorly represented West Australian species were received from Mr P. N. Gowland, West Australian Department of Agriculture. The collection's first specimens of white-rumped and stilt sandpipers were received on exchange from the Royal Ontario Museum, Canada. The Burge Egg Collection, containing about 500 clutches, was donated.

Register on Computer Placement on computer sheets of more than 53 000 specimens in the current ornithology register is almost completed and only one percent remains to be finished. The computer program should be operating by the end of 1980.

Collection Rearranged Purchase of additional trays for existing cabinets allowed further reorganization of the main study collection. The second stage of the rearrangement was begun by Mr Lindsey. Increased emphasis was placed on the spirit collection with



Detail of the intricate feather pattern on the back of a ring-necked pheasant in the bird collection at The Australian Museum. Photo John Fields/The Australian Museum.

existing specimens being rehoused and combined with recent incoming material; the collection now contains representatives of several hundred species. The large bird collection, moved from the Stone Store to allow construction of new offices, is awaiting storage facilities before rehousing can proceed.

The various egg collections were merged and rehoused. Together they form the largest collection of Australian bird eggs in the world, numbering about 10 000 clutches. Reorganization of the nest collection has started.

Bird Calls Library An audio-tape library of bird calls is underway. The reference library was completely rearranged into major taxonomic, geographic and biological subject areas.

Field trips in New South Wales, Queensland Mr Boles, Mr Longmore and Mr Lindsey spent three weeks in October collecting in western New South Wales. A week was spent at Mallee Cliffs National Park before visiting the extreme south-west and north-west corners of the State. Several days in February were spent at Terania Creek, Whian Whian State Forest, studying habitat use by rainforest birds. Mr Longmore, Mr S. Larsson, Preparation Section, Mr L. W. Filewood, a volunteer, and Mr Boles worked at Clarke Range, Queensland, for three weeks in April to collect and study the birds as part of their research project on the area.

The Department of Vertebrate Ecology was assisted by Mr Boles and Mr Longmore in compiling a census of the heathland birds of Nadgee Nature Reserve.

Evolution Studies Mr Boles continued studying the systematics and evolutionary history of Australasian passerines, particularly the flycatchers, Pachycephalidae, and a revision of the robins is underway.

Mr Longmore researched the systematics, behaviour and natural history of the honeyeaters, Meliphagidae.

Mr Lindsey studied the use of computers in the study of ornithology. He is preparing the scientific text on Australian warblers for the National Photographic Index book of Australian Wildlife and he continued research on the identification of skuas, *Stercorarius*, and certain sandpipers, *Actitis*.

Mr Longmore, Mr Boles and Mr Lindsey are writing up the first parts of their study of the biogeography, evolutionary history and systematics of the avifauna of Clark Range, Queensland. Descriptions of several new forms are finished.

Curator Retires Mr H. J. de S. Disney retired on 22 September, 1979, after 17 years as Curator of Birds. As well as being elected a Research Associate of the Museum, Mr Disney continues as Past President of the Australian Bird Study Association, Secretary of the Ornithological Section of the Royal Zoological Society of NSW and a member of the Field Investigation Committee and Taxonomic Advisory Committee of the Royal Australasian Ornithologists Union.

Mr Wayne Longmore was employed to assist Mr Walter Boles, until a new curator is appointed. Mr Terence Lindsey was employed for six months to help reorganize the collection.

Staff Activities Mr Boles continued as scientific advisor for the new Bird Gallery and wrote the text for the Treasures of the Museum display dealing with the bird collection. He was the scientific member of the adjudication panel of the National Photographic Index of Australian Wildlife (Birds). He served as chairman of the Ornithology Section, NSW Royal Zoological Society and on the committee of the Australian Bird Study Association. During the year Mr Boles spoke to a number of ornithological groups and helped lead field excursions. Mr Longmore was similarly active in addressing organizations and in helping to conduct excursions.

Mr Lindsey continued as Records Officer of the NSW Field Ornithologists Club and served on the committee of the Australian Bird Study Association. He conducted week-long courses in ornithology at the WEA Spring School at Bathurst in September and for the Bureau of Customs in May. He worked on the revision of Neville Cayley's *What Bird is That?* and began preliminary work on plates for a field guide to the birds of New Guinea.

Help from Volunteers Volunteers assisted the department during the year. Mr E. Meyers worked with Mr Lindsey on reorganizing the egg collections and establishing a species file. Mrs M. Hirst registered and labelled specimens. Mrs B. Crawford renewed the naphthalene in the collection cabinets. Mrs R. Guss helped with rehousing and curation of the spirit collection and preparing the register for computer. Mrs D. King encoded the register on to computer sheets. Mrs A. Gunnell helped on the relabelling of the egg collection. Miss K. Frazer and Miss M. McCarthy worked as volunteers during the Christmas school holidays. Mr D. Hobcroft, a work experience student, spent a week in the department being introduced to and assisting with a variety of projects.

Ms M. Wunderlich, Mr R. Springthorpe and Mr P. Ewen encoded the register on to computer sheets under an ABRS* grant. A short term assistance grant enabled Mr I. Mason to prepare specimens.

Visitors Dr L. L. Short, Curator of Birds, American Museum of Natural History, New York, USA and Mr G. Dar Jr, White Plains Museum of Natural History, White Plains, USA.

Students visited the department from Universities of New England, Sydney, New South Wales and James Cook. The department participated in the Peer Teaching and Work Experience Projects.

Department of Palaeontology

Dr Alex Ritchie, Department Head, and Mr Robert Jones collected a fine specimen of *Diprotodon*, the largest known marsupial, which radio-carbon tests later revealed to be over 35 300 years. A comprehensive selection of the fossilized bones of an extinct horned turtle, *Meiolania*, was successfully excavated at Lord Howe Island.

The department maintains representative fossil collections covering all geological periods. These include more than 60 000 specimens of fossil plants and animals, invertebrate and vertebrate. Research work concentrates on two main fields—the evolution and distribution of early vertebrates in Ordovician, Silurian and Devonian rocks of Australia and other continents, and palaeobotanical studies on Palaeozoic and Mesozoic floras of Eastern Australia.

Oldest Vertebrates Studied Dr Ritchie continued studies on the oldest vertebrates from the early Ordovician Stairway Sandstone Formation of the Amadeus Basin, Central Australia, and their relationships with Silurian ostracoderm faunas of the northern Hemisphere. Research also continued on Devonian fish faunas of Australia and Antarctica and especially on one particular group of armoured fish, *Groenlandaspis*, and its relatives, of which some eighteen occurrences are now known from five continents. A memoir on the *Groenlandaspididae* is being prepared.

TAMS Members Help In August and September 1979, Dr Ritchie and Mr Jones made a field trip to western New South Wales to collect Devonian fish remains from the Mulga Downs Group, known to contain early representatives of the *groenlandaspidids*. In a new departure, the Museum's palaeontologists were accompanied, and assisted, by several members of The Australian Museum Society (TAMS) who participated in the project. Mrs Hazel Bisley, Pymble; Mrs Margaret Sutton, Cronulla; and Mr and Mrs Hugh Reilly, Bellevue Hill, helped to search large areas of Devonian sedimentary rocks north of Wilcannia, on either side of the Paroo Channel.

Marsupial Fossil Found Mr Simon Peckover, New South Wales Department of Mines, advised that a remarkably complete skull and jaw of *Diprotodon*, the largest known marsupial, had been discovered in the bank of Cox's Creek, north of Tambar Springs in northern New South Wales by a jillaroo, Miss Louise Friis. Dr Ritchie and Mr Jones visited the site on Kenloi Station, owned by Mr Ken Dunn, and successfully excavated and recovered the very fragile specimen, bringing it back to Sydney encased in a plaster jacket. More bones of the same skeleton were found near the skull and the department returned to the site in November, assisted by several volunteers; Mrs Janette McLeod and Mrs Tessa Corkill, The Australian

* Australian Biological Resources Study.



The *Diprotodon* display, erected in the foyer of the Museum, shows the exact position in which the fossilized bones were found in the field. Photo by John Fields/The Australian Museum.

Museum; Mr Ernie Hope, Balgowlah; and Mr Richard Wright and Mr Paul Gorecki, Department of Anthropology, University of Sydney. Despite torrential rain which turned the black soil fields into deep mud most of the *Diprotodon* skeleton was successfully recovered with only a few parts, pelvis, one hind leg and some vertebrate and ribs, still unaccounted for. University of Sydney's Radiocarbon Laboratory analyzed charcoal fragments found near the skeleton and yielded a date of 35 000 plus years. The restored skull and lower jaw of the *Diprotodon* were displayed publicly in December, 1979, and the remainder of the skeleton, laid out as it was discovered, was displayed in May, 1980. This date coincided with International Museum Day and the issue of a commemorative pre-stamped envelope by Australia Post depicting *Diprotodon*'s skeleton to mark the occasion. The project was generously assisted by Selley's Australia Ltd.

Bones of Extinct Turtle The comprehensive selection of fossilized bones of a strange, extinct, horned turtle, *Meiolania*, discovered on Lord Howe Island since the 1880s received considerable attention also. Dr Eugene Gaffney, Curator of Fossil Reptiles, The American Museum of Natural History, New York, and an acknowledged expert on fossil turtles, is carrying out a major revision of all known *Meiolania* material. The bulk of this material is housed in the Museum. Dr Gaffney spent most of November working on the Museum's collection and following his appointment to one of the Museum's first Visiting Curatorships, returned to Sydney in April 1980 for another three months' work on the same project. This culminated in a joint Australian-American collecting trip to Lord Howe Island in June 1980 in which Dr Ritchie and Mr Jones joined forces with Dr Gaffney, and two young assistants, Dr Steve Barghoorn and Mr Paul Sereno, who came from the

USA to participate. All likely *Meiolania* sites were investigated with the co-operation of the Lord Howe Island Board and island residents. Many pits and trenches were sunk. The best specimens were discovered in, and jackhammered out of, rocks on Ned's Beach and south of Old Settlement Beach. They included an almost complete skull, about the sixth ever found, two *Meiolania* tail clubs and a clutch of some 15 well-preserved turtle eggs. Many bird remains were also recovered, including one almost complete skeleton of a largish seabird. Work has begun on casting a complete suite of *Meiolania* bones in New York and in Sydney to produce a composite replica of the entire skeleton. Copies will be made for The American, The Australian and The Lord Howe Island Museums.

Brickpits Fossil During the year, Mr M. Dingley, of the Preparation Department, modelled up the missing post-cranial elements in our replica of the 2.5 metre-long skeleton of the spectacular Triassic labyrinthodont amphibian, *Paracyclotosaurus*, the original being discovered in the brickpits at St Peters, Sydney, in 1910. The replica is now displayed in the Hall of Fossils.

Staff Activities Mrs Mary White has substantially completed curation of the Palaeobotanical collections, and all the appropriate literature and reprints have been rehoused near the collection and cross indexed. Mrs White completed research work on three projects. They include a revision of the Jurassic flora of the Talbraga Fish Bed based on re-examination of many thousands of specimens from the Museum and Mining Museum collections; the discovery and recognition of a new genus of lycophytes from the Lower Triassic of New South Wales of which three species are now known, and a description of the cones of *Walkomiella*, a Permian conifer of great evolutionary significance.

Mrs Lyn Dawson continued her analysis of the Wellington Caves Pleistocene marsupial fauna and upgraded her thesis project from an MSc to a PhD level. Dr Ritchie gave his Presidential Address to the Linnean Society of New South Wales on "A Review of recent

Australian Devonian vertebrate discoveries". The *Diprotodon* discoveries in September and November led to considerable media coverage in the press, radio and television.

New Storage Space In early 1980, the New South Wales Public Works Department constructed a two-storey annexe behind the main Fossil Store. This is the first stage in a major reorganization of the area and will add considerably to our available storage. It provides space for more than 30 steel cabinets and working areas for visiting research workers.

Specimens Registered During the year, 656 specimens were registered of which 493 were presented. They included Permian brachiopods from Dr Ian Percival, University of Sydney; borehole cores from the Queensland Rundle oil-shale deposits containing early Tertiary fish and reptile remains, from Mr Harvey Henley; Triassic plants from the Sydney Basin from Mr Robert Jones; Permian and Triassic plants from Mr Keith Holmes, Wellington; New South Wales Carboniferous crinoids from Mr David Lindley, University of New South Wales; fossil insects from Bugaldi diatomaceous deposits from Mr Colin Chidley, Lindfield; *Sarcophilus* and *Thylacinus* remains from the Pleistocene of Lake Mungo, western New South Wales, from Dr Jeanette Hope, Australian National University; and late Cretaceous cephalopods from Western Australia, from Dr Pat Quilty, Macquarie University.

Overseas Visitors England—Dr R. S. Miles, British Museum (Natural History), London. India—Dr Manju Bannarjee, Calcutta University; and Drs Shaila Chandra and K. R. Surange, Birbal Sahni Institute of Palaeobotany, Lucknow. New Zealand—Mr I. Raine, New Zealand Geological Survey, Lower Hutt; and Mr and Mrs A. Wiffen, Hamnora. South Africa—Dr J. Anderson, Botanical Research Institute, Pretoria; and Dr A. Keyser, Geological Survey, Pretoria. United States—Dr S. Barghoorn, E. S. Gaffney, R. S. Szalay and Mr P. Sereno, American Museum of Natural History, New York; Dr P. S. Martin, University of Arizona; Dr F. R. Schram, San Diego Natural History Museum; and Dr Paul Tasch, Department of Geology, Wichita University, Kansas.

Assistance Received Institutions: Lord Howe Island Board, No. 38 Squadron RAAF Richmond and Selleys Australia Pty Ltd. Individuals: Mr and Mrs W. Croft, Talalara, near Wilcannia, New South Wales; Mr J. Dorman, Lord Howe Island; Messrs Ken and Noel Dunn, Kenloi, near Tambar Springs, New South Wales; Mr and Mrs K. Evans, Tambua, near Cobar, New South Wales; Miss Louise and Mr Bryn Friis, Tambar Springs; Mr Theiry Terremans, Sydney; Mr N. Jonsson, Turramurra; and Mr L. King, Lord Howe Island. Miss Gail Lindsay, Cheltenham; Mr R. Morgan, Lord Howe Island Board; Professor C. V. G. Phipps, University of Sydney; Mrs Betty Price, West Pymble; Mrs Roma Howe, Belmore South; Mr Hans Rueckert, Trader Nicks, Lord Howe Island; Dr L. Sherwin, New South Wales Geological and Mining Museum; and Professor R. Wright, University of Sydney.

Department of Terrestrial Invertebrate Ecology

The department participated extensively in the National Parks and Wildlife Service's study of the Lord Howe Island woodhen, and the study of leaf litter invertebrates, conducted in association with this survey, will continue for another two years. A new study also began of forest leaf litter invertebrates near Taree.

The Department of Terrestrial Invertebrate Ecology is primarily a research-oriented department. Priority is given to the investigation of man's impact on the natural environment through quantitative studies of animal populations with emphasis on invertebrates (land living animals which have no internal body skeleton).

Projects During the year, one major project, the faunal survey of the Newnes Plateau—Colo River area, was completed and the final report submitted to the Electricity Commission of New South Wales. Participation in the National Parks and Wildlife Service's study of the Lord Howe Island woodhen also ended with the completion of the joint survey of leaf litter invertebrates as a food resource for the woodhen.

A major new research project was initiated during the latter part of the year—a study of the effect of forest management practices on leaf litter invertebrate populations. This project will be carried out in co-operation with the Forestry Commission of New South Wales.

Woodhen Food During the early part of the year, the department concentrated on sorting samples of leaf litter invertebrates taken on Lord Howe Island as part of the woodhen project. Miss Debbie Andrew, employed on funds from the National Parks and Wildlife Service, completed the sorting of all 500 samples by the end of December.

The categories of invertebrates imported as food for the woodhen were counted and weighed. The results showed that the majority of areas of the island that were sampled support an invertebrate food supply for the woodhen that exceeds the supply on Mt Gower where the remnant woodhen population survives. Two areas were found to support a particularly abundant food resource: Steven's Reserve in the inhabited part of the island and Little Slope. Partly because of the abundant food, Steven's Reserve was selected as the site for the construction of pens for the breeding of woodhens in captivity and Little Slope as the release site for captive-bred woodhens should the breeding program prove successful.

More detailed sorting of the Lord Howe Island invertebrates than was required for the woodhen project has subsequently been carried out, particularly by Mr Martyn Robinson during six months temporary employment. This has enabled a number of taxonomic groups to be handed over to relevant specialists both within and outside this museum.



The Lord Howe Island terrestrial isopods were found to be very remarkable both in their variety and abundance. Following her return from leave in early January, Ms Dianne Brown has carried out the sorting of the isopods into about 30 species categories. A full taxonomic study of the group will be carried out by Dr Susan Kingston.

During January, Dr Tim Kingston took part in Dick Smith's helicopter expedition to Ball's Pyramid. This provided an opportunity to make the first extensive collection of invertebrates from this isolated rock pinnacle. Dr Kingston took part in the film of the expedition that was made by the ABC series "A Big Country".

Taree Study Preparation for the new study of forest leaf litter invertebrates began in January, 1980, with a visit to the study area near Taree. A collection of plants for reference during the study was made at the site, and the research project was discussed with officers of the Forestry Commission. The first stage of this project will aim to assess the impact of control burning as carried out by the Forestry Commission on populations of selected invertebrate groups.

Acknowledgments of Co-operation National Herbarium, Sydney; Forestry Commission of New South Wales; National Parks and Wildlife Service of New South Wales; Lord Howe Island Board; and Mr Dick Smith.

Overseas Visitors Dr Stewart Peck, Carleton University, Ottawa, Canada.

Not one bone must be misplaced until the whole *Diprotodon* fossil is carefully uncovered by experts from the Department of Paleontology. Photo by Howard Hughes/The Australian Museum.

Department of Vertebrate Ecology

Staff were engaged on research on the ecology of vertebrates (animals with backbones) within forests affected by the Eden woodchip industry. Two projects were suspended to allow full concentration on this program. The Forestry Commission of New South Wales has published aspects of the Department's research.

The department seeks to apply the principles of ecology to the management of natural and disturbed ecosystems. To assist in achieving this objective the department conducts basic research on the ecology and behaviour of Australian vertebrates. The results of the work are applied to management problems and made available to all parts of the community through publications and lectures.

Effects of Woodchip Industry Research has focussed on the ecology of forest vertebrates. This work is conducted on the south coast of New South Wales within the forests affected by the Eden woodchip industry and research staff have co-operated with the Forestry Commission and the National Parks and Wildlife Service.

An important goal is to foster the exchange of information between different land management authorities to achieve a uniform plan of management, irrespective of statutory and political boundaries.

Research Summary Published A summary of the department's research on forestry and wildlife from 1975 to 1980 has been published by the Forestry Commission of New South Wales as *Research Reports*, No. 42. The report provides details on our methods, results and management recommendations. The principles upon which the department functions are summarized and presented in the book, *A Natural Legacy: Ecology in Australia*, published by Pergamon Press and edited by Harry F. Recher, Daniel Lunney and Irina Dunn.

Projects Suspended The work on honeyeaters in the Brisbane Water National Park and on small mammals in the Nadgee Nature Reserve have been suspended to allow concentration on the Eden program.

Functional Anatomy Unit

A Dictionary of Australian Mammals is in press, the manuscript Monotremes and Marsupials is due to be completed by the end of 1980 and work proceeds on the revision of Troughton's Furred Animals of Australia. A major illustrated work, The Mammals of Australia, based on the collection of the National Photographic Index of Australian Wildlife, was begun in March 1980 and is due to be completed by the end of 1982. Mrs Virginia Richmond, BSc has been employed as a research assistant for this project.

Study of the functional anatomy of marsupial limbs is the purpose of this unit which is concerned at present with the production of books on Australian mammals.

Staff Activities Mr Strahan was re-elected Vice-President of the Royal Zoological Society of New South Wales. As Chairman of the Vernacular Names Committee of the Australian Mammal Society, he completed a list of recommended common names of Australian mammals, adopted by the Society in May 1980 for a period of three years. This is the first attempt ever to standardize the names of Australian monotremes, marsupials, rodents, bats and seals. Mr Strahan continued as a councillor of the Australian and New Zealand Association for the Advancement of Science and as honorary editor of its monthly journal, *Search*.

For half of the year, he was acting secretary-general of ANZAAS and attended the Congress of ANZAAS in Adelaide in May 1980. In the National Photographic Index of Australian Wildlife Mr Strahan continued as a trustee, member of the Executive Committee, and Secretary of the Mammal Index Advisory Panel and was appointed Editor-in-Chief of The Mammals of Australia. In late 1979, he was appointed to several sub-committees of the New South Wales State Advisory Committee of CISRO and continues to serve on these.

In March 1980, Mr Strahan was a member of a three-man delegation from ANZAAS which visited China at the invitation of the China Association for Science and Technology to discuss scientific co-operation between the two countries.

Director's Research Laboratory

The laboratory is responsible for conducting research of special interest to the Director. Dr Griffin and Mrs Tranter are undertaking taxonomic and zoogeographic studies on spider crabs.

These animals are entirely marine; there are some hundreds of species of crabs of the family Majidae world-wide. As a continuation of the studies just completed on this family in the Indo-West Pacific, recently developed taxonomic approaches are being applied to the family on a world wide scale, and new groupings arrived at are being examined in evolutionary terms. Dr John Garth of the Allan Hancock Foundation, Los Angeles, visited the department in September to discuss this project.

An interesting collection of spider crabs from Somalia, sent by Dr M. Vannini of Florence, were identified.

The department took a major part in the organization of the International Conference on the Biology and Evolution of Crustacea held at the Museum in May.

Materials Conservation Section

The major objective has been to concentrate on project-oriented research and treatment programs rather than fragmented project or object-oriented work with a number of such projects being initiated or expanded during the year.

A new conservation approach is being taken to artefacts for the Abellam Gallery whereby staff will work in the field to ensure artefacts reach the museum in perfect condition. A major moth outbreak required an emergency fumigation program and insect control procedures were reviewed. Preliminary research work was carried out in Eastern Arnhem Land involving two very large paintings. Research was also conducted on the growth of mould and conservation work on Balinese temple paintings begun. The next major project will include work on wood carvings from New Ireland. Volunteers gave valuable assistance.

New Approach to Conservation Preparation was made for the forthcoming Abellam Gallery, particularly artefact conservation, specially commissioned by the Museum. Pat Townley, originally involved in this project, left the Museum during April to join the Museum

of Applied Arts and Sciences. Sue Walston, responsible for this project, is concentrating on treatment of artefacts in the field, to prevent them being damaged before they are shipped back to the Museum. Binding media, consolidants and pesticides were researched before field expeditions.

The conservation approach to the Abelam Gallery is entirely new. It is hoped by working in the field with artists and craftsmen, conservation procedures can be adopted from the beginning of artefact manufacture to allow objects reaching the Museum to be in perfect condition. The second advantage of working with the artists is that manufacturing techniques and materials will be fully documented and available.

Valuable Assistance by Volunteers Conservation work on the entire collection from the Torres Strait Islands was completed by February, largely due to enthusiastic support from volunteers supervised by David Horton James.

The Conservation Section has undertaken a range of individual projects, including the electro-chemical treatment of a large bronze drum from the Cameroons, donated by Mr William Bowmore. A ceremonial apron from British Columbia, obtained by the Museum in 1912, has been restored. The work was carried out by volunteers, Mrs Heather Joynes and Mrs Nadine Turner, of the Embroiderers Guild of New South Wales.

Emergency Fumigation A major moth outbreak necessitated an emergency fumigation program, carried out jointly by the Conservation Section and the Department of Anthropology for all stored objects containing proteinaceous materials. The project took two-and-a-half-months to complete under the supervision of Michael Gunn.

Sue Walston and Paula Casey reviewed insect control procedures for the Museum with particular emphasis on the residual effect and toxic properties of the various insecticides recommended for use in gallery, office and storage areas.

Aboriginal Paintings Studied In July 1979, Sue Walston spent three weeks in Yirrkala, Eastern Arnhem Land, undertaking preliminary conservation work on two very large paintings representing the dreamtime of the different clans of the Dhuwa and Yirritja moieties of the area. Funds were made available through the Dhanbul Aboriginal Council of Yirrkala from the Aboriginal Arts Board of the Australia Council. Talks were held with many of the original painters both about the proposed treatments and the final housing of the paintings when conservation work is completed.

Mould Growth Researched Paula Casey completed the first stage of her research project on the growth of mould on ethnographic collections. This involved the primary isolation and identification of mould growing on the surface of objects from the Highlands of New Guinea. The majority of frequently isolated species have been identified as belonging to the xerophilic group of fungi. This is consistent with the relatively dry environment in which the objects are stored. Examples

of the identified species have been lodged with the Mycological Herbarium, Biological and Chemical Research Institute, New South Wales Department of Agriculture.

Peter Ray, appointed as from 8 April 1980, assisted Paula Casey with this research. In particular, he surveyed the micro-environment associated with the New Guinea Highlands collection and measured air velocity from air conditioning ducts to determine mould spore dispersal.

Balinese Temple Paintings Work Begun In April Suzanne Frost began work on the conservation of the Balinese collection of temple paintings. This project was made possible largely through the generous financial support of Mr Peter Pigott. Conservation will concentrate on the second collection purchased from Professor Anthony Forge in 1979, which represents rare paintings from the village of West Bali and other non-Klungung areas.

In addition to the conservation and repair of the paintings, Sue Frost is involved in the design of a storage system, the testing of associated materials and a study of the pigments used on the paintings.

Bark Cloth Collection Geza Marton has continued with his project on the conservation of the Polynesian and Melanesian bark cloth collection. He has completed a preliminary pH survey of the collection and has been studying possible deacidification techniques suitable for use with the high proportion of decorated cloths. Traditional manufacturing techniques and source materials are also being studied.

Major Project Involves Good Carvings The next major project planned for the laboratory will be the conservation of the Malanggan collection of wood carvings from New Ireland. In preparation for this project, Michael Gunn has been appointed, on a temporary basis, to review literature on Malanggan artefacts and associated masks from northern New Ireland and the neighbouring islands of Tabar, Simberi and New Hanover. The objective is to obtain information on the material composition and methods of construction of the Museum's artefacts to assist with conservation and restoration programs, as well as generally supplementing information on the collection.

Staff Activities In August, 1979, Sue Walston attended the Institute of the Conservation of Cultural Material Annual Conference in Perth, and presented a paper on the control of insect and fungi on transport collections. She was elected as Senior Vice-President of Institute of the Conservation of Cultural Material for a second term. She also spent a week at James Cook University, Townsville, Queensland, lecturing to Material Culture Research Unit students.

Paula Casey presented a paper on her research into mould on ethnographic collections at the Fourth National Plant Pathology Conference in Perth, May, 1980. Paula Casey was awarded a PhD at the beginning of 1980.



Above: Perseverance Harbour, Campbell Island. Members of the Department of Marine Invertebrates (Crustaceans and Coelenterates) visited the sub-antarctic island to collect amphipod crustaceans. Photo: Jim Lowry.

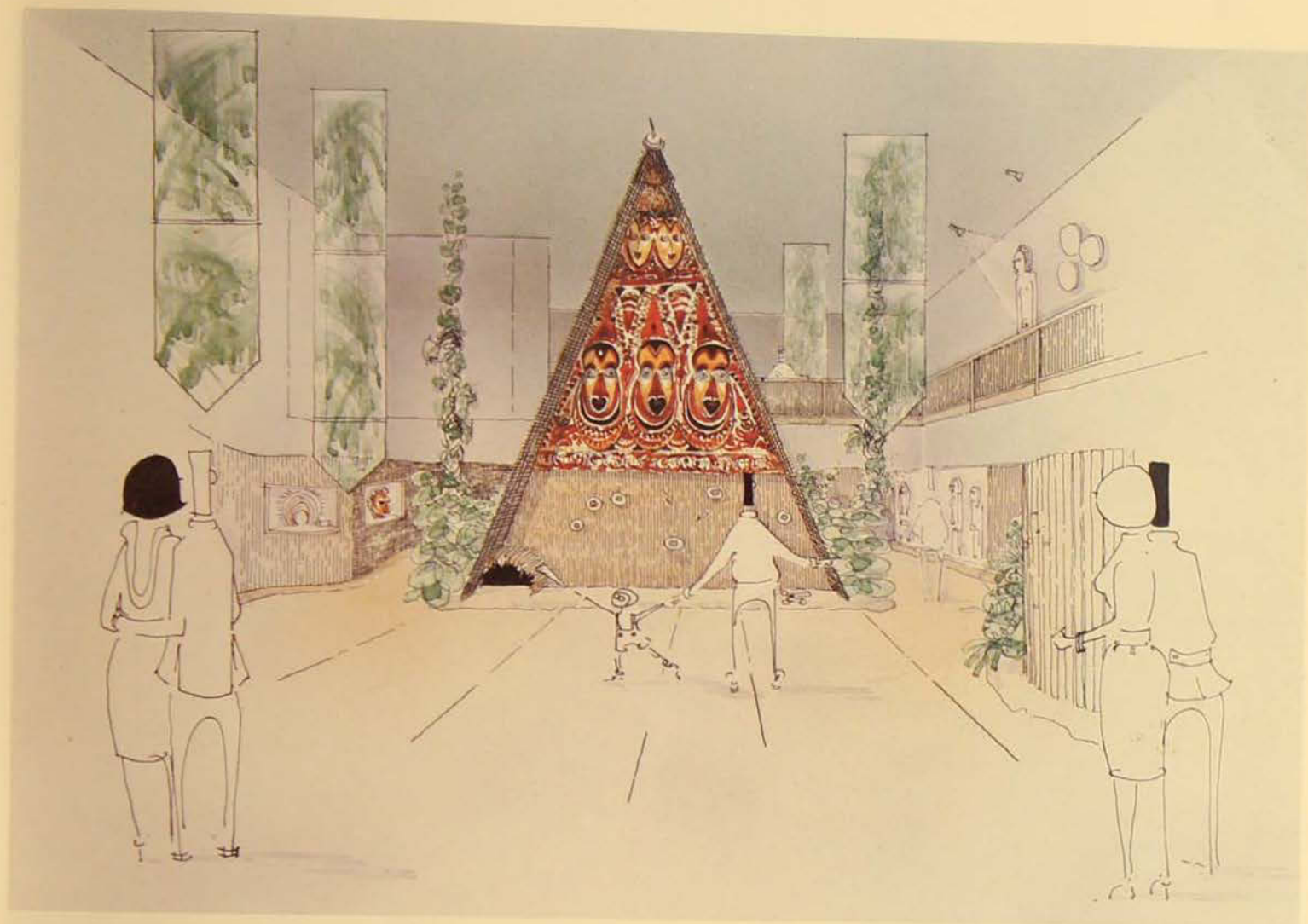


Far left: The high speed and inquisitive nature of Hookers sea lions caused some concern to members of the Department of Marine Invertebrates diving off Campbell Island. Photo: Jim Lowry.



Left: A delivery of turtle specimens. More than 400 specimens were examined by Dr A. Greer, Curator, Herpetology Department, to assist the Bureau of Customs in its efforts to monitor the importation of rare and endangered species. Photo: John Fields/ The Australian Museum.





Above left: Artesian water at Coward Springs was one of the interesting geological features seen on a trip to South Australia by the Department of Mineralogy and Petrology with Dr B. Mason of the Smithsonian Institute. Photo: Julian Hollis.

Above: An artist's impression by Jeffrey Freeman of the Exhibitions Department, of the planned Abelam Gallery. Photo: Heather McLennan/The Australian Museum.

Right: A Chinese figurine (22 cm high) carved in Honan nephrite jade; from the private collection of Mr Jim Wilson. This exquisite traditional work is one of three from the same collection purchased for The Australian Museum by Unilever Australia Pty Ltd. Photo: John Fields/The Australian Museum.



Below left: The International Conference on the Biology and Evolution of Crustacea brought scientists, students and other persons interested in crustaceans from all over the world to the Museum. Photo: John Fields/The Australian Museum.



Above: Alex Ritchie, Curator of Palaeontology, and Tessa Corkill meticulously unearth portions of the fossilised skeleton of a *Diprotodon*. The largest of known marsupials, the *Diprotodon* roamed northern New South Wales about 35 000 years ago. Photo: Howard Hughes/The Australian Museum.



Left: A complete skull of a *Diprotodon*, discovered along Cox's Creek in northern New South Wales. It was excavated and transported to the Museum by members of the Department of Palaeontology. Photo: John Fields/The Australian Museum.

Overseas Visitors Dr B. Feilden, International Centre for the Study of the Preservation and the Restoration of Cultural Property, Italy; Miss R. Hill, National Museum of Papua New Guinea, Papua New Guinea.

Acknowledgments Dr J. M. Powell, Royal Botanic Gardens, Sydney; Dr J. Pitt, Division of Food Research, CSIRO, Sydney; Dr J. Walker, Biological and Chemical Research Institute, New South Wales Department of Agriculture; and Ms A. Kirby, Faculty of Agriculture, University of Sydney. Mr R. Stevenson, Hoechst Australia; Mr Van Jijswijk, Richardson-Merrel; Dr N. North, West Australia Museum and CSIRO, National Measurements Laboratory.

Administration and Services Division

Major goals were to introduce an internal security system, review fire and evacuation procedures and prepare both an Accounts Procedures Manual and a Staff Induction Program. Following a review of the Division's organizational structure, responsibilities for operating the Museum shop were transferred to the Publicity/Publications Section and to overcome the chronic arrears of work in the Records Section, mail opening and despatch duties were transferred to the switchboard staff.

The Division is responsible for the staffing, finance, administration—including security, attendants and cleaning—and building development policies for non-public areas contained in the Museum's Corporate Plan.

Accounts Branch In accordance with the policies and priorities of the Museum's Corporate Plan, financial reviews were made monthly and more detailed reviews, quarterly. From these reviews, strategies were developed for controlling cash flow so as to achieve the best possible result in interest income for the year. The success of this arrangement is shown by the financial accounts attached to this report, showing interest received in 1979–80 as being 63 per cent higher than the previous year, a variation of 82 per cent beyond budget.

New financial reporting arrangements were introduced about two years ago and after some early teething problems last year, worked very well this year.

A Finance and Staffing Sub-Committee of the Trust was formed comprising Trustees R. Hunt (convenor), P. Pigott and B. Krywulycz (Secretary to the Museum), to involve Trustees in Museum programs and to assist in making critical reviews of progress of administration policies.

The areas of highest priority and of particular concern were the restructuring and presentation of financial reports and annual accounts, these being reviewed first. The revised format of the accounts resulted from the Committee's recommendations to the Trust.

Staff Branch The main goal was to introduce a Staff Induction Program. As the Museum now employs more than 200 people annually, permanent and temporary including part-time staff, proper induction procedure is essential. A committee comprising Janette McLeod, Kingsley Gregg, Bill Rudman, John Fields and John Garbutt was formed to write the program and the task is now complete.

Security, Attendants and Cleaning Unit The spread of buildings, the number of visitors to non-public areas and, to a lesser extent, the incidence of theft from museums and galleries around the world resulted in a system of internal security being introduced in December, 1979. The system requires all people in non-public areas, staff, visitors and contractors to wear identification passes.

Previous instructions for fire and evacuation procedures, now outdated, were reviewed, and new procedures introduced. The emphasis now is more on evacuation than on fire-fighting.

Two major security breaches occurred in the public areas during the year. First, eleven bird specimens were taken from a bird display. The other theft occurred in the philatelic collection with seven stamps removed. Security has been tightened in these and other public areas of the Museum.

Records Section Storage space is at a premium and work began to reduce the volume of paper storage in the main Records Room. The task is about 75 per cent complete by the end of the year.

The section was reorganized and mailing functions subsequently transferred to another area.

Switchboard This area now has additional responsibility for mail opening and despatch. The rearrangement was necessary due to the work volume in the Records Section and is operating satisfactorily.

Building Works Building construction and maintenance works are undertaken and funded by the Public Works Department.

Major works included redeveloping the basement area in the old wing, providing a canopy area to the Palaeontology stores and facilities for the disabled (documentation only), redeveloping the maceration workshop (part only) and painting the Education Block. In addition, scaffolding was erected for the cleaning and repair of the external sandstone walls.

Other activities In February 1980, the Secretary visited the Museum's Research Station, Lizard Island, to produce a Manual of Procedures and Internal Controls as the station has grown rapidly in recent years. This manual has been completed.

The Division comprises: an Accounts Branch, 5 clerks; Staff Branch, one Staff Clerk; Security, Attendants and Cleaning Unit, 34 staff; Records Section, one Clerical Assistant; Mail Despatch and Switchboard Section, two staff; and a Stores Unit, two staff; Typists and Stenographers, 9 staff.

Education Section

Special activities associated with the International Year of the Child included: a holiday program in August; and Fun and Games, highlighting children's games of Maoris, Indonesians, Australian Aborigines and Melanesians. During Children's Week, 20 to 28 October, the Museum hosted a range of activities.

To celebrate International Museum Day, Sunday 18 May, a most successful Fossil Identification Day was organised by Mr E. J. Wilson. The expertise of nine palaeontologists was put to good use in identifying some 1 000 specimens brought in by the public.

New developments included the education activities associated with Sunday at the Museum, the one-day Family Field Trips and an increasing involvement with adult education, particularly through joint lecture series with the Workers Educational Association of New South Wales.

On 16 May 1980, Mrs Stella Maguire retired as Education Officer after 19 years at the Museum. An outstanding teacher and a much valued and respected colleague, it is fortunate she is able to return to us in a part-time capacity, replacing Mrs Maude Tyler who has retired after 12 years part-time service.

Main difficulties were caused by train strikes, involving delays to the itinerary of The Australian Museum Train and cancellation of many class bookings at the Museum with consequent heavy teaching loads as these were re-booked in later weeks. Film programs in school holidays and Sunday at the Museum program have been discontinued due to poor attendances.

Fundamental aims are to provide programs for children and all other age groups and sections of the community which actively educate, help to create interest and develop attitudes consistent with the Museum's aim of encouraging an understanding and appreciation of man's natural and cultural heritage.

School Groups The total number of school groups attending lessons organised by the Education staff was 834, comprising 38 630 pupils. About 1 300 classes, some 39 000 pupils, visited the Museum without appointment and for these we were able to provide only minimal assistance.

Peer teaching, children teaching each other, was introduced in late 1979 and to date 12 schools have participated. Special class visits to gallery displays have been arranged and specimens, colour slides and films have been lent by the Museum for the peer teachers to use with classes at school. Miss Robyn Lilienthal, New South Wales Department of Education Advisor in the education of gifted children, had worked with Dr G. S. Hunt in the development of this program.

The Museum co-operated with the Work Experience Scheme run by the New South Wales Department of

Education and 54 young people worked for one or two weeks in various Museum departments. Both the Museum and students have gained from this Scheme, co-ordinated by Dr G. S. Hunt.

Teacher Trainees Demonstration lessons and lectures on the Museum's educational facilities were given to groups of teacher trainees from Collèges of Advanced Education, Sydney.

In July and November, students from the Nursery School CAE spent an initial one or two weeks followed by one day a week for the remainder of the term at the Museum as part of their non-school practice period. Mrs Maguire organized their training period. Two In-service courses for teachers of gifted children were held—a two-day course in April on Seashore Life organized by Miss McDonald and a one-day course in June on Melanesia by Mrs Maguire.

Inservice courses, instead of talks to teachers, are also given at each new venue for country openings of the Museum on the Road exhibitions, organized by Mr Wilson.

Adult Education Mr Phillip Gordon, an Aboriginal trainee, spent three weeks in May with us, studying our school and holiday programs. Various groups of other adult students—migrant classes, nurses, technicians—were given specific lectures and all Education Officers gave lectures and field trips in the WEA series, Basic Steps in Natural Science (twice) and Vertebrates. A further most successful WEA course, Sydney's Inshore Waters, was held at the Museum with lectures by curators and outside specialists. All the WEA courses were organized by Miss McDonald.

Four lectures on museum education in Australia were given by Miss McDonald to students of the Museum Studies course at Prahran College of Advanced Education, Melbourne. She has also prepared a script for an audio-guide tour of the galleries.

The Education Centre continues to be the meeting place for a variety of local scientific and other societies and was the venue for the International Crustacea Conference in May.

Specimen Preparation A total of 175 specimens was prepared or repaired by Mr D. B. Millar, Education Preparator, for the teaching collections. Three holiday programs and an Education Week display were mounted, involving tasks as diverse as boiling down 300 sheep shanks for their "jacks" to be used in the Fun and Games theme and breeding brine shrimps.

Messrs Inder and Millar constructed a giant Perentie head for young visitors to cover with leather "scales" as part of the Festival of Sydney. Ventilation equipment has been installed in the Education Preparation rooms to provide increased safety and new storage cupboards have been built in the Laboratory store.

Extension Services During the year, 643 loans were made to country and metropolitan schools, comprising 11 collections of specimens and 632 school loan travel



The Wandervan provides an opportunity for the Museum to reach many of the special people of our society who would not otherwise be able to visit the Museum. Here, Anne Saunders, Education Officer, encourages members of the Cairnsfoot Special Public School to get in touch with some of Australia's unique animals. Photo by Heather McLennan/The Australian Museum.

cases, prepared and organized by Mr R. C. Inder. The nine mollusc cases, put into service in 1968, were withdrawn for renovations and six new cases of reptiles are nearing completion. Demand for the service is increasing and it is hoped that finance to intensify production will be available in the coming year. Arrangements are in hand for an evaluation study of the uses of the cases by schools.

Wandervan The Wandervan, a specially equipped van sponsored by the Bank of New South Wales for the education of the handicapped, greatly increased its visits to adult handicapped people including multiple-handicapped, senior citizens and adults in rehabilitation units. These groups, along with other emotionally, mentally and physically handicapped adults and children, bring the total number of individuals visited this year to 5 800 including 1 300 country children.

The Wandervan is receiving more applications than can be accommodated and as many groups as possible are being re-directed into actually visiting the Museum

themselves. Other projects this year included two successful field trips to isolated special schools—one trip to the far North Coast and the other to the Western Slopes. This extension is organized by Miss Anne Saunders.

The Australian Museum Train The Train Education Officers, Messrs Miller and Dengate, have had another busy year. Following the new policy established in response to many requests, the Train concentrated on smaller country centres. While the total attendance figure of 69 500 is fewer than last year, the smaller centres generally returned better percentage figures than larger centres, reaching 100 per cent of the population in some cases.

Travelling some 5 000 km in 234 days, the Train visited 27 centres and was visited by 35 500 children from 267 schools, with about 34 000 general visitors. School co-ordinators who organized the classes in each centre and the staff of the Public Transport Commission were most helpful as usual. A pilot Family Field trip was successfully conducted at Ballina and attended by 40 people. Sales were increased considerably by offering a wider range of items in the Train Shop.

The outer urban exhibitions, re-named Museum on the Road, were extended to North Coast areas in February together with Arid Australia and Man—A Peculiar Primate. Conservation of Australian Fauna was withdrawn in October, 1979 and a new exhibition, Life in

the Sea, was added to the outer urban circuit, maintaining the number of exhibitions at four. These now travel in a brightly painted van.

The moving crew have effected the complicated and arduous moves with goodwill and efficiency and have also shown flair in setting up the exhibitions given the often severe constraints imposed by some venues. Life in the Sea attracted considerably more school classes and general visitors than any previous exhibition—total attendance at all exhibitions was 65 000 people, including some 20 000 children in school classes.

The first computer print-out of the survey results of this extension service were obtained in June and it is expected the analysis of these will be available shortly. This survey and the itineraries of the travelling exhibitions are organized by Mr E. J. Wilson.

Drop-In After School This activity program for children living in Sydney's inner city area operated on three afternoons each week at the Museum and off-site on two afternoons in local schools and activity centres. High attendances at Drop-In have been maintained with about 190 children attending on-site sessions and 260 children in off-site centres.

A detailed evaluation study of the program was carried out by Ms Karen Houghton, an Honours student in Education at Macquarie University and completed in February 1980. Drop-In has been sponsored by the Bernard van Leer Foundation for the last three years.

Drop-In was run by Ms Di Johnson (Head Tutor) and Ms Pamela Batters from June to December, and on the resignation of Ms Johnson, Ms Batters was appointed Head Tutor with Mr Ross O'Donoghue assisting, February to June. Dr G. S. Hunt continues to be responsible for overall organization.

School Vacations Special exhibitions and activities were held in each of the three school vacations: "Fun and Games" in August–September, "A Closer Look at Animals" in January and "Fun With Fossils" in May. These activities attracted a total of some 11 300 people.

Museum Walkabout question booklets were completed by 378 young people; 15 students completed the Walkabout series, received their LIFE Nature Book, donated by TIME-LIFE International, and joined the Discoverers' Club. Six Club meetings and one field trip were held during the school holidays.

Discoverers worked in various Museum departments in the January and May vacations. The Discoverers' Society, the senior group met eight times and a second member, Christopher Jenkins, received his doctorate degree from the University of Cambridge. Mrs McLeod took four Discoverers on a field trip to Bombala on 14 to 19 January to assist Dr Recher and the Forestry Commission ecologists in Bondi State Forest. The main work was bird banding but frog collecting and mammal spotlighting also took place.

This year, a new form of holiday activity was developed—Family Field Trips. These were one-day trips involving an introductory talk at the Museum and then



Parent/child interaction is an important ingredient in a number of the Education Section's activities. Photo by Heather McLennan/The Australian Museum.

a bus trip to the relevant site, such as: Turrimetta Beach, seashore animals and fossils; West Head, Kuring-gai Chase, Aboriginal rock engravings; and Field of Mars Reserve, Ryde, land and freshwater invertebrates. The three trips in January were so well attended that two more were run in May. These trips were organized by Mrs McLeod.

Sunday at the Museum As part of Sunday at the Museum, various educational activities have been provided for young visitors. These were co-ordinated by Mr J. N. McDougall and run by Ms Batters with three casual helpers on the actual afternoon. Consistently good crowds have been attracted, often exceeding 400 people in one afternoon.

Education Week For Education Week, August 10 to 19, an exhibition of children's posters, models, dioramas and other items were displayed in the foyer of the Education Centre. These contributions came from children who attend lessons at the Museum, Drop-In and from two Special Schools visited by the Wandervan. The Museum awarded prizes and certificates for work of merit. This exhibition was organized by Mrs Maguire.

Scholars Two further Bernard van Leer—Australian Museum Scholars have completed their courses: Mr Graham Abbott from the New South Wales Conservatorium of Music and Mr David Copper from the West Australian Institute of Technology.

Exhibitions Education Officers have been associated with the production of the following exhibitions: Marine Invertebrate Gallery, Treasures of the Museum, Museum on the Road, Life in the Sea, Miss McDonald; Australian Aboriginal Gallery, Mineral Gallery, Abelam Gallery, Lion Rugs from Fars, Mrs Maguire; Heathlands, Mr Wilson; Mammal Gallery and Museum on the Road, Mammals, Dr Hunt; Insect Gallery, Awareness exhibition, Mrs McLeod; Bird Gallery, Mr McDougall; and Awareness exhibition, Miss Saunders.

Conferences Miss McDonald, Mr Wilson, Mr McDougall and Mr Millar attended the Biennial Conference of the Museum Education Association of Australia on 25 to 30 August and the Annual Conference of the Museums Association of Australia, 30 August to 4 September, both conferences held in Perth. Papers were given by Miss McDonald, Mr Wilson and Mr Millar at the Education Conference.

Miss McDonald also attended the Public Service Board course, Progress Change and Public Administration, 21 to 23 November in Sydney and the Management Course of the New South Wales Institute of Administration at Little Bay, 10 to 14 December.

Dr Hunt attended the Third International Conference of Community Education held in Melbourne on August 19 to 24. Miss Saunders and Mr Millar both conducted sessions on their respective Museum extension services at an Inservice Course on Environmental Education in May. Mr Millar also attended an Inservice Course at Northern Rivers College of Advanced Education, Lismore, on the new 1981 Science Syllabuses.

All Education staff attended the meetings of the Sydney Museum Education Group held at various museums in Sydney and environs every two months and education officers from Botanic Gardens in other States held part of their Conference at the Museum.

International Year of the Child The Museum co-operated most generously with the Secretariat for the International Year of the Child and the Children's Week Committee in hosting and contributing to a special week of activities for children from October 20 to 28. These activities included: a lively forum, broadcast from 2SER-FM, chaired by the Chief Commonwealth Censor, Mrs Janet Strickland, now Lady Duckmanton, and attended by 150 people prominent in the media and the President of the Children's Week Committee, Mrs L. G. Whitlam.

Other activities included a seminar, New Challenges in Residential Care, with interstate speakers and a dramatic presentation by Project Speakout. A morning of craft activities for pre-school children was conducted by the mothers of the Karula Play Group assisted by trainee teachers from the Nursery School Training College, Newtown.

Two most colourful, dramatic and imaginative presentations of Life in the Sea were performed by the pupils of 50C and 60C, Summer Hill Primary School, when the Minister for Youth and Community Services presented awards to the Child Care Workers of the Year. It was repeated for the public on October 27.

The Wandervan was stationed in the Domain and Sydney Square, generating much interest among the public. The film, My Survival as an Aboriginal, was shown at lunchtime during the week. An exhibition, Today's Children and the Media, was held in the Pacific Gallery for the week.

Staff Activities Miss McDonald attended the meetings of the following professional committees of which she is a member: Board of Studies for the Museum Studies Course, the University of Sydney; Museums and Galleries Committee of the New South Wales Cultural Grants Advisory Council; Education Committee of the National Trust of Australia, New South Wales. She continued to serve as a Council Member of the Museum Education Association of Australia and of the Australian National Committee for ICOM.

Mrs Maguire represents the Museum on the Children's Week Committee. Mr Wilson is on the Museum's Revenue Generation Committee. Dr Hunt obtained his PhD, University of New South Wales, with a thesis in Zoology. He continued as President of the New South Wales Branch of the Museums Association of Australia and as this organization's representative on the New South Wales Council of Heritage Organizations.

Mr McDougall continued as President of the Museum Social Club and as a Museum representative on the Council of The Australian Museum Society.

A classroom filled with enthusiastic children is testament to the importance of the school holiday activities at the Museum. Photo by Heather McLennan/The Australian Museum.



Mrs McLeod completed her Diploma of Special Education from Mitchell CAE, Bathurst. She is a member of The Australian Museum Committees concerned with Staff Induction, Museum Seminars and Australian Natural History Magazine and is also the Organizing Secretary for the 1980 Museums Association of Australia Conference and Vice-President of the Museum's Social Committee.

Mr Dengate is in his final year of the Diploma of Education external course at the University of New England. Mr Millar has completed an external course in Environmental Studies at the University of New England.

Acknowledgments of Co-operation Bank of New South Wales; Bernard van Leer Foundation; Mr George Townsend, Ranger at West Head, National Parks and Wildlife Service; New South Wales State Fisheries, for use of research vessel *Kapala*; Forestry Commission of New South Wales; Maritime Services Board of New South Wales; and Ruello Fish Market.

Professor P. Lawrence, Professor of Anthropology, University of Sydney; Mrs M. Dawes-Smith and Mr D. Miller, Summer Hill Public School; Public Transport Commission; New South Wales Department of Education; Mr Eric Worrell, Australian Reptiles Park; and National Parks and Wildlife Service.

Donations TIME-LIFE International (Australia) Pty Ltd, Sydney.

Overseas Visitors Mrs Margaret Thompson, Education Officer, Royal Scottish Museum, Edinburgh, Scotland; and Mr Rangriti Choasiri, Undersecretary for Education and Dr Vichai, Senior Advisor in Education, Bangkok, Thailand.

Glenn Hunt and Janette McLeod of the Education Section direct the May "Fun with Fossils" school holiday activities at the Museum. Photo by Heather McLennan/The Australian Museum.



Exhibitions Department

Exhibition staff and consultants were involved in major projects throughout the year, which included extensive field work in the East Sepik Province of New Guinea in preparation for the new Abelam Gallery, complete renovation of the Mammal Gallery, a number of original and exciting temporary exhibits as well as further development of marine exhibits started last year.

A program has been established to accomplish a regular re-statement of semi-permanent galleries, frequent and relevant temporary exhibitions, extension services and effective use of visitor areas in accordance with the policy of the Museum.

The Exhibitions Department Nine Year Plan aims at the realization of existing commitments leading up to a regular schedule of semi-permanent gallery re-statement. Changes in the allocation of staff and a proposal for the redevelopment of production areas were initiated. Strong corporate support allied to the NSW Government's "one dollar-for-two dollar" subsidy has assisted the Museum Trust in extending the resources required for vigorous exhibit renewal.

Mammal Gallery Updating and renovation of this gallery in the College Street Foyer began during the year. Previously established in 1963 planning by exhibitions officer, Ms Elizabeth Juska, advanced to the stage where prefabricated elements of the new gallery were installed. This exciting presentation will show a diversity of Australian mammal fauna posed in striking settings.

A preview exhibit was installed near the gallery to explain the progress of the project and to show how specimens are prepared by taxidermy. "Museum on the Road" will also receive an exhibit based on the new Mammal Gallery. The gallery and travelling exhibit received generous support from the Rural Bank.

The Abelam Gallery Exhibitions Officer, Mr Jeffrey Freeman, has prepared the design of this new gallery which will make a detailed exposition of the Abelam people from East Sepik province of New Guinea. A central element of the gallery design is a full size reconstruction of a Haus Tambaran or dwelling place, in a simulated village setting. An extensive field trip was completed this year to collect structures and artefacts for the exhibit. A "Museum on the Road" exhibit and a feature film will be used in conjunction with the Abelam exhibits. Unilever Australia Ltd provided sponsorship for the gallery exhibit.

The Aboriginal Gallery Preliminary sketch designs for this project were completed by Exhibitions Officer Mr Bob Ross-Wilson, and Broken Hill Proprietary Company Ltd agreed to become the sponsor. The gallery is scheduled for completion in late 1982 and will be accompanied by a travelling exhibit in the "Museum on the Road" exhibition program.



George Hangay of Exhibitions Department demonstrates preparation procedures for material to be included in the new Mammal Gallery. Photo by John Fields/The Australian Museum.

The Marine Invertebrate Gallery The successful opening of Stage I of the Marine Hall last year was followed by development of Stage II, the Marine Invertebrate Gallery. Mr Bob Ross-Wilson was appointed co-ordinator of the project assisted by artist Ms Sally Robinson and Assistant Mr Glenn Ferguson. Completion of the Marine Invertebrate exhibition next year will make an impressive three level gallery devoted to the marine environment.

Birds and Insects Artist Ms Margaret Stewart joined the Exhibition Department this year and developed designs for the new Bird Gallery. Proposals for an introductory wall were completed and manufacture commenced. The Bird and Insect Galleries are being developed to occupy in tandem the old Invertebrate Gallery on level 4 above the Long Gallery.

Mineral Gallery An introductory segment for the Mineral Gallery was opened in August followed by an exhibit on Broken Hill. Later Mineral displays from each of Australia's States will create a comprehensive presentation of Australian minerals.

Museum on the Road "Life in the Sea", an exhibit on Man's marine environment, was completed on schedule and launched on its first tour in January. The exhibit was sponsored by the Bushell Trust and co-ordinated by Exhibitions Officer, Mr Bob Ross-Wilson. The panel designs were undertaken by artist, Mr Bodo Matzick, Ms Sally Robinson and Mrs Mary Socratous assisted by Ms Jan Powell and Mrs Louise Calcutt. Two outstanding features of the exhibition are a wave tank display designed and built by preparator

Mr Dick Scott-Child and a full size dolphin cast in fibreglass by Mr George Hangay and Mr Stephen Clarke.

Temporary Exhibits—

The Yuin The Yuin Aboriginal Community Group from Wallaga Lake, NSW provided the Museum with the first temporary exhibition for the year. "A message from the Mountain" was shown in the Aboriginal Gallery during July and August 1979. The exhibition of photographs was arranged by the group to explain the significance of Mumbulla Mountain and to discourage logging activities proposed for the area.

The Children's Media Exposition Held in the Pacific Gallery for ten days during October as part of Children's Week during International Year of the Child. The exhibit showed examples of programs made for children and by children and was held in conjunction with a forum examining the needs of children and the media.

Lion Rugs "Lion Rugs from Fars" was an exhibit on loan from The Australian Gallery Director's Council. This exhibition of beautiful hand-woven rugs was strikingly presented in the Long Gallery from November 1979 through to January 1980.

The Child in Aboriginal Society During February and March an exhibition of photographs entitled The Child in Aboriginal Society was shown in the Aboriginal Gallery. This exhibit was on loan from the National Museum of Victoria. The exchange of temporary exhibits between museums is a policy enthusiastically supported by the Australian Museum.

Heathlands An elegant exposition of Heathlands was shown on the Long Gallery during April and subsequently in the State Office Block. The exhibit was designed by Ms Elizabeth Juska and the graphics prepared by Mrs Mary Socratous and Ms Lois Sattler.

Venomous Australian Wildlife Established during May in the Long Gallery. A presentation of live snakes, spiders and marine life compiled privately by ex staff-member Mr Paul Webber and Mr John Edwards provided an important information service to the public. This exhibit attracted great interest during its week of showing.

"Treasures of the Museum" Continued as a changing display in the College Street Foyer showing unusual and interesting items from the collections. The September exhibition celebrated the acquisition of the magnificent William Bowmore collection of artefacts from West Africa and the May exhibit presented rare and historic specimens from the past.

The Museum participated in the Premier's Department stand at the Royal Easter Show. The theme, "Emblems of the State" was supported by display specimens from the Museum and Exhibitions Officer, Ms Elizabeth Juska, participated in the organization and manning of the project.

Staff New members of staff this year were Assistant, Mr Glenn Ferguson, and Artist, Mrs Margaret Rankin. Mr Jeff Freeman returned to the Department in January after successfully completing university studies. Mr Rob Joyner was appointed Chief of Exhibitions in July after being Acting Chief for three months.

Mr David Rae, Chief Preparator, resigned in December 1979. Mr Rae joined the staff of the Museum in 1958 as an Assistant Artist. In twenty years of dedicated service Mr Rae made a substantial contribution to the development of Exhibitions Department. His undoubted talents were given recognition when he was appointed Exhibitions Officer, a position created as a result of his efforts in artistic expression. He held this position with distinction for many years.

Library

Binding and cataloguing remain problems and with an increasing number of requests, closer liaison with other similar organizations may be necessary. Several new systems and methods have been adopted, including methods of ascertaining lapsed periodicals to help staff locate uncatalogued books and streamline periodical display loans more easily. Means of ascertaining what the media is saying was stepped up and closer liaison has been made with Museum staff. Facsimile volumes of John Gould's *Birds of Australia* were obtained and the extensive Inter-Library Loan Service was maintained. Visitors increased and staff attended seminars.

The monographs, periodicals and archival material held in the Museum's Library constitute a major source of specialized reference material, not only for research undertaken within the Museum, but also for the scientific and educational activities of many other organizations. The aim is to maintain the present collection in good order, to acquire new material consistent with established priorities and availability of funds and space, and to ensure that documentation and conservation procedures result in the optimum use of all Library facilities.

Binding Backlog Several problems remain unsolved, though we are working towards resolution or alternative arrangements. Only 300 volumes were bound this year. While this is a slight increase on previous years' figures, no real progress is being made with the backlog of 18 000 volumes awaiting binding, largely because of the Government Printing Office being unable to cope with more than this amount a year.

Cataloguing Problem Cataloguing of material will remain a problem until a new full-time cataloguer is appointed. The backlog of current cataloguing is 646 volumes, including 114 periodical titles. However, as part of the plan to reduce the number of sequences

in which books have been classified and arranged in the past, 3 000 volumes await recataloguing. When this project is completed, there will be hopefully only three major sequences—Reference Collection, Monographs and Periodicals.

Partly resulting from the vastly increased activity in keeping staff aware of newly published or available material in their field, the number of requests for items to be purchased vastly outweighs the amount of money available. With continued increases in material published and with their increasing cost, it seems that the partial resolution of this problem will require re-evaluation and rationalization of priorities, procedures and resources and lead to closer co-operation with libraries and information centres in the same field.

New Systems and Methods In order to adequately support the work of the staff, several new systems and methods of approach have been introduced including:

Lapsed Periodicals A new claiming system for monographs and periodicals has enabled the Library to ascertain which periodicals have lapsed. In some cases, up to five years of back issues needed claiming. This project is still continuing, but it is hoped that shortly all periodicals will be up to date and claiming will continue on a regular basis for current issues.

Making Location Easier As the backlog of current cataloguing has increased, due mainly to the absence of a cataloguer for much of the time, a system for easily locating uncatalogued books was introduced. These items are now arranged strictly by their registration number and are thus, in connection with other records, retrievable if only the author is known. Urgent items are flagged and the system now permits easy accessibility, instant recognition of urgent items and items which have been waiting longest for cataloguing.

Procedures Streamlined Procedures for loans to staff of display periodicals were streamlined to reduce the time lag between the initial request and receipt of the item. In this case, all loan and reminder records are initiated and maintained by Library staff and in some cases the loan period has been reduced.

The system is working extremely well as evidenced by the loan statistics—a total 2 464 loans, of all kinds, were made to staff—a 100 per cent increase on last year's figures. This increase is partly due also to the continuing production of the *Periodicals and Accession Bulletins*. All items catalogued are listed, as are all articles in all periodicals that come into the Library—the Library now has some 700 subscription periodicals and some thousands more received on an exchange or donation basis.

Information On Media Coverage The Library now receives notification of relevant topics covered on radio and television, as well as continuing our newspaper clipping service. This information reveals current community attitudes, the role played by the media in promoting certain topics or opinions, all of which information is required to formulate policies and programs

for the Museum that have direct relevance to the community. Select files of this information are maintained and a positive program of collecting bibliographies on such topics is being actively pursued. Establishing and maintaining formal and informal communications networks is also being carried out in relation to this project.

Closer Liaison In all areas, Library staff have been trying to liaise more closely with other staff and to demonstrate an ability and willingness to act as a supportive service. Reference work and literature searches are now being carried out, and staff with particular on-going projects are encouraged to notify the Library so that these staff may be alerted to current literature. More than 600 enquiries were dealt with, an increase of more than 200 percent, ranging from the very simple to in-depth searches.

Journals Checked For Book Reviews In order to alert staff to new publications of interest or of direct relevance to their work, all journals received are now checked for book reviews or notices of proposed publications. All publishers' blurbs are also checked in this way. Relevant reviews and notices are then sent to the Department concerned. Staff may then decide to order the item, to obtain on Inter-Library loan or merely to note for future reference.

John Gould Works Obtained This year the Library acquired a total of 914 monographs, a little less than half being obtained by donation or exchange. The most notable of these donations were the facsimile volumes of John Gould's *Birds of Australia*, published in a limited edition by Lansdowne Press in 1975. The set comprises eight folio volumes and a smaller handbook to the volumes.

Inter-Library Loan Service The Library continues to maintain an extensive Inter-Library Loan Service. One staff member is devoted almost entirely to fulfilling I.L.L. requests, which are weighted very heavily on the side of requests received from other Libraries. During the year, 1 840 requests were received from outside the Museum. Of these, 1 347 were requests for photocopies and 326 for the actual volume, an increase of about 100 per cent on last year's figures. In contrast, only 527 items were requested on I.L.L. but once again, this is an increase, of nearly 200 per cent, on the number of items requested and obtained in the previous year.

It would appear that the desire to increase efficiency and promote greater awareness of our services and resources, both within and outside the Museum, and partial achievement of same, has succeeded all too well.

Visitors Increase In addition to these increases, the number of people using the Library from outside the Museum increased slightly to 400. In this case though, the number of external visitors is often dictated by the lack of available working space or staff to cope,

as all requests mean that one staff member must retrieve and carry all items required for some considerable distance. In some cases, items must be obtained from the various departments and as these are scattered away from the Library, much time and effort is involved in obtaining these items.

Staff Activities Staff have attended seminars organized by the State Library and the Library Association on such topics as *Managing Libraries in Times of Financial Crisis* and *Community Information as Related to Special Libraries*. The Librarian also attends meetings of the Museums, Arts and Humanities Group, a group where aims and interests, with regard to the Libraries of such institutions are similar and which provide a basis for future co-operation.

Aim For More Efficient Service Our energies and aims for the last year, and the future, are aimed at making the Library a more efficient and effective information centre, not just in a passive sense, but also in an active, initiative sense and during this past year we have come to feel that we are succeeding, though much work still remains to be done and many problems to be overcome.

Photography Department

As Museum activity in publications, gallery displays, temporary and travelling exhibitions increased, greater demands were made on photography to provide a countless variety of illustrations, ranging from photographs of living opisthobranch molluscs for the 1981 calendar, photographs for posters, large photo murals to provide backgrounds for exhibits, and, illustrative material for the exhibits themselves. At the same time we have provided photographs for scientific research and for promotional brochures.

The Photography Department fulfills a dual role: providing a technical photographic service for all departmental requirements integrated with the equally important function of contributing creative ideas and visuals in the communicative areas.

In the gallery our video machine continues to attract large audiences to the screening of our films; the three 60 minute programs of some twelve films are a popular attraction and the machine is in such demand it may soon need to be replaced.

Collections and Volunteers Our collections are continually growing and our filing and reference work would be much behind were it not for the help of two volunteers, Mrs Ann Brown and Mr Bob Pulsford. While black and white material is filed satisfactorily some minor difficulties occur with the filing of increasing



Voluntary workers play a vital part in the day-to-day work at the Museum. Here Mr Bob Pulsford (right) discusses filling prints with Photography Department Head, Howard Hughes. Photo by John Fields/The Australian Museum.

numbers of colour transparencies. We are still concerned with the archival preservation of certain collections including those of the Hurley and Dick negatives. Examination shows they are at least stored under the best available conditions.

Liaison The advice and help of the Department has been sought by other Museum Departments, and in this regard, photographers have been involved at the planning stage in a few projects, notably the Abelam gallery, a new mammal gallery, the production of sets of slides for sale to the public and the production of a book on minerals.

Film Work—Sales A number of films have been sold here and overseas and good reports come in of screenings in Europe and other countries. Our promotion is handicapped through lack of time however the Tasmanian Film Corporation, a Documentary Film Distributor for the NSW Film Corporation, has offered to distribute Museum films. This matter is under consideration and if suitable arrangements can be made the prospect of further sales could be enhanced.

Film Work—Production During the year consideration was given to a number of film proposals. One of these was a film in New Guinea associated with the construction of an East Sepik village in the new Abelam Gallery. While material is being obtained in New Guinea for this gallery the opportunity is available to film the making of artefacts and the daily village life. At the same time there exists a rare and unique possibility of filming an initiation ceremony. With a budget of well over \$10,000 for the first stage of production and the hiring of a cinecameraman and soundman this film will be the most ambitious project yet undertaken. Following this, a production is planned, sponsored by the Aboriginal Arts Board of the Australia Council, depicting a hunt for dugong on Mornington Island in the Gulf of Carpentaria.

X-Ray Unit Our X-Ray machine has been used considerably through the year mainly for skeletal studies of fish and lizards and occasionally for birds. Stereo (three-dimensional) photography in our general work has been followed with experimentation in stereo X-Rays. This is a little known and rarely used technique but experiments so far have been very interesting and results are promising.

These experiments lead us to believe that we can develop an improved system for viewing ordinary three-dimensional stereo photographs in Museum gallery displays which will be simpler and better than the existing rear projection polaroid system.

Field Work Howard Hughes accompanied Dr Alex Ritchie and his party to Cox's Creek near Mullaley, NSW, where an excellent fossil *Diprotodon* skeleton was excavated. Mr Hughes filmed, photographed, and helped with the work of uncovering the bones. The film produced was used on several television programs and with still photographs has provided a worthwhile record of the acquisition of this valuable specimen. John Fields accompanied field expeditions to various localities. They included Barrington Tops, the Mudgee region, Lizard Island Research Station, Broken Hill and Seal Rocks, Victoria. Photographs made on these expeditions provide essential illustrative material for exhibitions, publicity, publications, scientific studies and requests for photographs from all parts of Australia and overseas. Special projects and activities involved in making aerial photographs of the Careel Bay area for mangrove reclamation studies, documenting part of the William Bowmore collection of African artefacts prior to their transfer from Newcastle to the Museum, and photographs taken at National Park for the exhibit about heathlands jointly produced by the Museum and the National Herbarium staff.

Other exhibits and activities photographed have been the David Attenborough lecture organized by TAMS at the Hilton Hotel, Sunday at the Museum concerts, National Museum's Day, Drop-in Program, school holiday activities, the International Crustacea Conference held at the Museum, launching of the Museum history book and exhibitions such as Museum Treasures and Lion Rugs from Fars.

Publicity Publications Section

The "Stuffed With Life" promotion brought a new dimension to Museum publicity during this year, and, together with a vigorous media presentation of Museum events and activities has done much to build a new public image of The Australian Museum.

It is the aim of the Department to forge enduring links between the public and the Museum by disseminating information about Museum activities and purpose, and to win practical increasing support in visitation and sponsorship. To this end every form of communication needs strengthening—media co-operation, public relations, advertising and publications.

Significant achievements in this regard have been the widespread and sustained media coverage of the *Diprotodon* fossil, from the time of unearthing the skull until its mounting in the Museum foyer. Gratifying assistance was given this project by Selleys Pty. Ltd. in its assembling and display. Other important and successful media ventures were the coverage given to the International Crustacea Conference in May, the post-graduate research awards, hunting horned turtles on Lord Howe Island—associated with the Museum's new policy of visiting curatorships in the person of Dr Eugene Gaffney from the American Museum of Natural History. Unusual exhibitions such as a living Venomous Wildlife display, and the Iranian Lion Rugs gave the Department opportunities to successfully show the public the diversity of life in a Museum of Natural History, and far from being stuffy, dusty and conservative the Museum is indeed a lively place full of activity.

This was precisely the inspiration of the slogan "Stuffed With Life" which touched off much lively controversy through the media and attracted the interest of wide sections of the populace hitherto indifferent to the Museum. The slogan's popularity is reflected in sales of car-bumper stickers, posters and tee-shirts, which disseminate the slogan.

The publication *Rare and Curious Specimens* was launched during the year. This history of The Australian Museum included contributions by many prestigious experts in Australian science and history including its editor, R. Strahan. The book was written to commemorate the sesqui-centenary of The Australian Museum (1827–1977), and 2000 copies were published and have been selling from the Museum Shop and some outside shops. Tracing the history of Australia's first museum from its shaky and somewhat mysterious beginnings as a "menagerie" type collection to the present day when it is regarded as an internationally significant scientific organization, housed in an impressive edifice which itself holds a place in the historic development of the State of New South Wales.

"Sunday at The Museum", a regular presentation of popular musical entertainment associated with special activities for children was initiated in August 1979 and has become a regular feature of life in Sydney on Sundays. It is presented on the second Sunday of each month.

Celebration of another International Museums' Day on 18 May indicated how diversity in activity can successfully attract more patrons. Despite industrial problems in the media the program received excellent pre-publicity and ensured the success of introducing such novel features as "buskers", balloons, "free gifts" and special exhibits.

Four issues of the Museum's magazine *Australian Natural History* were published during the year. Much effort and planning has been put into redesigning this scientific quarterly to bring it in line with modern, popular publications. A campaign to promote the new look magazine was launched using the usual channels of advertising, agreements with kindred publications such as the National Trust Magazine for contra inserts, and a promotion by mail. It is expected that this will result in a considerable increase in subscribers.

A Guide to Exhibits was translated and printed in Japanese to complement our present editions in Italian and Greek. Financial assistance from the Japan Australia Foundation enabled this work to be carried out.

The Australian Museum's 1980 calendar was produced featuring Aboriginal Bark Paintings and work began on the 1981 calendar "Nature's Harlequins"—a breathtaking full-colour study of opisthobranch molluscs.

A new "What's Happening" brochure was launched during the year and four issues of this small calendar of events have been produced and distributed to keep all friends of the Museum informed of current activities. A revised edition of Fred McCarthy's *Aboriginal Rock Art* was published by and launched at a successful social evening held in the front foyer of the Museum.

Sixteen numbers of the *Australian Records* were published since June 1979, and a further 22 are currently in press.

That excellent revenue generating centre, The Museum Shop, has been the subject of much thoughtful planning and activity. In consequence stock has expanded considerably both in quantity, diversity and quality. Redesigning the area has commenced and this will provide better display facilities and space and a more efficient flow of patrons in order that shop staff may cope with peak visitations.

The year saw many staff changes. Mrs Susan Quirk, who succeeded Ms Nancy Smith, has been granted maternity leave, Ms Denise Torv, stepped into her position for three months when she transferred to similar work in another museum. Barbara Purse is currently Acting Head of the Department. There have been many

changes in editorial assistants in the same period. The Department was indeed fortunate to obtain the services of G. D. Campbell, PhD, who quickly fitted into the team. His scientific qualifications are of inestimable value. The shop manager Grant Wargren took long service leave, his place has been temporarily and competently filled by Bruce Colbey; a rearrangement of shop employees has enabled the Department to replace a weekend employee with a full time worker, fortunately Ms Leah Ryan has remained through these upheavals for her fifth year and so provided much needed continuity. The Department has been most grateful for the assistance of volunteer workers, especially Erica Hepburn and David O'Gorman, whose reliability and efficiency helped us over some rather hectic times. Erica is away on a long service leave holiday. Despite the inevitable disruption flowing from constant change the year's activities have been most fruitful and, given a period of stability, should provide a basis for further expansion in the coming year.

National Photographic Index of Australian Wildlife

Contracts were negotiated with a publisher for the publication of two major works, covering wrens, warblers and mammals, based on the Index collections. This publishing program has major implications, including the continuation of the Photographic Index project. Valuable donations were received. The project was set back temporarily through the death of a very dedicated worker, Mrs J. M. (Peggy) Trounson.

With the original purpose of forming a permanent photographic record of the birds of Australia, the Index project, launched in 1969 under the aegis of The Australian Museum in association with the National Library, expanded in 1977 to include mammals, and looks to the future as an ongoing activity, eventually to embrace other animal groups. Its long-term objectives are to create the most comprehensive possible archive of photographs of Australian wildlife; to promote the use and reproduction of the photographs for the enhancement of public appreciation of Australian wildlife and as a contribution to biological science; and to provide an expanding service to the public, photographers and publishers.

Two Major Books to be Published Contracts were negotiated in December with Angus and Robertson Publishers for the publication of two major works based on the Index collections: the first, *The Wrens and Warblers of Australia*; and the second, provisionally entitled *The Mammals of Australia*.

The first book will cover the 85 species of birds belonging to the wren and warbler group and is conceived of as being the first of a series of volumes, illustrated with photographs selected from the Bird Index, to eventually cover all the bird species.

Mr Vincent Serventy, AM, is the Editor-in-Chief, with Mr Arnold McGill as Scientific Editor. Also, the work enjoys the support of a distinguished panel of honorary consultants and will comprise 304 pages, of which 192 will be illustrated with some 250 photographs selected from the Bird Index and efforts are being made to complete the delivery of material to the publishers by the end of September, 1980.

The mammal book will be a comprehensive work to fill a need in the literature on Australian mammals and will cover 276 terrestrial species and 24 or so subspecies. The book will be illustrated by about 400 photographs selected from the Mammal Index. Mr Ronald Strahan is the Editor-in-Chief and the book is being produced with the help both of a distinguished panel of Section Editors, each of whom is a prominent authority in his field, as well as an impressive range of authors. Efforts are being made to deliver the contents to the publishers by December, 1981.

The production of both books is being financed by royalties advanced by the publishers.

Three Factors Behind Publishing The Index's publishing program is motivated by three important considerations:

The long-term preservation of the photographic records in the Index will be ensured through the production of the fade-free colour separations made for the plate-making process; public appreciation of Australia's wildlife will be enhanced; the promises of royalties will help the Index project to survive as an on-going activity.

Death of Devoted Worker Mrs J. M. (Peggy) Trounson, who was associated with the Index project from its early formative days in 1967, died on 8 August, 1979. Mrs Trounson, an Archivist (Photographs), made a major contribution to the development of the Index since it became operational in June, 1969. Responsible for the control and processing of all photographs submitted, it is to Mrs Trounson's credit that none of the 20 000 or so photographs handled during her ten years with the Index was either lost or damaged. This impeccable record did much to win the confidence of photographers, whose support is essential to the project.

Mrs Trounson has been succeeded as archivist by Mrs Mary Rose Gordon.

Staff Activities The Executive Committee met four times, being chaired by Mr R. W. Turner.

Collections Growing Progress made in building the two collections is reflected in the following tables:

BIRD INDEX
(As at the end of Stage XXXIV)

	1978-79	1979-80	Totals
Submissions	1,467	1,028	19,477
Acceptances—			
Index (in print form with replicas for the National Library)	192	192	4,622
Slide Section (35 mm duplicate slides)—			
XT classification (an overflow of Index quality photographs when print targets in the main Index have been reached)	250	180	639
T classification	300	108	2,153
Species Represented .. .. .	..	..	..
Index .. .. .	..	8	744
Slide Section (species additional to those in Index) .. .. .	..	..	31

MAMMAL INDEX
(As at the end of Stage III)

	1978-79	1979-80	Totals
Submissions	357	427	1,522
Acceptances—			
Index (in the form of duplicate 12.6 x 10 cm transparencies)	122	151	406
Slide Section (35 mm duplicate slides)—			
SX classification	10	42	123
S classification	72	67	216
Species Represented .. .. .	..	..	..
Index	24	41	171
Slide Section (species additional to those in Index) .. .. .	..	4	17

Donations The project continued to be dependent on financial help and the unit is especially indebted to the World Wildlife Fund Australia, the Federal Government and the Australian Museum Trust for their generous support.

Other donations, maximum \$450, were made by: J. M. Tronson, O. Landell-Jones, Australian Galleries Pty Ltd, B. W. Lithgow, Caltex Oil (Aust) Pty Ltd (\$300), Pancontinental Mining Ltd, I.C.S. Aust Ltd, Mrs F. E. Hutcheson and G. M. King. Other donations included: South Australian Museum, Mrs S. Hamilton, H. G. MacLachlan, H. G. Brooks, State Govt. Insurance Commission (South Australia), R. A. Simpson, Freeman Motors Ltd and Sir Robert Porter.

Lizard Island Research Station

Nearly 100 scientific workers visited the station during the year to pursue scientific studies and almost half of these came from overseas organizations.

The Lizard Island Reef Research Station provides platform facilities offering scientists from anywhere in the world the opportunity to conduct research on the Great Barrier Reef. The Australian Museum has a long history of involvement with the Great Barrier Reef.

More equipment has been acquired including a Wild M400 stereo microscope with MPS45 photoautomat, a 0.5 cub. metre refrigerator, a Sorvall bench centrifuge (courtesy of CSIRO Division of Food Technology) and an electrophoresis gel drying cabinet (courtesy of the Australian National University).

The 25 KVA diesel generator, the 12 cfm compressor and fresh water pressure system installed the previous year continue to work well and satisfy growing demands.

Five electric 2 door freezer/refrigerators have been purchased to replace the kerosene fridges in the houses. Ceiling fans have been installed in two houses. Five Solar Hot water systems have been erected on the houses, with two spares for future bungalows. Extra channels have been added to the radio transceiver and a new antenna system installed—the Station is now connected to the telephone network through the Royal Flying Doctor Base in Cairns. Outgoing telephone calls are now possible but only telegrams, not phone calls, can be received. Although this is not perfect, it is a considerable improvement on our earlier communication system. Plans approved by the Queensland National Parks and Wildlife Service have been completed and sites marked out for the construction of four A-frame bungalows.

Aquarium System The outdoor aquarium system has been extended with a new area under 50 per cent shade cloth and four 2 000 litre fibreglass tanks installed. These are more suitable for holding larger animals such as crown of thorns starfish. Extra 100 litre glass aquaria have also been fabricated.

A 75 mm polythene inlet pipe for the salt water pumps has been installed, and reaches 150 metres out over the reef in front of the Station to where the inlet is covered at all tides. The pump house has been re-located with two pumps placed lower, relative to sea level. Salt water can now be pumped at any stage of the tide and can be provided continuously if the need arises.

The Great Barrier Reef Marine Park Authority has provided a 5 metre aluminium, centre console, dive boat powered by twin 25 hp Evinrude outboards. This brings the Station's boat complement to seven.

Work in Progress Materials are on hand to enclose one-third of the eastern side of the lab verandah. This will be made into a wet lab and the original wet lab converted into a biochemistry/physiology lab.

Plans are being developed to extend the lab block; install a -20°C walk-in cold room; add more specialized equipment to the laboratories, construct a wash room near the work shop; and hopefully to provide a covered area for work on boats and outboards.

Staff Mr Trevor Barnes resigned as Maintenance Officer in December 1979 after two years' service to return to his former job with the Commonwealth Department of Productivity. Viv Dawson, a marine engineer from Cairns, provided excellent continuity for 3 months until the appointment of Alan Young as Maintenance Officer on 19 February 1980. Lois Goldman has been appointed as part-time secretary, the position having been made official from September 1979.

Meetings There were three meetings of the Lizard Island Executive:

16 March in Sydney, 29 July at Lizard Island, and 20 January 1980 in Sydney, plus a full meeting of the Trustees in Brisbane on 8 November 1979. The Director attended a meeting of the combined reef research facilities at the University of Queensland, a meeting of the Great Barrier Reef Committee and participated in a two-day seminar at Port Stephens, NSW organised by the Australian Society of Fish Biologists, a seminar on growth and development of coral reefs at the Australian Institute of Marine Science and a Workshop on monitoring by the Great Barrier Reef Marine Park Authority.

Visitors Ninety-seven scientists and assistants worked at the Station, eight of whom visited more than once; forty were from overseas institutions. In addition, there were a number of VIP visitors.

Media Interest Mr Robin Williams of the ABC Science Unit spent two days at the Station and produced a half-hour radio documentary on the Station's activities including some of the visiting scientists. Ms D. Gilmour of the ABC Natural History Unit, with a team of fourteen photographers, sound recorders and divers, spent three weeks on the Island in November/December making two half-hour documentary films. Mr Alistair Birtles (James Cook University) provided technical advice. The first film was commissioned by the Great Barrier Reef Marine Park Authority and dealt with the Barrier Reef as a marine park. The second film was on the Research Station—the people who live and work here, and the types of research undertaken. These films should go to air in late 1980.

Overall, 1979 proved an interesting and very satisfying year. The Station is becoming better known internationally both from the scientific and fund-raising points of view. Refinements to the Station's facilities are progressing and 1980 promises to be an even better year.

The Australian Museum Society

An outstanding event in a year of memorable activities was a lecture by Mr David Attenborough world famous naturalist, attended by 850 people at the Hilton Hotel. The quality and number of lectures and other activities has been maintained and the membership of the Society has reached an all time high.

The Australian Museum Society is a committee of the Museum Trust whose objectives are to publicise the work of the museum, to encourage people to visit the museum and to partake of its activities, to take the work of the museum to the people and to assist where possible in special projects of the museum.

These aims are accomplished by several means, including lectures, demonstrations, visits to exhibits, visits to other museums and scientific organizations, field trips, and a number of largely social activities both within and outside the museum.

The Society is governed by a council of ten elected members, including the president and vice president, and four appointed representatives of the Museum, including the Director. Council appoints an executive secretary and other administrative staff as necessary, who are assisted in the management of the office by volunteers and members who are co-opted on an ad hoc basis.

Membership of the museum society is actively encouraged by all available means and present membership is in excess of 2 000.

Bellydancer in the foyer of The Australian Museum was an unusual feature of the opening of a special Exhibition of the Lion Rugs from Persia. The entertainment arranged by The Australian Museum Society (TAMS) was well attended and the exhibit itself was well received.





Jim Hazel, President of The Australian Museum Society, introduces David Attenborough, naturalist and author of the television series and book *Life On Earth*, to a large and enthusiastic gathering at the Hilton Hotel. Photo by John Fields/The Australian Museum.

Strenuous efforts are made to minimize the cost to members of annual subscriptions and functions. However, after several years without increase Council was forced to raise the annual subscriptions in 1979. Although this produced an initial slight drop in renewals, this has been followed by a brisk rise in membership, and at present the society is enjoying the highest level of membership and of activity in its eight year history.

Other outstanding features of this year's program included a visit to the Nicholson Museum. Contacts with other museums were further developed and on 18th May International Museum Day was celebrated, in conjunction with the Museum of Applied Arts and Sciences, by a visit to the Military Museum and A Field Day at Victoria Barracks.

Carol Serventy attended a Council meeting of the World Federation of Friends of Museums in Venice April 17-20. Her trip was funded by the Australia Council.

Another highly successful overseas trip—this time to Lord Howe Island under the leadership of Vincent Serventy—followed a lecture on Lord Howe Island. Soames Summerhays gave a memorable lecture

"Las Islas Encantadas" on the Galapagos. Arrangements are in hand for a trip to the Galapagos in 1981. A highly successful field trip was led by Dr Alex Ritchie to Tambar Springs where a skeleton of *Diprotodon* was recovered. This formed the basis of a popular lecture by Dr Ritchie. To our delight *Diprotodon* featured on a stamp released by Australia Post on the same day.

The Marine Biology Weekend at Jervis Bay was extremely successful. Forty members attended lectures by Neville Coleman and demonstrations on specimens obtained by scuba divers led by the President of the Society, Dr Hazel.

There was a packed house to hear a lecture given by David Attenborough, "Travels of a Naturalist" coincided with the introduction of his highly successful television series *Life on Earth*.

During the year the society has been successful in fostering good relations with the community and with business firms. Unilever Australia has been an outstanding benefactor and is joined by Readers Digest Services Pty Ltd, Mr W. S. Tatlow, Esso Australia Ltd and Conzinc Riotinto (Aust) Pty Ltd.

Our volunteers have continued to be active in all departments of the museum. The Society is fortunate to have a Council of experienced and enthusiastic members which is strongly supported by the Director, Dr Des Griffin, and by the Board of Trustees.

The Australian Museum Statement of Receipts and Payments for the Year ended June 30, 1980

THE TRUST'S GENERAL, GRANT AND RESERVE FUNDS FOR THE FIVE YEAR PERIOD ENDED 30 JUNE 1980

TRUST GENERAL FUNDS

These funds are the separate income of the Trust of which the major items are statutory endowment, State subsidy for special projects, Shop sales and Magazine subscriptions. The growth in these funds over the last five years has been +275 per cent in revenue and +230 per cent in expenditure. The growth in both income and expenditure over this period has seen a steady increase whereas the result for the financial years individually has been quite erratic.

In 1975-76 Trust General Funds net cash amounted to \$220 and for the next two years the account was in deficit by \$25,158 and \$19,265 respectively. The following year the reserves moved into a surplus of \$40,415 and this year the result was a small reduction in the accumulated reserve by \$128 to a cumulative total of \$40,287.

GRANT FUNDS

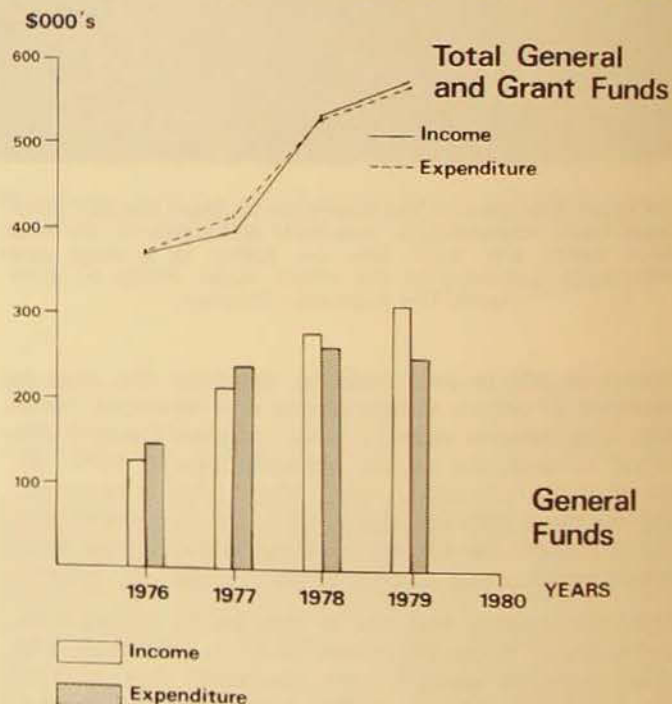
These funds are received from granting agencies and the private sector for specific projects in the fields of scientific research, exhibitions and educational programs. The growth in these funds over the five year period has been +64 per cent in revenue and +41 per cent in expenditure.

Grant Funds during this period have remained fairly constant except for 1978-79 when Grant Accounts reserve funds, which stood at \$48,178, were at their lowest balance for over five years. On the other hand the final result for 1979-80 was a cumulative reserve of \$126,486 and this was the highest level of reserve funds for over five years.

RESERVES (Trust General and Grants)

At 30 June 1980 the combined reserves (Trust General and Grant Funds) stood at \$166,773, the highest total for over five years. For the four years prior to this year the reserves moved in the range of \$76,000 to \$93,000 and, indeed, from the low point of \$76,130 in 1976-77 the reserves have been slowly increasing. These increases, however, were not such as to keep pace with inflation so that the spending power of the Trust was being slowly eroded. The dramatic increase this year resulted in reserves being increased by 88 per cent and, in fact, over the five year period and after adjusting for inflation, the purchasing power of the Trust has been improved by twenty-one percentage points. This is an extraordinary result compared to the five year period to 1978-79 when the reserves had, after taking an average inflation rate into account, decreased by some twenty-two percentage points.

INCOME & EXPENDITURE — TRUST GENERAL & GRANT FUNDS



The Australian Museum Statement of Receipts and Payments for the Year ended June 30, 1980

FINANCIAL STATEMENT

Revenue from all sources during the year amounted to 3.9 million dollars, an increase of 23 per cent over the previous year. Funds from the State Government for working expenses and statutory endowment amounted to 3.04 million dollars and represented a contribution of 76 per cent towards the total funds available to the Trust. The statutory endowment amounted to \$110,000, an increase of 10 per cent over the allocation for the previous year, whilst a further \$97,058 was provided by the State Government as a special incentive, by way of a subsidy of \$1 for every \$2 raised, to attract sponsorship for museum programs from private sources, with a maximum State contribution of \$100,000. In all, support from State sources increased by 17.5 per cent over the previous year.

The income of the Trust (exclusive of the State Government's contribution towards salaries and working expenses) increased by 56.5 per cent or \$174,310 over the previous year. Without the statutory endowment, the State subsidy for special projects and grant funds, Trust Funds still increased by the very satisfactory margin of 32 per cent or \$67,252. The main sources of revenue were, Shop sales, *Australian Natural History* magazine subscriptions, mineral sale proceeds, interest on investments and donations. The performance of the Museum Shop has been quite extraordinary in that in 1974-75 the total revenue from Shop sales amounted to about 53 per cent of the statutory endowment. The result for 1979-80 is that Shop sales exceed the statutory endowment by 47 per cent and represent 78 per cent of the combined amount of statutory endowment and State subsidy for special projects. Indeed, if the mineral sale result were to be added to the Shop revenue, the total would exceed the statutory endowment by 69 per cent and this is quite a shift in the income pattern compared to some five or six years ago.

During the year Grant Funds increased by 47 per cent over the previous year and the main sources of income were from the Australian Research Grants Committee, the Australian Biological Resources Study, the Australian Marine Sciences Technology Advisory Council, the Bank of New South Wales and funds for the Lizard Island Research Station.

Expenditure from all sources increased by 19 per cent compared to the previous year. The excellent result in Trust General Funds allowed increased activity over the previous year in such important areas as the purchase of items for the Museum's permanent collections (+87 per cent), Exhibitions (+19 per cent), contribution to the Lizard Island Research Station (+100 per cent), and Research Grants (+381 per cent). In addition, it was possible to implement a program for scientists from overseas to visit the Museum for purposes of research for short periods (\$6,585) and to introduce a series of special activities and programs on the second Sunday of each month for Museum visitors (\$10,595). Overall the expenditure in Trust General Funds increased by 123 per cent and the net effect on reserves was reduction of less than half of one per cent (—\$128). During the year Grant Fund expenditure decreased by 2 per cent and reserves increased by 163 per cent compared to the previous year.

The Australian Museum Society increased its revenue by 44 per cent. Main sources of revenue were subscriptions and proceeds from functions. A total of \$5,400 was also raised for the purchase of jade specimens for the Museum's permanent collections and this was made up of a special donation of \$3,600 from Unilever and \$1,800 State subsidy under the \$1 for \$2 scheme mentioned above. Expenditure increased by 9 per cent; and cash reserves at 30 June stood at \$13,298 compared to \$962 at balance date the previous year. The consolidated accounts of the National Photographic Index of Australian Wildlife show that income increased by 85 per cent and expenditure by 32 per cent compared to 1978-79. The effect of this was that cash reserves increased by \$19,500 or 332 per cent over the previous year.

Unlike last year, the growth in funds in 1979-80 has exceeded the average rate of inflation. This has improved the spending capacity of the Trust and allowed for the implementation of new programs and the expansion of some of the existing activities which carry a high priority. Whilst the net effect on Trust General Fund reserves was a nil growth, the Trust's total reserve increased by the very satisfactory rate of 123 per cent over the previous year.

Consolidated Summary

Receipts

1979				1980	
\$	%			\$	%
94,932	3	Balance at 1st July..	.. .. .	95,429	2
2,583,751	79	Treasury Appropriation ..	.. .. .	3,039,406	76
208,455	6	Trustee Accounts ..	.. .. .	275,707	7
267,916	8	Grants ..	.. .. .	394,157	10
50,909	2	The Australian Museum Society ..	.. .. .	73,102	2
47,046	2	National Photographic Index of Australian Wildlife ..	.. .. .	87,232	2
..	..	Peter Rankin Memorial Fund ..	.. .. .	7,183	1
<u>\$3,255,009</u>	<u>100</u>			<u>\$3,972,216</u>	<u>100</u>

Payments

1979				1980	
\$	%			\$	%
2,283,407	70	Salaries ..	.. .. .	2,576,199	65
236,938	7	Stores and Equipment ..	.. .. .	236,600	6
90,296	3	Travel ..	.. .. .	102,756	3
548,939	17	Other Payments ..	.. .. .	844,032	21
95,429	3	Balance as at 30th June ..	.. .. .	212,629	5
<u>\$3,255,009</u>	<u>100</u>			<u>\$3,972,216</u>	<u>100</u>

Consolidated Revenue

Receipts

1979		1980
\$2,485,751	Treasury Appropriation	\$2,832,348

Consolidated Revenue

Payments

1979				1980	
\$	\$	Item		\$	\$
2,021,746		Salaries .. .. .	.. .. .	2,302,886	
73,105		Travel .. .. .	.. .. .	92,778	
	25,118	Motor Vehicle Running Cost .. .. .	.. .. .	31,438	
	47,984	Travelling and Subsistence Expenses .. .. .	.. .. .	61,340	
151,742		Stores .. .. .	.. .. .		168,865
70,360		Building .. .. .	.. .. .		71,818
	2,048	Maintenance, etc. .. .. .	.. .. .	1,291	
	68,312	Rent, Rates, Fire Insurance .. .. .	.. .. .	70,527	
123,390		Other Working Expenses .. .. .	.. .. .		126,040
	20,663	Books, etc. .. .. .	.. .. .	25,000	
	11,444	Fees .. .. .	.. .. .	7,595	
	8,985	Freight, Cartage and Packing .. .. .	.. .. .	12,096	
	1,192	Laundry .. .. .	.. .. .	882	
	1,667	Meal Allowance .. .. .	.. .. .	1,559	
	245	Minor Expenses .. .. .	.. .. .	299	
	10,861	Other Insurance .. .. .	.. .. .	13,000	
	14,349	Postal .. .. .	.. .. .	5,924	
	53,984	Printing .. .. .	.. .. .	59,685	
45,412		Special Appropriations .. .. .	.. .. .		69,961
	42,771	Major Equipment and Storage for Museum Specimens .. .. .	.. .. .	49,815	
	2,641	Overseas Visit .. .. .	.. .. .	20,146	
<u>\$2,485,751</u>				<u>\$2,832,348</u>	

The Australian Museum Statement of Receipts and Payments for the Year ended June 30, 1980

Trustees Funds						
Income						
1979						1980
\$	\$	Item			\$	\$
100,000		<i>Government</i>				207,058
	100,000	Endowments			110,000	
	..	Special Projects			97,058	
167,379		<i>Trading Operations</i>				227,448
	29,691	ANH Sales			33,974	
	..	Coffee Shop (half share of net profit)			1,500	
	13,177	Film Sales			5,837	
	7,979	Mineral Sale			23,505	
	359	Red Phone			453	
	116,173	Shop Sales			162,179	
9,110		<i>Special Programmes</i>				3,001
	9,110	Minor Grants .. .. .			..
	..	Sunday at the Museum			3,001	
31,966		<i>Other Income</i>				45,258
	7,274	Contracts			2,448	
	7,389	Donations			13,560	
	2,213	Exhibition Receipts			358	
	8,359	Interest			13,980	
	4,712	Miscellaneous			13,221	
	1,921	Photocopy Receipts			1,666	
	98	Royalties and Copyrights			25	
308,455						
		Opening Balance as at 1st July, 1980				482,765 40,416
\$308,455						\$523,181

Trustees Funds

Expenditure

1979		Item	1980
\$	\$		\$
30,786		Acquisitions	
30,034		Exhibitions	57,564
		Abelam	35,790
		Aboriginal	12,879
		Arid Zone	106
		Birds/Insects	660
		Fossils	2,119
		Hall of Life	88
		Mammals	57
21,166		Marine Hall	6,167
558		Mineral Gallery	6,854
7,370		Temporary	1,373
940		Treasures	5,407
110,360		Trading Operations	80
		ANH Production	52,877
30,820		ANH Promotion	1,340
2,418		Film Production Costs	4,773
		Mineral Purchase for re-sale	15,552
435		Red Phone	642
76,687		Shop Purchases	103,110
35,482		Special Programmes	162,143
		Anniversary	25,137
2,882		Conference and Symposium	1,943
2,008		Education Programme	3,741
5,132		Honoraria	12,213
7,713		Minor Grants	1,712
5,000		Museum's Contribution to Lizard Island	10,000
7,995		Scientific Assistance	8,929
		Sunday at the Museum	10,595
1,352		Research Grants	6,508
		Visiting Curator	6,585
		Special Project Distribution	74,720
42,112		Other Operating Costs	49,101
		Computer Fees	1,303
1,176		Entertainment	8,989
8,166		Fees	
660		Miscellaneous	12,289
2,978		Photocopy Payments	1,490
1,803		Printing	14,620
12,864		Publicity/Publications Section	1,950
805		Reprints	586
522		Travelling Expenses	7,874
13,138			
248,774			482,893
19,265		Opening Balance as at 1st July, 1978	
40,416		Closing Balance as at 30th June	40,288
\$308,455			\$523,181

The Australian Museum Statement of Receipts and Payments for the Year ended June 30, 1980

GRANTS ACCOUNTS

Scientific Grants	Receipts		Expenditure		Balance	
	1979	1980	1979	1980	1979	1980
	\$	\$	\$	\$	\$	\$
Australian Government						
Australian Biological Resources Study ..	31,119	19,737	23,352	24,034	7,028	2,731
Australian Council—Aboriginal Arts						
Board—						
Aboriginal Conference	2,292	..	2,022	158	270	112
Grant to Dr McCarthy .. .. .	..	..	44	189	2,400	2,211
Minor Grants	166	1,520	..	..	1,020 Dr.	500
Grant for the purpose of producing						
Rock Art Book .. .. .	..	..	..	5,000	5,000	..
Grant towards the purchase of Tiwi						
Carvings	2,000	..	..	1,822	2,000	178
Visiting Curator of Tribal Art ..	..	15,000	1,312	18,085	17,807	14,722
Australian Institute of Aboriginal Studies			957	..	1,917 Dr.	1,917 Dr.
Australian Marine Science and Technolo-						
gies Advisory Council .. .. .	..	21,590	..	..	..	21,590
Australian National Parks and Wildlife						
Service	19,584	4,750	17,656	8,453	4,253	550
Australian Research Grants Committee ..	57,961	56,189	59,145	51,605	3,759 Dr.	825
Department of Science and Environ-						
ment—						
Boyd Pleteau Ecostudy Grant .. ..	..	..	173	..	..	..
Coastal Seabird .. .. .	..	..	925	..	..	..
Lord Howe Island—Woodhen Survey ..	..	..	179	..	..	..
Queen's Fellowship Grant—						
Jeffrey Leis	12,254	25,080	12,362	21,173	108 Dr.	3,799
Susan Oldfield	7,838	..	10,881	6,984	6,984	..
National Employment Strategy for Abo-						
riginals—						
Phillip Gordon .. .. .	..	..	..	3,329	..	3,329 Dr.
Other Scientific Grants						
Australian Garbage Project .. ..	..	..	..	..	1,608	1,608
Camden Haven Project—						
Dick Smith	2,522	..	13,135	2,233	2,233	..
Forestry Commission Grant—Travel ..	2,000	..	1,961	39	39	..
Forestry Commission Grant—Salary ..	..	3,789	..	3,789	..	..
Cape York Study—Grant from Comalco						
(Aust.) Ltd	2,821	..	1,259	1,528	1,561	33
Conzinc Riotinto of Australia Ltd—						
Grant for Malangan Restoration ..	..	..	..	..	500	500
Electricity Commission—Colo River Pro-						
ject	18,240	..	30,558	1,394	1,584	190
Greenpeace—Spermwhale Survey ..	..	4,500	..	3,985	..	515
Wood Chipping Survey—Grant from						
Harris Daishowa	5,000	8,960	634	2,310	4,082	10,732
Ian Potter Foundation—Upper Mantle						
Project .. .. .	..	3,750	..	4,625	..	875 Dr.
Keith Hindwood Memorial Fund ..	..	..	50	..	..	..
Lizard Island Research Station (formerly						
Joint Coral Reef Research Project) ..	42,223	170,236	96,604	89,661	35,586 Dr.	44,989
UNESCO—Oceanic—Cultural Survey ..	8,911	2,057	3,758	6,836	5,153	374
Reserve Bank—Rural Credit Develop-						
ment Fund	610	..	..	..	..	..
Sigoba Trust	117	..	..	..	..	..
Bank of N.S.W. Grant for "Wandervan"						
Guide Books—	17,591	18,975	15,221	14,382	6,301	10,894
Grant from C.B.C. Ltd	985	..	3,445	..	..	..
Grant from The Australian-Japan						
Foundation .. .. .	..	3,627	..	3,627	..	..
Outer Urban—						
Bushell Trust	5,000	10,000	973	13,319	4,027	708
State Government	3,197	..	5,773	..	..	..
Western Regional Council .. .. .	..	..	923	..	..	..
Rural Bank—Mammal Gallery and O.U.E.						
Grant	11,655	..	255	6,683	11,400	4,717
Unilever (Australia) Ltd—Abelam Gallery		5,000	..	..	..	5,000
Bernard Van Leer Foundation Australia						
Ltd—Sponsorship of—						
Drop-In	13,830	19,397	14,684	18,056	1,221 Dr.	120
Scholarship .. .. .	..	..	2,850	2,550	7,559	5,009
	<u>\$ 267,916</u>	<u>394,157</u>	<u>321,148</u>	<u>315,849</u>	<u>48,178</u>	<u>126,486</u>

THE AUSTRALIAN MUSEUM SOCIETY

Income

1979		Item	1980
\$			\$
3,521	Australian Natural History Magazine	.. .. .	4,001
65	Badges and International Passes	.. .. .	213
950	Benefactor and Sponsor Membership	.. .. .	1,650
17,849	Central Australia Trip	.. .. .	12
69	Donations	.. .. .	1,092
88	Interest	.. .. .	94
..	Lord Howe Island Trip	.. .. .	9,822
10,420	Members Subscriptions	.. .. .	16,373
898	Miscellaneous	.. .. .	1,255
1,000	New South Wales Government Grant	.. .. .	..
..	New South Wales Government—Special Project	.. .. .	1,800
..	Proceeds from Coffee Shop	.. .. .	1,500
15,111	Proceeds from Functions	.. .. .	28,439
..	Proceeds from Sale of Specimen Jars	.. .. .	2,407
938	Members Wine Offer	.. .. .	844
..	Unilever Grant	.. .. .	3,600
5,781	Balance as at 1st July	.. .. .	962
<u>\$56,690</u>			<u>\$74,064</u>

Expenditure

1979		Item	1980
\$			\$
1,595	Australian Natural History Magazine	.. .. .	3,472
15,647	Central Australia Trip	.. .. .	..
..	Cost of Specimen Jars	.. .. .	1,740
6,500	Honoraria	.. .. .	7,273
150	Lecture Fee	.. .. .	705
..	Lord Howe Island Trip	.. .. .	10,419
8,720	Members Functions	.. .. .	15,276
8,502	Miscellaneous	.. .. .	2,385
3,195	Postage and Mailing	.. .. .	2,626
2,609	Printing and Stationery	.. .. .	2,109
..	Purchase of Jade (Donated to the Australian Museum)	.. .. .	5,400
..	Purchase of books for re-sale	.. .. .	2,346
8,810	Salaries	.. .. .	7,015
962	Balance as at 30th June	.. .. .	13,298
<u>\$56,690</u>			<u>\$74,064</u>

The Australian Museum Statement of Receipts and Payments for the Year ended June 30, 1980

**NATIONAL
PHOTOGRAPHIC INDEX
OF AUSTRALIAN WILDLIFE**

MAIN ACCOUNT

Income		1980
1979		
\$	Item	\$
	Donations—	
15,000	Federal Government	12,000
	N.S.W. Government	18,000
6,647	Other	30,000
159	Interest	141
52	Sale of Equipment	
500	Insurance Claim	
494	Miscellaneous	
3,000	Repayment of loan to Sales Account	
	Reimbursement of expenses paid by Main Account for Sales Account	2,959
		63,100
25,852		
9,197	Balance B/F at beginning of financial year	3,945
		\$67,045
\$35,049		

[illegible]

NATIONAL PHOTOGRAPHIC INDEX OF AUSTRALIAN WILDLIFE

SALES ACCOUNT

Income

1979		Item	1980
\$			\$
859	Balance as at 1st July		729
	Angus and Robertson—Advances—		
	Wren/Warbler Book		7,500
	Mammal Book		13,000
2,092	Sales (Reproduction fees)		824
479	Sales (R.D. Books)		
23	Bank Interest		8
	Loans—		
7,000	Museum Drawing Facility		
4,400	Temporary loan from Main Account		1,000
6,000	Donation—Bushell Trust		
<u>\$20,853</u>			<u>\$23,061</u>

Expenditure

1979		Item	1980
\$			\$
13,290	Salaries and fees		12,499
	Travelling		44
	Page Sponsorship advertising		950
192	Duplicating and Stationery		440
2,184	Reproduction fees		458
132	Miscellaneous		367
	Loans—		
1,128	Interest to Museum		
3,000	Part repayment to Main Account		
198	R.D. Bird Books		
729	Balance as at 30th June, 1980		8,301
<u>\$20,853</u>			<u>\$23,061</u>

NATIONAL PHOTOGRAPHIC INDEX OF AUSTRALIAN WILDLIFE

PAGE SPONSORSHIP SCHEME

Income

1979		Item	1980
\$			\$
	Balance as at 1st July		1,200
1,200	Receipts		1,800
<u>\$1,200</u>			<u>\$3,000</u>

Expenditure

1979		Item	1980
\$			\$
	Payments		3,000
1,200	Balance as at 30th June		
<u>\$1,200</u>			<u>\$3,000</u>

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The Australian Museum Trust appoints three members to the
Council and the balance is elected by the membership.

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Acknowledgments

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

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Financial support from the following is also acknowledged:

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