

1961

PARLIAMENT OF NEW SOUTH WALES

REPORT OF THE TRUSTEES
OF THE
AUSTRALIAN MUSEUM
FOR THE
Year ended 30th June, 1961

Ordered to be printed, 10 October, 1961

Wholly set up and printed in Australia by
VICTOR C. N. BLIGHT, GOVERNMENT PRINTER, SYDNEY, NEW SOUTH WALES

BOARD OF TRUSTEES

PRESIDENT :

Frank B. Spencer

CROWN TRUSTEE :

Frank B. Spencer

OFFICIAL TRUSTEES :

The Hon. the Chief Justice.	The Hon. the Minister for Education.
The Hon. the President of the Legislative Council.	The Auditor-General.
The Hon. the Chief Secretary.	The President of the New South Wales Medical Board.
The Hon. the Attorney-General.	The Surveyor-General and Chief Surveyor.
The Hon. the Treasurer.	The Crown Solicitor.
The Hon. the Minister for Public Works.	

ELECTIVE TRUSTEES :

O. G. Vickery, B.E., M.I.E. (Aust.).	Frank W. Hill.
Prof. A. P. Elkin, M.A., Ph.D.	G. A. Johnson.
F. McDowell.	Prof. J. R. A. McMillan, M.S., D.Sc.Agr.
R. J. Noble, C.B.E., B.Sc.Agr., M.Sc., Ph.D.	E. A. J. Hyde.
E. J. Kenny, M. Aust. I.M.M.	Prof. R. L. Crocker, D.Sc.
F. L. S. Bell, M.A., F.R.A.I.	J. W. Goodsell, C.M.G.

ANNUAL REPORT

OF THE TRUSTEES OF THE AUSTRALIAN MUSEUM

For the Year ended 30th June, 1961

To His Excellency The Governor:

The Trustees of the Australian Museum have the honour to submit their 107th Report for the year ended 30th June, 1961.

As recorded in an Addendum to our 106th Report, the Trustees suffered a grievous loss during the year owing to the death on 16th September, 1960, of their President, Mr. Wallace C. Wurth, C.M.G.

Mr. Wurth had served on the Trust for a period of fourteen years, had acted as Chairman of the Finance Committee for twelve years and became President in December, 1958. The Crown Trustee, Mr. Frank B. Spencer, who was elected President at the September meeting of the Board, was re-elected to this position for the year 1961 at the December meeting. The vacancy caused by the death of Mr. Wurth has been filled by the election of Mr. J. W. Goodsell, C.M.G.

Professor Crocker, prior to his departure overseas, was given leave of absence from Board Meetings for a period of twelve months from October.

As well as attending the usual monthly meetings of the Board and of the Standing Committee, some of our members also took part in Sub-Committee meetings which were held for the purpose of discussing aspects of the affairs of the Museum.

Several such meetings have been held to discuss insurance, both of the Museum buildings and of its contents, while another Sub-Committee has met to consider publicity in relation to the Museum.

Our Report will make it abundantly clear that the Museum is becoming of increasing significance as an educational and research institution and we wish to express our appreciation to the Director and the staff for their enthusiastic work which is having such satisfactory results.

THE NEW WING

This is the third consecutive report in which we have been able to report on the progress of new building developments.

On 11th August, on the occasion of the opening of the two lower floors of the New Wing, the Premier, the Hon. R. J. Heffron, M.L.A., unveiled a plaque to commemorate the occasion. Some 200 guests were present at the ceremony and subsequently they were given an opportunity of inspecting the new laboratories and storage accommodation. The contract for the construction of the upper floors has been let to the firm of Max Cooper & Sons, and work commenced during August.

These floors, as mentioned in our last report, will consist of four for use for gallery, storage and library extensions and will be entirely illuminated by artificial light. Above them will be a recessed storey which will be glass-fronted and equipped as a cafeteria for the convenience of the visiting public.

OTHER MAJOR EVENTS

In our Annual Report for 1957, we drew attention to the fact that in no other country in the world do cities do less for Museums than in Australia. It is therefore with great satisfaction that we are able to report that during the year a grant of £1,000 was received from the Council of the City of Sydney, for which we express our grateful acknowledgement. Not only is the Museum an educational and research organisation, but it is also a civic asset and a tourist attraction of considerable importance. For this reason it merits the support of the City, which we trust will be continued.

PRESSING NEEDS

The building of a new wing for the Museum has served to make space available for nearly but not all Museum requirements.

New accommodation is required for a lapidary workshop, mascerating room, rooms for paint spraying and welding and a double garage. All these could be housed in a single building.

In addition, and of far greater importance, is the requirement for increased storage for the spirit collections. The existing Spirit Building, in which these are kept, is filled to capacity with the result that accession collections have to be unsuitably housed in crowded containers, which is detrimental to their preservation. They are also stored in a variety of inconvenient places.

The photographic workshop is on top of the Spirit Building, and before a new floor can be added it will be necessary for new quarters to be provided for the Museum Photographer and Visual Aids Officer. Space for this purpose is available in the room formerly occupied by the Curator of Anthropology, and all that needs to be done is for this to be appropriately equipped.

GALLERY DEVELOPMENTS

Excellent progress has been made in gallery display during the year. Work has continued on the new Fish Gallery, which, though far from complete, has had several new individual displays completed. These include the Archer Fish, Grunion, Blind Goby and representatives of several Australian species. A panel has been completed on the "Age and Growth" of fishes.

The former Fish Gallery, which now houses an identification series of Australian birds, has been reopened and draws considerable public attention.

The Neanderthal Man diorama has been completed.

The whaling exhibit has also been completed as has also the first section of the new Australian mammal exhibit. The latter includes educational displays dealing with the Origin of Mammals, Australian Mammals, Monotremes and Marsupials.

As specimens become available casting has been continued for an exhibit on lizards and dangerous snakes.

The large specimen of pitchblende, from El Sherana, presented by the Atomic Energy Commission and for which a special display case was built last year has been installed.

A fine specimen of Cerussite from Broken Hill and a specimen of Pectolite from the Prospect quarry have been placed on exhibition in the same case.

The need to provide access to the top floor of the New Wing through the east wall of the Invertebrate Gallery has caused several changes to be made in displays. The exhibit containing a giant Japanese crab, edible crustaceans and echinoderms has had to be broken up into separate units. The contents of the case have been installed as three attractive displays on the south wall of the Gallery.

A special exhibit of Vampire Bats was prepared as a temporary exhibit in the Entrance Hall.

The reference collection of coins, medals and tokens, the collection of paper money and the numismatic library have been transferred to the Museum of Applied Arts and Sciences. The four display cabinets of numismatics will be transferred in the near future.

A statue of Buddha has been removed from display as the result of representations from the Department of External Affairs. The reason for the request was that it gave offence to students from Asia of Buddhist persuasion.

STAFF MATTERS

Due to the provision of up-to-date laboratory accommodation in the new wing, the scientific staff, for the first time in the history of the Museum, is housed in satisfactory accommodation. However, such facilities by themselves are insufficient to ensure that the Museum can, with any certainty, look forward to becoming an increasingly more effective and useful scientific and educational organisation. Such developments depend as well on other considerations and in particular on the recruitment and retention of well qualified staff. Because of the nature of the work of Museum Curators, which includes the care and improvement of the vast national collections, long continuity of service is of the greatest importance. In former times the staff of the Australian Museum, as of similar Museums elsewhere, lacked academic qualifications but today the greater number has good University degrees.

The work of a Curator is not confined to care of the collections but includes educational and research activities. These activities demand, at least, the same qualifications as are necessary for University lecturers and for this reason the Museum needs to be able to compete with Universities in recruiting scientific staff. Unfortunately, at present the Australian Museum is not in a position to do this. We are of the opinion that until it becomes possible to rectify this state of affairs and to secure for the Museum staff parity of salary and status with University employees the future progress of the Museum as a leading scientific and educational institution must remain uncertain.

The Director returned to the Museum after six months' absence overseas on 3rd December. During his absence the Deputy Director, Mr. H. O. Fletcher, was Acting Director.

We wish to record our sincere appreciation of the manner in which Mr. Fletcher carried out his duties. These were particularly onerous since, as well as undertaking all those concerned with the administration of the Museum, he remained in active charge of the Department of Fossils. Moreover, during the period of the Director's absence, several matters of exceptional occurrence required attention. These included arrangements for the transfer of much of the staff from the old building to the new one, arrangements in connection with the provision of new storage cabinets, and also those associated with the ceremony of the opening of the New Wing. In all these, and with those associated with the day to day running of the Museum, Mr. Fletcher acted in such a way that the Museum continued to function with great efficiency. This was due in large part to his maintenance of excellent staff relations.

The Director, while abroad, was the recipient of a UNESCO Travelling Fellowship which was granted to enable him to study Museum developments overseas. As well as visiting nineteen Museums in the United States and thirty-six in Europe, he worked at the British Museum (Natural History) for six weeks and attended the International Congress of Entomology in Vienna, where he represented Australia on the Permanent Committee.

Before returning to Australia, he attended a UNESCO, Asia and Pacific Regional Museum Seminar which was held in Tokyo during September.

Shortly after his return from overseas, the Director submitted a report to us which contained particulars of the information he had acquired having a bearing on various aspects of natural history museums. This enabled us to learn of the knowledge he had gained as a result of his Fellowship, much of which will be of considerable value to the Museum.

The Report has been widely circulated and we are confident that it will be of benefit also to other institutions.

Because of his recently acquired increased knowledge of natural history museums generally, the Director has been invited by UNESCO to undertake a Mission on its behalf. This Mission is to advise on the establishment of a natural science museum in Bangkok.

We were pleased to be able to recommend that his services be made available, since it provided us with an opportunity of expressing to UNESCO our appreciation of their grant of a Fellowship.

Mr. F. A. McNeill retired on 2nd June on reaching the age of 65 years. Mr. McNeill, who was Curator in charge of Crustacea and certain other groups of invertebrate animals, had been a member of the scientific staff for forty-seven years. During this long period he did much to enhance the importance of the collections in his charge and as well, with the co-operation of others, undertook important research in connection with marine borers. The results of this research have proved to be of considerable economic benefit. His book on the Great Barrier Reef, which was published in 1959, in co-operation with Mr. K. Gillett, has received the highest praise in reviews published both in Australia and overseas.

Dr. J. A. Keast resigned on 6th March, 1961. He had been a member of the scientific staff for fourteen years and Curator of Birds, Reptiles and Amphibians since 1957. At the time of his resignation, Dr. Keast was in Canada where he has accepted an appointment as Professor of Vertebrate Zoology in Queen's University, Kingston, Ontario. While he was on the staff of the Museum he planned and supervised the very successful re-organisation of the Bird Galleries. Dr. Keast was well known to many outside the Museum because of the interest he took in making scientific natural history widely known by means of popular publications and radio and television programmes.

Miss P. M. McDonald, Senior Education Officer, left Sydney on 27th April to attend, as Australian representative, a meeting of the American Museums Association. This meeting was followed by a tour of Museum centres which lasted a month. During the period of the meeting and of the tour she was the guest of the Association. Subsequently, Miss McDonald spent a further four weeks in the United States visiting other natural history museums for the purpose of studying their educational activities.

Mr. H. G. Cogger has been awarded an M.Sc. degree by the University of Sydney.

The Public Service Board having approved the creation of the post of Assistant Curator of Anthropology the position has been advertised but not yet filled.

Dr. J. C. Yaldwyn, who is at present on the staff of the Dominion Museum, Wellington, New Zealand, has been appointed Curator of Crustacea, in the place of Mr. McNeill and will commence duty next year.

Two new posts of Museum Assistants have been created and filled by the appointment of Miss L. Carter and Miss J. Walsh.

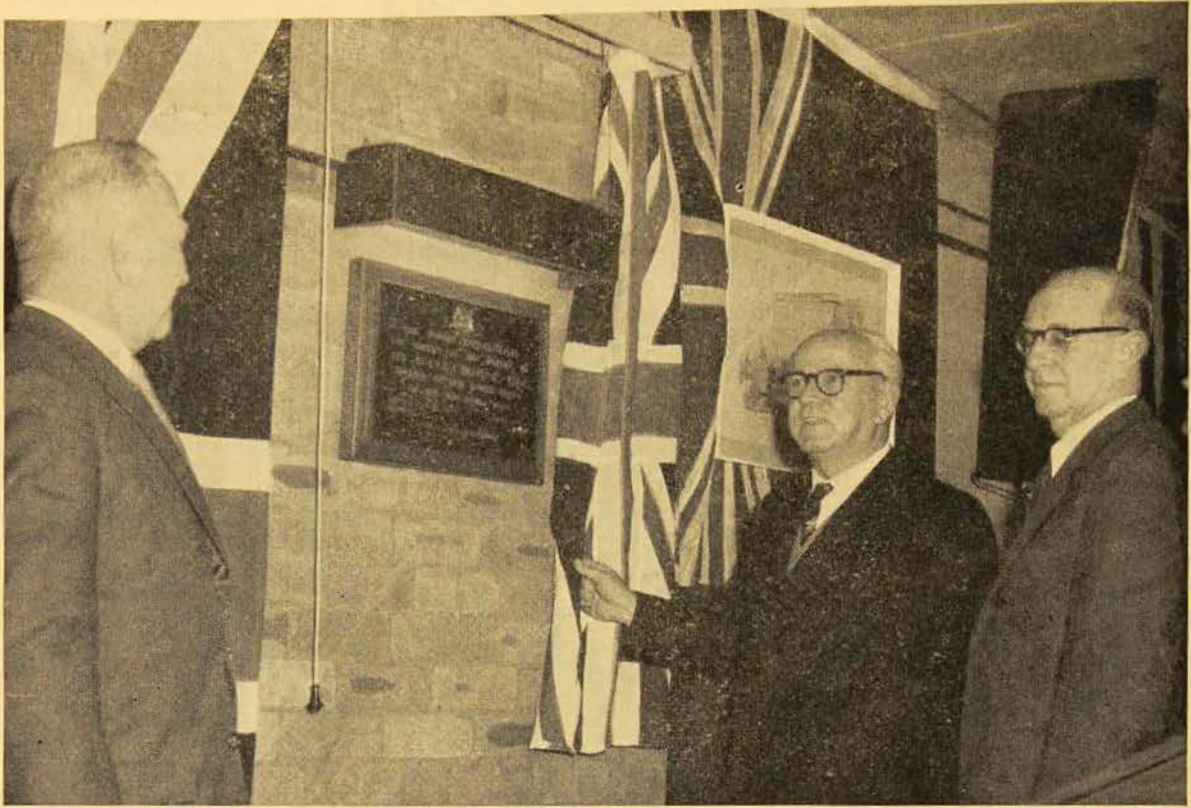
The following have resigned during the year: Miss K. Pope (Museum Assistant), Mrs. K. Neilsen (Ticket Writer), Mr. S. Ross (Cadet Preparator), Miss L. Burness, Miss P. Rainbird, Mrs. M. Whitelegg, Mrs. E. Ditlow (Clerical Officers), Mr. S. Pettit, Mr. C. Latter, Mr. H. Foster (Attendants). They have been replaced by Mrs. J. Taylor (Ticket Writer), Mrs. B. Hall, Miss E. Davey, Miss E. Emery, Miss L. Mossie, Miss C. Gow (Clerical Officers), Mrs. K. Kota (Museum Assistant), Miss S. Bradford (Assistant Librarian), Mr. R. Lossin (Preparator), Mr. L. Flynn, Mr. R. Thew, Mr. D. Soltan, Mr. L. Mathieson (Attendants). Other appointments for newly created positions were: Mrs. J. Watson (Typiste in the Library), Mr. M. Bracken (Attendant/Cleaner) and Mrs. M. Sergeant (Cleaner). Miss R. Hauenstein has been transferred from the position of Office Assistant to that of a Museum Assistant.

RESEARCH

Research activities are regarded as of equal importance as a museum function as the two other principal ones associated with collections and education.

We are able to report that the scientific staff has undertaken a considerable amount of research during the year and that much of it is of high calibre.

The Director has continued work on the preparation of a Monograph on Australian and New Zealand Cicadelloids and Cercopoids (insects) and has undertaken further research on fossil insects.



The Premier, the Hon. R. J. Heffron, M.L.A., unveiling a plaque on 11th August, 1960, which commemorates the opening of the two lower floors of the new wing. Beside him is the late President of the Board of Trustees, Mr. Wallace C. Wurth, C.M.G., and to the left, the Acting Director, Mr. H. O. Fletcher



Building progress on the new wing

The Deputy Director has completed an investigation of linguloids from Upper Silurian and Devonian localities in New South Wales. He is also continuing with a study of Upper Devonian fossils from western New South Wales and of a new fossil fauna contained in middle Cambrian strata in the Mootwingee area north of Broken Hill.

Mr. Cogger has investigated various aspects of the biology of the Australian reptiles of the lizard family Agamidae and has made progress in the preparation of a Bibliography and Check List of Australian reptiles and amphibians.

Mr. Marlow, having completed a study of the reproductive behaviour and development of the marsupial mouse *Antechinus flavipes*, has begun an investigation on its biology. He has been able to establish a laboratory colony of another marsupial, *Sminthopsis macrura*, and it is hoped that it will be possible to undertake a comparative study of its behaviour and development.

Dr. McMichael has continued studying certain Australian representatives of the Molluscan family, Volutidae, including Western Australian species, of which material is available in collections made by the Hawaiian-Western Australian Expedition of 1960. He has also revised the family Acavidae (a family of New Guinea land shells) and, together with Mr. Iredale, has completed a Check List of the marine mollusca of New South Wales. In addition, he has continued his research on the Lymnaeid snail host of liver fluke in Australia.

Mr. McNeill, prior to retirement, almost completed his report on the extensive collections of Decapoda and Stomatopoda made on the Great Barrier Reef Expedition of 1928-29.

Mr. Smithers has completed work on a collection of Psocoptera from Madagascar and has written a short paper which brings together knowledge of the South African Sisyridae.

Mr. McAlpine has continued to work on the systematics of the Dipterous families Helomyzidae and Lauxaniidae. Keys to genera and species have been prepared for the Helomyzidae and descriptions of over thirty new species are in course of preparation.

FIELD WORK

Miss Pope, who was enabled by the Museum to spend two months' long service leave in Noumea, New Caledonia, acquired while there extensive collections of a wide variety of marine organisms for the Museum. Many of the specimens were formerly not represented in the collections.

Mr. Chalmers, accompanied by Mr. Hughes, spent a week examining old gold fields at Hill End, Hargraves, Home Rule and Gulgong, also ornamental stone localities in the Nundle-Hanging Rock district. He also made two visits to the Prospect quarries and one to a breccia quarry near Rooty Hill.

Mr. Marlow, Mr. Smithers and Mr. Cogger returned in July from a two months' field expedition to Cape York Peninsula, where most of the collecting was undertaken in the Coen, Silver Plains and Rocky River areas. About 80 mammal species were obtained, some of which were previously not represented in the collections.

During September, at the invitation of the C.S.I.R.O., Mr. Marlow participated in a whale marking programme in which some sixty-five whales were marked in the vicinity of Moreton Island, Queensland.

Mr. McCarthy carried out, on two occasions, excavation work at two stratified sites on the Capertee River near Glen Davis. He was assisted by members of the Rover Scout Crew of the University of Sydney and by members of the Anthropological Society of New South Wales. He also made a preliminary examination of a series of twenty-six rock shelters containing Aboriginal paintings in a range of hills extending from Cobar to Louth in central-western New South Wales. Further recordings of the paintings and excavations of selected sites will be continued next year as the result of funds made available to the Museum by the Nuffield Foundation.

Mr. Whitley spent part of February at Shoal Bay, Port Stephens, in order to obtain material needed for the new Fish Gallery. Part of his time was spent at sea on a trawler and on game fishermen's boats.

During March, Mr. Marlow, accompanied by Mr. Mackay, travelled to Innaminka, in South Australia, to search for mammals. Due to the dry season, the results were disappointing, but a live series of marsupial mice (*Sminthopsis macrura*) was collected, also a series of wallaroos (*Macropus robustus erubescens*). The latter were from the Tibobourra district of New South Wales.

Mr. Fletcher, accompanied by Mr. E. O. Rayner, of the Geological Survey of New South Wales, visited the Cobar district for a week during March and was successful in finding fish remains of Upper Devonian age in the Mulga Downs formation at Mount Grenfell.

Following the identification of Middle Cambrian fossils from the limestone area near Gnalta in the Mootwingee area, an expedition was organised to investigate the outcrop. This comprised Mr. Fletcher, two officers of the Geological Survey of New South Wales and two representatives of an oil prospecting company, and took place during January.

Dr. McMichael, at the invitation of the Royal Australian Navy, spent two weeks at sea on *H.M.A.S. Gascoyne* and was thus enabled to collect on numerous coral reefs and islands of the Coral Sea off the Great Barrier Reef. In company with Mr. McAlpine, he also spent a fortnight collecting land mollusca in Southern Queensland and northern New South Wales. Mr. McAlpine was searching particularly for insects.

The Director, accompanied by Mr. Fletcher and Mr. O. le M. Knight (Honorary Associate), visited the Permian insect fossil beds at Belmont during June.

Mr. McCarthy attended, during May, a Conference on Aboriginal Studies at Canberra. This was organised by the Commonwealth Government.

The Director attended the annual UNESCO Museums' Committee meeting which was held in Brisbane during May. Subsequently he participated in the ANZAAS Congress, as also did Mr. Marlow, Mr. Smithers and Dr. McMichael.

An expedition comprising Mr. Cogger, Mr. Hughes and Mr. Mackay left Sydney on May 14th for the Musgrave Ranges in Central Australia. The purpose of the expedition was to further Mr. Cogger's research on Agamid lizards and to study the factors governing the distribution and ecology of desert reptiles.

PUBLICATIONS

Volume XXIII of the Australian Museum Magazine has been continued with Nos. 7, 8, 9 and 10. The December issue dealt with various aspects of the natural history of the Sydney area and had an exceptionally good sale. The number of regular subscribers to the Magazine has, in spite of a rise in its selling price, increased very considerably. This is due to newspaper publicity arranged through the Premier's Department, and to circulars sent to schools and libraries.

Six parts of Volume XXV of the Records of the Australian Museum, Nos. 4—9 inclusive, were published during the year.

Five new leaflets on natural history subjects have been printed and thirteen existing leaflets revised and reprinted. A second edition of "Exploring between Tidemarks" has been published.

The coloured chart mentioned in last year's Report, entitled "Life through the Ages", which shows the progress of life through geological time, and has been designed for hanging in schools, has been published. A coloured illustrated folder, which will serve as a guide to the exhibit "These are Invertebrates", is being prepared and is with the Government Printer.

Three Pocket Guides prepared by members of the Museum staff have been published by the Jacaranda Press, Brisbane. They are as follows: "Native Freshwater Fishes of Australia", by G. P. Whitley, "Shells of the Australian Sea-Shore", by D. F. McMichael, and "Some Bush Birds of Australia", by J. A. Keast.

As well as articles contributed to the Museum Magazine, the following scientific papers by members of the staff were published during the year:—

Evans, J.W., Quelques nouveaux Cicadellides de Madagascar, *Mem. Inst. Sci. Madagascar*, E. 11: 481; McMichael, D. F., Notes on some Australian Volutidae, *J. Malacol. Soc. Aust.* 4: 4, with Whitley, G.P., A Bibliography of C. F. Laserson, with an index to his new genera and species, *Proc. Roy. Zool. Soc. N.S.W.*, 1958/59, 114; Whitley, G.P., Fishes from New Caledonia, *Proc. Roy. Zool. Soc. N.S.W.*, 1958-59: 21; New records of fishes from Eastern Australia, *Proc. Roy. Zool. Soc. N.S.W.*, 1958-59: 60; A new mud-skipper from Papua, *Proc. Roy. Zool. Soc. N.S.W.*, 1958-59: 66; Freak Fishes, *Proc. Roy. Zool. Soc. N.S.W.*, 1958-59: 114; Cogger, H. G. Thermoregulatory behaviour in a specimen of *Morelia spilotes variegata* Grey, *Proc. Linn. Soc. N.S.W.*, 85: 328; Pope, E. (with Miss I. Bennett), Intertidal Zonation of the exposed rocky shores of Tasmania and its relationship with the rest of Australia, *Aust. J. Marine and Freshwater Res.* 11: 182; Keast, J. A. Bird speciation on the Australian continent, *Bull. Mus. Comp. Zool.*, Harvard, 1961; McCarthy, F. D., A Remarkable Ritual Gallery of Cave Paintings in Eastern New South Wales, *Rec. Aust. Mus.* 25: 115; Records of Rock Engravings of the Sydney District, Nos. 72-102, *Mankind*, 5: 385; Rock Art in Central Queensland, *Mankind*, 5: 400; The Rock Engravings of Depuch Island, North Western Australia, *Rec. Aust. Mus.* 25: 121; Australian Archaeology, *Asian Perspectives* 3: 77-81; McAlpine, D. K., "A Review of the Australian species of Clusiidae", *Rec. Aust. Mus.* 25(4): 63.

LECTURES

A series of six Popular Science Lectures was given in the Hallstrom Theatre during the year. The subjects and lecturers were as follows:—

The Procession of Life (Mr. H. O. Fletcher); The Natural History of Lord Howe Island (Miss E. C. Pope); Native and Introduced Land Snails of Australia (Dr. D. F. McMichael); The Prehistory of Australian Aborigines (Mr. F. D. McCarthy); Poisonous and Harmful Fishes (Mr. G. P. Whitley); Ant Behaviour (Mr. J. Freeland and Mr. D. Trengove). Many lectures were also delivered by members of the staff at various scientific meetings.

A new departure during the year was a telecast programme from the Aboriginal Gallery, which took place on June 27th. Mr. McCarthy gave a talk, in the form of an interview, on the economic life and some of the arts and crafts of the Aborigines.

CO-OPERATION

The Museum benefits much as a result of the assistance of a varied nature which it receives each year from many sources, and we wish to express our appreciation to all those who have helped it in this manner.

As usual, several articles have been contributed to the Museum Magazine by outside authors. Mr. L. Thomas, an Honorary Associate, has spent very many days on voluntary work and has helped re-organise the scleractinian coral collection. While accompanying an expedition to the little known Swain Reefs at the southern end of the Great Barrier Reef, he collected a most valuable series of corals for the Museum.

Others who have helped by working in the Museum are: Father Lowery, who has sorted and identified ant material; Mr. L. Haines, who has sorted and identified specimens in the moth collection; Mr. J. Armstrong, who has sorted and identified beetles.

Several marlin swordfishes needed for gallery and research purposes have been presented by Dr. R. O'Donohue, Mr. R. Dyer, Mr. R. Duncan and Mr. Athol D'Ombrian.

Mrs. R. Kerslake and Mr. Tom Iredale have continued to assist in many ways in the Department of Molluscs.

On account of ill-health, Miss Allan has not been able to give her usual services this year, but we are hopeful that she will soon be well enough to be able to do so again.

Considerable assistance was provided by members of the staff of the Stores and Transport Section of the Department of Supply in moving the large specimen of pitchblende into a display case in the museum. The Atomic Energy Commission, who presented the specimen, have given advice in relation to safety precautions and on the type of radiation monitor and Geiger tubes needed for installation purposes in the exhibit.

MUSEUM BUILDINGS AND GROUNDS

The extensive programme of renewing the Museum roof which has been in progress for seven years is nearing completion.

The room in the south wing formerly occupied by two Curators of Invertebrates is now in use as a store. Directly after it was vacated a mezzanine floor was installed and this has considerably increased its storage capacity.

The three rooms adjacent to the Lecture Theatre have been converted to quarters for the Education Officer.

An attempt has been made by the Public Works Department to prevent pigeons roosting on the College Street frontage of the Museum and the strands of fine wire which have been fitted have proved effective. It is possible that similar precautions will need to be taken in the future on the William Street frontage.

New handrails have been fitted to the main stairway, and new ropes to the lift in the south wing.

Floor tiles have been laid in the Invertebrate and Mineral Galleries.

Lighting has been installed in the three new cases built during the last financial year, namely the Mammal, Whale and Uranium cases, and improved lighting and power have been installed in the Education Officer's rooms and in the Invertebrate store.

The elimination of natural light in the Museum has caused ventilation problems in some of the galleries. Work has commenced on the renovation of the rooms adjacent to the library which are to be used as a library office and a reading room. The latter will contain current periodicals and reference works.

The Fire Precautions Committee has prepared a revised list of all fire extinguishers and hoses installed in the Museum and a copy has been issued to all members of the staff, who have, as well, been instructed in the use of the various types of extinguishers.

VISITORS AND ATTENDANCES

During the year 332,883 people visited the Museum. Scientific visitors, most of whom have studied some part of the collections, included: Dr. R. George (Western Australian Museum); Mr. T. Hailstone (University of Queensland); Miss A. Green (University of Tasmania); Dr. R. Catala (Aquarium de Noumea); Dr. Anna Bidder (Cambridge University); Dr. Viola Davidson (Toronto, Canada); M. Jacques Théodor (France); Dr. Bray (U.S.A.); Dr. Dell (Dominion Museum, New Zealand); Dr. C. L. Camp and Mr. John Cosgriff (University of California); Sir Thomas Maher (President of the Board of Trustees of the Western Australian Museum); Dr. C. le Souef; Mr. L. Haines; Miss Dowling; Mr. K. Campbell; Dr. J. Gressitt (Bishop Museum); Dr. K. Key; Dr. D. Waterhouse and Dr. Colless (C.S.I.R.O.); Dr. Hinterberger; Dr. Alagar; Dr. Szent-Ivany; Dr. Woodward; Dr. Spender, Mr. Neboiss (National Museum, Melbourne); Miss K. English; Mr. K.

Moore; Professor James M. Moulton (Bowdoin College, Brunswick, U.S.A.), who presented Queensland fishes from which underwater noises had been recorded; Mr. T. D. Scott (South Australian Museum); Mr. G. F. Mees (Western Australian Museum); Miss P. V. Conlu, Colombo Plan Student (University of the Philippines); Professor A. J. Marshall (Monash University); Mr. J. Bishop (University of Queensland); Miss Myra Smith (University of Queensland); Mr. G. Golson (Australian National University); Dr. T. Barrow (Dominion Museum, New Zealand); Professor Pondrol (Italy); National University); Dr. T. Sinoto (Hawaii); Dr. Gallus (Melbourne); Dr. R. Duff (Director of the Canterbury Museum, New Zealand); Miss J. Walsh, Mr. I. Dunlop (Commonwealth Film Division); Dr. W. F. Cole (Division of Building Research, C.S.I.R.O.); Dr. Virgil Barnes (University of Texas); Mr. J. H. A. Willis; Mr. Craft; Dr. J. F. Lovering and Dr. A. E. Ringwood (Australian National University); Mr. F. S. Colliver (Geology Department, University of Queensland); Professor R. A. Stirton, Professor Alden H. Miller, Dr. R. Tedford (University of California); Sir Alistair Hardy, F.R.S. (Oxford University).

Mr. Lotsenda, Headmaster, Salisbury, Southern Rhodesia, watched the teaching of a visiting school class and was given information concerning our school services.

FINANCE

Expenditure from Consolidated Revenue for the year (excluding Statutory Endowment of £1,000) was £85,337 2s. 9d. compared with £85,538 0s. 3d. last year. Net expenditure from Trustees' Account Funds (including Statutory Endowment) was £5,519 5s. 3d. compared with £6,256 7s. 5d. for 1959-60.

The cash balance in the Trustees' Account at 30th June, 1961, was £6,061 15s. 6d. Trustees' Invested Funds at 30th June, 1961, were: Commonwealth Inscribed Stock £950; Commonwealth Special Bonds £6,100; Metropolitan Water, Sewerage and Drainage Board Inscribed Stock £2,500.

A Statement of Receipts and Expenditure for the year is contained in Appendix A.

DEPARTMENTAL REPORTS

Fossils (H. O. Fletcher, M.Sc., Curator; Miss Freda Sachs, Assistant).

Acquisitions during the year comprised 202 specimens.

Donations of importance have included a collection of Carboniferous brachiopods from near Rawdon Vale (Mr. R. Witchard); insect remains from the Belmont-Warners Bay area (Mr. R. Beattie); Permian plant remains including well-preserved specimens of *Vertebraria* and *Glossopteris*, from near Dunedoo (Mr. T. R. McPhee); a portion of a jawbone with well preserved teeth of an extinct marsupial from the upper Watut River, New Guinea (Mr. F. Brown); a fossil fish and an interesting fossil bird from diatomaceous earth deposits at Bugaldie, near Gulgong. The fossil bird, possible of Pliocene age, consists of a skull, most of the body and wing bones, and feather impressions (Mr. F. W. Burton).

Plaster casts of fossil marsupials, which are of importance for comparative purposes, were presented by the British Museum.

The sorting, identification and cataloguing of the extensive collection of invertebrate fossils has continued and two additional groups, pteropods and conularids, have been completed. The vertebrate collection of fossils has been transferred from old wooden storage cabinets into new steel cabinets. The specimens are being re-arranged, checked, catalogued when necessary and indexed. The large collections of *Nototherium*, *Diprotodon*, *Meiolania*, *Phascodomys*, *Thylacoleo*, and *Moa* bones have been completed. This work is continuing.

Photographs of the type specimen of a Lower Cretaceous fish (*Ichthyodectes marathonsensis* Etheridge) were prepared and forwarded to Dr. David Bardock, University of Kansas. Specimens of *Leda* were lent to Dr. N. Ludbrook, Department of Mines, Adelaide, and information concerning localities and the geological age of various fossils was given to Dr. Townrow, University of Tasmania, and Professor Alden H. Miller, University of California.

Moulds of Permian blastoids were prepared and forwarded to Dr. R. O. Fay, Oklahoma Geological Survey.

Further lists of type specimens consisting of the following groups have been compiled: ammonites, belemnites, pteropoda and conularids.

Approximately 175 enquiries were dealt with during the year. This entailed the identification of a large number of fossils.

Several blocks of limestone containing a minute marine fauna were forwarded by a commercial oil prospecting firm for a report on their geological age. Etching of the limestone revealed trilobites, brachiopods and other groups belonging to genera which indicated a Middle Cambrian age. This is the first record of Cambrian fossils in New South Wales.

The Deputy Director continued to act as Honorary Palaeontologist to the Geological Survey of New South Wales.

Crustacea, Coelenterata and Other Groups (F. A. McNeill, Curator).

The total of specimens entered in the Department's registers was small compared with the previous year. Due to considerable demands on time necessitated by the transfer of quarters to the newly constructed wing, and the re-organisation of dry cabinet collections, it was not possible to handle more than approximately 100 new registrations.

Outstanding acquisitions were the types of 10 species of terrestrial Isopods (Miss A. Green, University of Tasmania); a type series of micro-slide preparations of freshwater copepods (Mr. I. A. Bayly, University of Queensland); and type micro-slide preparations of *Plasmodium relictum* (Mr. J. Bearup, School of Public Health and Tropical Medicine).

The provision of a mezzanine floor in the room vacated by the Curator in the South wing and new standard steel cabinets has greatly eased the problem of storage of dry collections. These have now been concentrated in one place instead of being widely scattered in different parts of the Museum, as was formerly the case. The work has entailed a major adjustment of card catalogues.

Since the completion of the recent examination of the reference collection of Bryozoa by Dr. I. Vigeland, a visiting Norwegian specialist, it has been possible to arrange the specimen card catalogue of the group, so that it conforms with the re-arranged reference study collection.

An additional card index to the genera of stored invertebrate groups (other than Crustacea) has been completed. This will greatly assist reference to available material elsewhere in the Museum.

A large collection of Scyllaridae and Palinuridae forming portion of the balance of Crustacea, gathered during the cruises of the F.I.S. *Endeavour*, has been returned by the United States National Museum. The material has been studied by Dr. L. B. Holthius, of the Leiden Museum.

Loan material of Portunidae (swimming crabs) lent to Professor W. Stephenson, University of Queensland, has been returned. At the request of Dr. M. Straskraba, Charles University, Prague, a selection of terrestrial and fresh water amphipods were despatched on loan for a study being made to determine the limits of the geographical range of the genus *Gammarus*. A number of aberrant species of scleractinian corals from Swain Reefs, Great Barrier Reef, have been sent for study to Dr. D. Squires, American Museum of Natural History.

Assistance of a substantial character has been given in connection with a survey of the sea-floor east of Port Hacking, New South Wales (Dr. J. MacIntyre, C.S.I.R.O., Division of Fisheries and Oceanography); the identification of a number of decapods included in a collection made during a survey of the waters of a mid-western New South Wales stream (The Department of Public Health); a discussion on hazards of survival at sea in relation to stinging medusae and other coelenterates (Lieut. Bailey, United States Air Force).

A total of 310 inquiries has been attended to.

Worms, Echinoderms and Ascidians (Elizabeth Pope, M.Sc., Curator).

The more interesting acquisitions have included an extensive collection of shore echinoderms from New Caledonia. These were collected by the Curator during a two months' stay in Noumea. Some rarer species, taken by skin-diving methods near Noumea, were also acquired (Dr. and Madame R. Catala); a choice collection of well-fixed ophiuroids and seastars from Heron Is., Queensland (Mr. J. Bishop); several rare and one as yet unidentified commensal ophiuroid from deeper waters (Mr. K. Gillett); a collection of mixed, fairly common seastars, trawled off the U.S.A. coast (Miss J. Campbell); general collections from the hitherto unprospected Swain Reefs area of the Great Barrier Reef (Mr. L. Thomas); excellent kodachrome transparencies, recording colours of some of the New Caledonian and Queensland echinoderms, specially taken for the Department (Mr. Justice F. G. Myers and Mr. K. Gillett); deeper-water echinoderms from the Port Stephens area (Dr. Racek); sponges from deeper water of the Swain Reefs area (Mr. Maher, Forbes); a collection of named sponges believed to be material from the R. von Lendenfeld collection (Department of Zoology, University of Sydney).

Several unique leeches from frogs have been acquired and submitted to Professor Richardson of Victoria University, New Zealand.

The greater part of the year has necessarily been devoted to curatorial activities. The removal of offices from the South into the New Wing was followed by a complete shifting and re-arrangement of the stores of dry specimens of sponges, worms and echinoderms and of the spirit collections of barnacles. This move became necessary to allow for the building of a mezzanine floor in the former office.

The re-housing of the dry collections has resulted in a more workable arrangement and improved storage. Installation of adequate lighting has also increased the efficiency of working conditions in this store.

Over 140 routine inquiries for information or for identifications of animals have been answered. These have included 17 on the Shovel-headed Garden Worm, 20 for Gordian Worms and 5 for identifications of compost earthworms.

Other requests for assistance have been as follows: assistance in obtaining species of earthworms which had typhlosoles (Department of Zoology, University of New South Wales); identification of causal organism of stings in coastal lagoons (*Austrotilharzia*) (Water Board Biologist); information on classification of marine worms and their phylogenetic relationships, in order to select experimental

subjects for biochemical research (Dr. Lemberg, F.R.S., Royal North Shore Hospital); identification of planarians found on the floor of an animal cage (Mr. Simmons, Department of Animal Husbandry, University of Sydney); a series of fresh-water invertebrates from a biological survey of streams near Orange, New South Wales (Department of Public Health); the effect of earthworms on playing fields; method and rate of reproduction of earthworms; a loan of some krill (euphausiids) for display to shareholders in a whaling company; naming collections for the Gosford Fauna and Flora Society; determining the age of barnacles on a tumbler from a wreck; on the ecology of *Patiriella exigua*; leech repellants; the occurrence of the lethal sea urchin (*Toxopneustes pileolus*) in Queensland seas; *Physalia* stings and sea lice as causes of schistosome dermatitis.

Fishes (G. P. Whitley, Curator).

All accessions (865 specimens) have been registered, but not identified. These included much material collected by members of the Museum staff. A large collection of Western Australian blennies (including a Paratype) has been presented by Mr. N. E. Milward. Other fishes were received from every Australian State and from the Pacific Ocean. By exchange, a Paratype of a new flounder from deep water off New Zealand was received from Mr. Jorgen Neilsen, of the Zoological Museum, Copenhagen. Two piranhas from the Amazon River were presented by the Museu Paraense Emilio Goeldi, Belem, Brazil. Miss J. O. Campbell presented specimens from New South Wales.

The fish collections are in good order. Some progress was made in distributing the backlog of specimens onto the shelves of the Spirit House.

Details of shark attacks have been furnished to the Smithsonian Institution, Washington, U.S.A., for incorporation in a world survey.

Innumerable inquiries from government departments, visitors, the press and public have been dealt with on a variety of subjects. One of an unusual nature was the examination of fish bones from Aboriginal middens undertaken on behalf of Dr. M. L. Ryder, of the University of New England.

A Taxonomy Committee, under the Chairmanship of Dr. G. Kesteven (C.S.I.R.O.), held a meeting in the Museum to discuss ways and means of expediting publication of papers or monographs on the Fishes of Australia.

Material towards a history of the Australian Museum has continued to be assembled.

Birds and Reptiles (J. A. Keast, Ph. D., Curator (absent overseas until his resignation in March, 1961); H. G. Cogger, M.Sc., Assistant Curator; Miss R. Hauenstein, Museum Assistant).

Fifty-nine specimens of birds and 1,065 specimens of reptiles and amphibians were registered during the year.

The research collections have been maintained in good order. Re-organisation of the spirit collections of reptiles and amphibians has continued, although the critical space position in the Spirit House will result in complete chaos unless it is soon alleviated.

The year saw the completion of the new bird storage room and the installation of some fifty metal storage cabinets. The Collections, which hitherto have had to be stored in several different places can, for the first time, be brought together and integrated. Initial work on this has been carried out but much remains to be done.

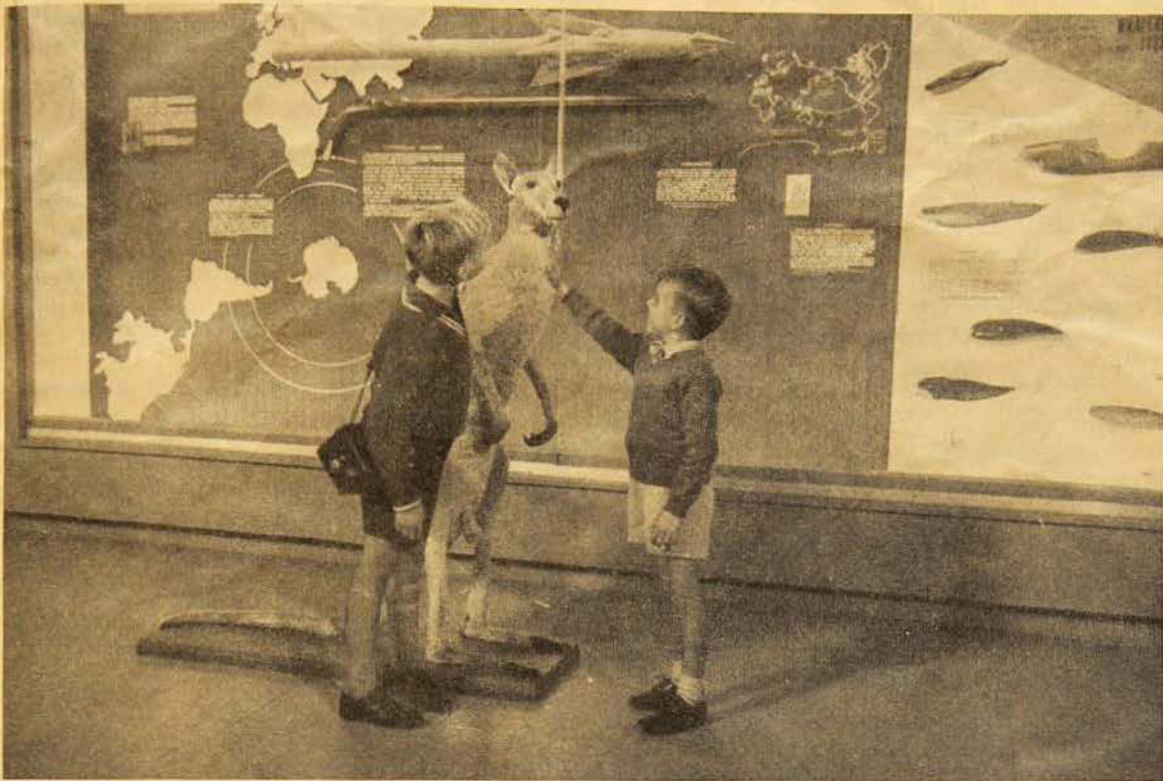
It is highly gratifying to see the collections properly housed after so long. The former conditions have greatly handicapped work and enormously complicated the task of preservation. Now, not only will it be possible to have the entire collections properly set out but spacious work benches along the southern wall will greatly facilitate research.

The storage cabinets are of the most modern design, all metal and with double side-walls to ensure fire-proofing and circulation of air within them. Specially constructed double flanges ensure that they are insect proof and dust-proof, and the rubberized vacuum doors ensure that chemical preservatives will remain effective for a maximum time.

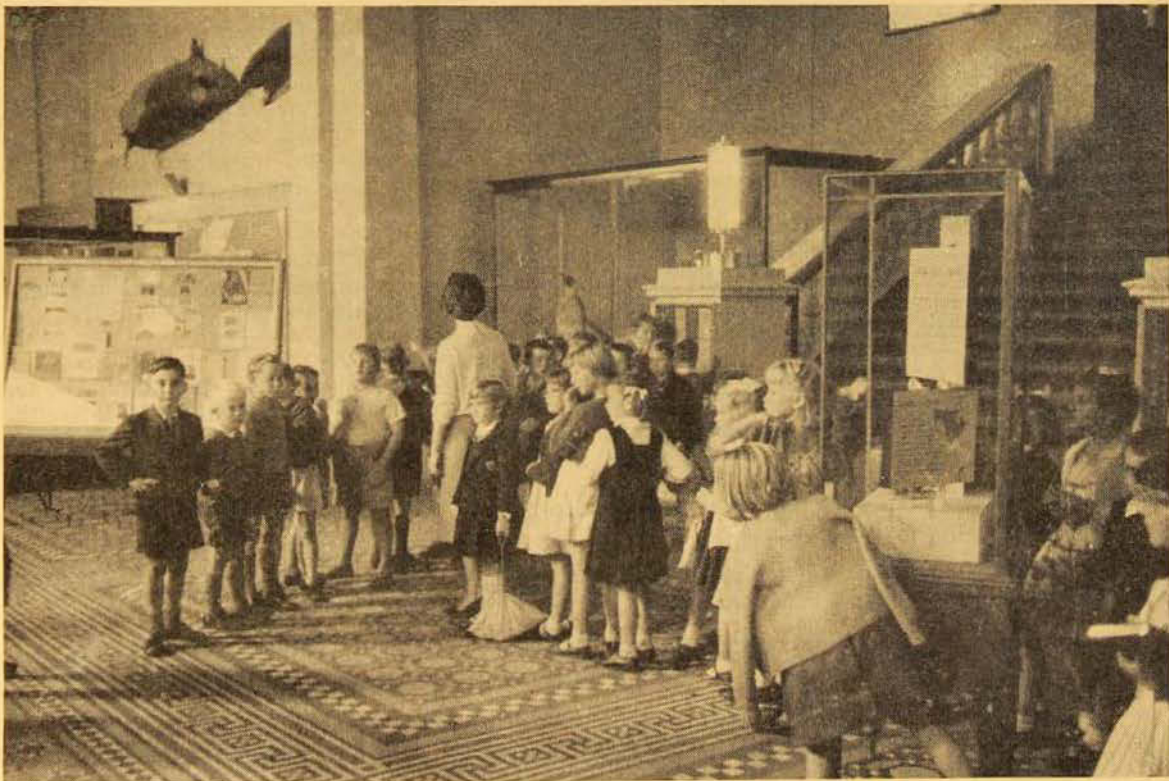
The next phase necessary will be the building up of the Museum's bird collection. At least 75 per cent. of specimens are 50 years old and lack the basic data (correct sex, date and locality of collection) necessary in modern taxonomic work. In effect, to bring the collection up to date and enable basic work to be done, some 15 specimens of each of the 600 Australian bird species, from 20 localities, a total of 300 specimens of each species need to be planned for.

The only effective way of accomplishing this is, it would seem, to employ a couple of full-time collectors, to spend two or three months in a locality at a time. If, in the course of a year seven or eight areas could be sampled in this way, the collection could be modernised in three to four years. (The great bird collections of the world including that of G. M. Mathews for the Australian region, now housed in New York, have all been built up in this way.)

The list of bird types is complete and that for reptiles nearly so.



Most museum exhibits are inevitably concealed behind glass and hence cannot be touched. During the year an exposed Kangaroo has been placed in the Mammal Gallery and has received considerable attention from children. The new Whaling Exhibit, which was incomplete at the time this photograph was taken, is in the background



A school class visiting the Museum

Numerous inquiries on a wide range of topics have been received from members of the public, private firms and other scientific institutions. The only inquiries of particular interest comprised collections to be identified from Mr. R. N. H. Bulmer (New Guinea), Mr. D. Wilhoft (North Queensland) and the University of New England Exploration Society (Warrumbungle Mountains, New South Wales and North Queensland). All these collections resulted in particularly valuable additions to our research collections.

Mammals (B. J. Marlow, B.Sc., Curator).

One hundred and thirty-five (135) new mammal specimens were added to the collection during the year. Of these, 92 had been collected and 33 had been either presented or exchanged. Of particular interest was a specimen of rock wallaby, *P. rothschildi*, not previously represented in the collection, which was presented by Dr. W. D. L. Ride, Director of the Western Australian Museum. Three vampire bats, *Desmodus rotundus*, were received in exchange from Dr. H. Felten of Frankfurt, Germany. These are the first vampire bats in our collection. Five specimens of the marsupial mouse, *Antechinus godmani*, also not previously present in the collection, were collected in Cape York.

Re-organisation of the collection of mammal skins and skulls has continued during the year. The marsupials are practically completed, the rodents and bats remain to be done.

Assistance given to other mammal workers during the year has included that given to Mr. J. Mahoney (native rodents); Miss J. Dixon, (Monash University—Bandicoots), Mr. D. Purchase, (C.S.I.R.O.—bats) and Dr. W. D. L. Ride, to whom a series of rock wallaby skins was lent.

Some valuable exchanges have been arranged, which include the obtaining of American flying squirrels, needed for gallery display, from Dr. McTaggart-Cowan.

A mounted wallaby was lent to the H.M.A.S. Queenborough for the duration of a cruise in the Indian Ocean. A wombat skull was presented to the Department of Dental Surgery, King's College, University of London.

About 340 inquiries have been handled.

Molluscs (D. F. McMichael, Ph.D., Curator; Helen Anderson, Assistant).

Acquisitions have included a fine series of shells trawled from off Southport, Queensland, and a large series of shells from the reefs and islands of the Coral Sea; land and freshwater shells collected by members of the Cape York Expedition; south Queensland land-snails; a series of Queensland shells (Mr. O. H. Ripplingale); 153 lots of small shells from South Africa (Mr. J. S. Hutt); shells from the Swain Reefs, including a fine Giant Clam (Mr. L. Thomas); several large series of freshwater mussel shells and serial sections of mussel gills (Dr. I. D. Hiscock).

The construction of two more cabinets of a kind similar to those previously obtained, containing more than 300 drawers, has enabled the transfer of the entire bivalve collection, formerly in the basement and the Curator's office, into their new permanent storage site. During the year, work has continued on the curatorial revision of sections of the collection and those completed or under way include the families Bulimulidae, Naticidae, Anomiidae, Conidae, Nautilidae, Matridae and Mytilidae. Some time has been spent in re-arranging and transferring to a new cabinet the primary types of the classes Gastropoda, Cephalopoda, Scaphopoda and Amphineura.

The card catalogue of types prepared by Miss J. Allan during past years has been checked and prepared for typing. This is now being done, and it is hoped that it will soon be possible to have the preliminary list of Gastropod types in the Australian Museum collection duplicated and distributed. The list of types in the classes Cephalopoda, Scaphopoda and Amphineura will also be completed shortly, but the class Bivalvia will need further attention.

Notable inquiries have included those from Professor K. Cleland, Dr. J. McIntyre, Dr. G. Sullivan, Dr. D. T. Anderson, Mr. Simon-Thomas, Dr. M. Ryder and the Department of Health. Many shells were identified during the year, including large series for collectors.

Insects and Arachnids (C. N. Smithers, M.Sc., Curator; D. K. McAlpine, M.Sc., Assistant Curator; Romola Wilkinson, Assistant).

Some 12,700 specimens have been added to the collections, of which the greater number was collected by the members of the Museum staff.

Collecting has been aimed especially at securing material of those groups which are poorly represented in the Museum.

Among those who have presented material are Professor H. Hungerford, Professor V. Hickman, Dr. L. Gressitt, Mr. C. Chadwick, Mr. L. Haines, Dr. I. B. Common, Mr. J. Armstrong, Mr. K. English, Mr. A. Snell, Father Lowrey, Mr. H. Thirkell, Dr. F. Gay and Mr. Gibson.

Particularly important acquisitions have been collections of Psyllid types (Mr. K. Moore, Forestry Commission); Agromyzid types (Mr. C. Chadwick, Department of Agriculture); Lepidoptera types (D. I. Common, C.S.I.R.O.). Material received from Mr. Snell from Western Australia has been of particular interest. Professor Hickman has presented a large collection of type material of Opiliones.

The collection of pinned material was moved into the new building with very little resulting injury. Much duplicate material which had been stored in the Spirit House has been removed and is being sorted. It was found to contain many specimens not formerly represented in the main collection, and even some Paratypes.

Inquiries received from the public have consisted, as usual, principally of requests for the identification of spiders. Some 2,000 separate inquiries have been dealt with.

Fourteen separate collections have been despatched to specialists for study and four which had been out on loan have been returned. The typing of the draft of the second part of the Bibliography of Australian Entomology prepared by the late Mr. A. Musgrave is well advanced.

Anthropology (F. D. McCarthy, Dip. Anthropol., Curator).

A total of 2,672 specimens has been received in 36 acquisitions.

Gifts of Australian material comprised a boomerang, Central Australia (Mr. J. W. Leslie); 8 weapons, various localities (Rev. G. F. Stopford); a beautifully made old spearthrower, Victoria; 2 axes, Queensland, 9 axes and grindstones, Beechworth, Victoria (Mr. S. Kellner); two examples of the rare Ooyurka stone implement, from Innisfail (Mr. D. Wilthoft), and Coen (S. Cerlento); incised cyclon stone, Curunylpa Station, New South Wales (Mr. E. Boulton); portion of tree bearing hole cut by Aborigines, Noola Station, Rylstone (Mr. N. Blunden); 5 stone implements, Bouddi National Park (Coast and Mountain Bushwalkers); axe, Hillston, New South Wales (Mr. J. B. Edwards); axe, Mudall Creek, New South Wales, (Mr. J. Glennie); Cyclon stone, Menindee, New South Wales (Mr. J. Hackett); axe and hammer-stone, Hillview Station, Parkes, New South Wales (Mr. E. White); axe, Warrawidgee Station, Griffith, New South Wales (Mr. P. Maher); bone implement grinding stone, Cronulla, New South Wales (Mr. C. C. Mitchell), who presented also a large number of trimmed flakes and other implements from Cronulla; 20 stone implements, including a rare type of knife in the form of a long curved blade, Chillagoe, Queensland (Mr. S. J. Tresize); 2 axes, Bingara (Mr. R. L. Davies); pebble implement, Wambah, New South Wales (Mr. H. J. Cann); axe and grinding stones, Mulgowan Station, Bourke, New South Wales; 70 trimmed flakes and blades, Wilcannia district, New South Wales (Mr. O. le M. Knight); 58 trimmed flakes and blades from east coast of Tasmania (Mr. A. G. Brown), which include the first use-polished working edge on a flake that has come from Tasmania; cane basket, Atherton (Rev. D. F. Collier).

Gifts of Pacific Islands and other material comprised an inlaid bird figure, New Georgia (Pacific Publications Ltd.); 2 hafted adzes, Mt. Hagen, New Guinea (Mrs. R. J. Tillyard); adze blade, Mt. Hagen, New Guinea (Mr. W. J. Dawwiss); large wooden pig and bowl, Trobriand Is. (Miss L. Gibb); 4 arrows, New Guinea (Mr. H. J. Cann); 142 arrows, bow and spear, 2 hafted double-ended axes of a rare type and 3 human figures, including types not previously represented in our collection, Solomons (Mr. A. Tinsey); digging stick, New Zealand (Miss E. Pope); 3 stone adzes, New Zealand (Mr. S. Kellner); 2 ornaments, Santa Cruz, and bow with quiver of arrows, South Africa (Mr. C. J. Blackie); human relief carving in sandstone, Indonesia (Mr. Roseby); Kukri knife in sheath, India (Mrs. A. C. Stott); dress of Baguio man, Philippines (Rev. G. F. Stopford); 8 African clubs and rhinoceros hide whips (Miss Frazer); large collection of Pacific Islands bows, arrows and spears, and a variety of clubs (Mr. Hopkins).

The late Professor A. N. St. G. Burkitt, a Trustee, bequeathed his collection of Japanese and Persian bows, quivers and sets of arrows, all of types not previously represented in the Museum.

Collections out on loan comprise 39 Aboriginal skulls from the coast of New South Wales, to the Department of Anatomy of the University of Sydney for a research project, and 15 bark paintings with 4 other specimens, which form part of a travelling exhibition of Aboriginal art organised by the State Art Galleries of Australia. Fourteen bark paintings were lent to the University of Sydney for display in its Fine Art Gallery during May, 1961.

The Pacific Islands pottery collection has been transferred from the old coin rooms to the new Anthropology store.

Steel cabinets have been installed in the new Archaeology store and the transfer of this collection from the batten cellar has begun.

Mr. I. Sim continued to add to the fine series of scale recordings of rock engravings and paintings that he has made in the Sydney-Hawkesbury district, all of the original charts of which he has deposited in the Museum. Mr. J. Lough has also given us scale recordings of several rock engraving sites.

The Aboriginal Relics Panel of the National Trust (New South Wales), of which the Curator is Chairman, is now drawing up a report on rock-engraving sites for consideration by the Executive and Council of the Trust.

At the Museum's request, the Sydney Water Board has had erected a heavy wire screen to protect the interesting cave painting site at Cordeaux dam from vandals. The Cumberland County Council has similarly protected an outstanding cave of paintings in the Hawkesbury district.

Reports were prepared on the Aborigines and their relics (*in situ*) of the Blue Mountains for the Blue Mountains National Park Trust, and of the Bowral-Bundanoon area for the Moreton Primitive Area Trust.

A report was prepared on the Depuch Island rock engravings in north-western Australia for Dr. W. D. L. Ride, as part of a campaign to protect this important art gallery from damage by commercial development of the island.

A sub-committee, of which the Curator was chairman, has submitted to the UNESCO Committee for Museums in Australia a detailed report on a programme of field collecting of the arts and crafts of Australia and New Guinea.

The Curator, who is a Vice-President and Hon. Asst. Treasurer of the Anthropological Society of New South Wales and representative of the Museum on the National Trust Council, acted as consultant for the Australian Broadcasting Commission on a series of three ABN telecasts on Aborigines for schools.

Minerals and Rocks (R. O. Chalmers, A.S.T.C., Curator; Judith Harvey, Technical Assistant).

The number of minerals at 30th June is 40,891, an increase of 196. Outstanding donations include a choice collection of Australian gemstones, cut, polished and presented by Mr. O. le M. Knight; a collection of minerals from Greenland, including some rare types (Master Stephen Stewart); two large and choice crystal groups of gypsum from a salt lake in South Australia (Mr. Ben Flounders, of Whyalla); and the two largest and most spectacular Prospect pectolites ever seen (Mr. M. Myers, Styles Blue Metal Pty. Ltd.).

The number of rocks at 30th June is 8,116, an increase of 20 specimens.

Four thin sections were registered.

Much time was spent in endeavouring to acquire for the Museum portion of the A. R. Campbell collection of Broken Hill minerals. This involved a twelve-day trip to Broken Hill and a thorough inspection and listing of the entire collection of over 700 specimens. Unfortunately, the collection was ultimately disposed of elsewhere.

The systematic transfer of the entire mineral collection to the steel cabinets in the new mineral store is proceeding steadily. At the same time a complete check of the collection is being made.

Seventeen small collections were given to schoolchildren interested in minerals; and one collection, to aid the teaching of chemistry, was given to St. Andrew's Cathedral School and one to the Public School, Dunedoo.

The following material was made available for research purposes to workers at the various institutions listed: Australian National University—small portions of duplicate tektites, for chemical work, and portions of four meteorites (Dr. J. F. Lovering); portions of three meteorites (Dr. A. E. Ringwood), Department of Applied Geology, University of New South Wales; various minerals from the Tuena-Peelwood District (Mr. N. L. Markham); fragments of carbonate minerals for X-ray and D.T.A. work (Mr. S. St. J. Warne); fragments of duplicate fulgurites (Mr. H. G. Golding); small portions of arseno-pyrite from various New South Wales localities, to investigate cobalt content (Professor L. J. Lawrence); Geology Department, University of Sydney—spilites from classical central European localities (Dr. T. G. Vallance); C.S.I.R.O., Division of Building Research—duplicate specimens of pinite for X-ray investigations of clay minerals (Dr. W. F. Cole); Mines Department of New South Wales, Chemical Laboratories—small pure samples of axinite and barite for chemical control work (Mr. J. Pyle); American Museum of Natural History—one gram portions of the Narellan and Moorleah meteorites, for chemical investigation (Dr. Brian Mason); North Broken Hill Pty. Ltd.—loan of minute portions of rare minerals for X-ray investigations in connection with higher degree work (Mr. W. Baker).

A collection of fluorescent minerals was lent to Mr. Q. J. Henderson, geologist of North Broken Hill Ltd., for display in the Mine Manager's Association exhibit at Broken Hill Show.

Approximately 160 inquiries have been dealt with. Many inquiries were received on building stones, several dealing with preservation and prevention of deterioration. The question of the unsightly staining of the Maroubra sandstone slabs at present being used on the second stage of the building of the new Museum wing was investigated at the request of the Public Works Department. Many minerals and gemstones were examined and identified. A number of the inquiries was time consuming, involving the examination and identification of collections of rocks and minerals for school-children.

Assistance was given to a research student in the Department of Wool Technology, University of New South Wales, who is studying the occurrence of opal phytoliths in plants, and advice to two students in selecting suitable areas for geological field work. Three bore cores were petrologically examined and reported on for the Joint Coal Board.

An interchangeable tube more suitable for thin section work was obtained for the Leitz microscope. A sodium lamp with accessories for use in refractive index work was received and is in working order.

The transfer from the old to the new mineralogy rooms was completed with the final transfer of books and all the card catalogues and reprints.

Advice was given on two occasions to inquiries in connection with geological films (one from the Commonwealth Department of Interior Film Unit).

The Curator attended two post-graduate courses at the Department of Applied Geology, University of New South Wales, one in mineragraphy, the other in clay mineralogy.

School Service (Patricia M. McDonald, B.Sc., Dip.Ed., Education Officer; J. Kirkpatrick, B.A., Dip.Ed., Assistant Education Officer).

The total number of children attending the Museum classes organized by the Education Officer was 15,202 for the year. These attended during 366 class visits. Of these, 32 classes visit regularly once a month, each following an individual course of natural science or social studies. It is pleasing to see that so many secondary schools are now availing themselves of the services offered and that more country high schools find it a worthwhile effort to visit the Museum. In addition many individual teachers conducted their own classes in the galleries, but it is not possible to keep an accurate record of these numbers.

Students from Sydney, Balmain, Alexander Mackie and Newcastle Teachers' Colleges were given lectures on Museum educational services. A series of visits was made by students from the New South Wales Kindergarten Training College, by Art and Ancient History students from Sydney Technical College, and by Zoology students from the University of Sydney. These latter were required by their lecturer to prepare an assignment based specifically on our exhibits, particularly on "These are Invertebrates". Students from New Caledonia visited the Museum under the auspices of the Commonwealth Office of Education.

The total attendance at school vacation films was 10,862. As usual, the Museum co-operated with the New South Wales Education Department Play Centres during the January vacation, and several special film sessions were held for these children.

School classes continue to be served by the loan of specimens and photographs, thirty-two loans being made. Various specimens were added to the collections from the scientific departments of the Museum.

Eight hundred and eighty-two letters from teachers and pupils were answered during the year. The practice of sending sets of leaflets to school libraries has had some slight effect on controlling the number of inquiries received for information for projects. A request was received from the Children's Committee of ICOM to prepare a survey on educational facilities in Museums and Art Galleries in Australia, to be published in a special UNESCO handbook on this subject. Accordingly, a questionnaire was sent to every important Museum and Art Gallery in this country, and the replies are now being collated.

Editorial Assistant and Public Relations Officer (P. F. Collis).

The Museum received greatly increased publicity during the year in the press (including, for the first time, in suburban newspapers) and on television and radio.

Newspaper publicity included: a full page devoted to the New Wing and reports of its opening; articles and photos on the Cape York Peninsula expedition; articles and photos on new exhibits; comments by curators on natural history items in the news, and publications of extracts from the magazine.

Library (Mary G. E. Davies, B.Sc., Librarian; Shirley Bradford, Assistant Librarian; Mrs. J. Watson, Clerical Division).

During the year 517 volumes were added to the Library, of which 270 were presented or received in exchange; 255 were books, or parts of series, and 262 were bound volumes of periodicals. Three hundred volumes were bound for the Library by the Government Printer, 235 of which were new bindings; the rest were repairs or rebindings. This steady increase in the number of volumes bound is a result of the discussion held with the Government Printer in October, 1959.

Six hundred and ninety-three loans were made to various other libraries, including C.S.I.R.O. divisions, Museums, Universities, Government Departments, commercial firms and other bodies in Australia and New Zealand. The Museum borrowed 56 volumes from other libraries. There were many requests for information and for microfilms and photocopies of material in the Museum Library. Visiting scientists and research workers, both from Australia and overseas, made use of the Library. There were also inquiries from members of the general public.

The recataloguing of the Library continued slowly during the year, and was again interrupted by changes of staff and the transfer of books to the New Wing. The latter process is completed for the moment. During the year, 204 books and 53 periodicals were classified and catalogued, 160 old cards withdrawn from the catalogue and 865 new cards inserted. Two hundred and thirty-one cards have been made for the "Union Catalogue of Monographs in Australian Libraries" and 46 cards for the "Union List of Scientific Serials in Australian Libraries", and despatched to the National Library, Canberra, and C.S.I.R.O., Head Office, Melbourne, respectively.

Exhibitions Department (F. J. Beeman, Officer-in-Charge).

Preparators' Section: R. D. Mackay (Officer-in-Charge); R. Witchard and K. Gregg, Assistant Preparators.

Art and Design Section: F. J. Beeman (Officer-in-Charge); D. Rae and B. Bertram, Assistant Artists; Mrs. E. Brown and Mrs. J. Taylor, Ticketwriters.

Provisional plans for the development of the galleries in the New Wing and the existing building have been prepared. A large scale model has been made to help with the detailed planning of each floor of the New Wing. Designs and models are almost finished for the proposed alterations to the main entrance and the New Guinea and Antarctic exhibits.

While 12 exhibits have been completed in the Fish Gallery, there remain 18 unfinished ones. The delay is mainly due to difficulty in obtaining specimens.

The installation of exhibits in the new cases in the Australian Mammal Gallery has been almost completed and the Whaling Display in the same gallery completed. The model of the whaling ship was made by Mr. K. Gregg.

A diorama showing Neanderthal Man, which was designed and executed almost entirely by Mr. B. Bertram, has been completed.

The eastern wall of the Invertebrate Gallery has been cleared to make provision for a doorway leading to the New Wing. The specimens from this wall were arranged into three new exhibits on the southern wall.

The remaining labels for the "Invertebrate Tree" have been finished and installed.

A mounted kangaroo has been placed in the open in the Mammal Gallery. This can be handled by visitors.

An exhibit on vampire bats was prepared as a quarterly exhibit.

Apart from gallery work, a considerable number of illustrations, maps and diagrams have been done for popular and scientific publication.

Miss Rosemary Hunt, from the Perth Museum, and Mr. Don Alexander, from Hobart Museum, received instruction in the Design and Art Section.

Due to the continued co-operation of the staff in these two sections, the standard of the work during this year has been improved.

One of the main projects of the Preparation Section has been the installation of an identification series of Australian Birds in the former Fish Gallery. This entailed the preparation and installation of 450 birds, many of which were refurbished old stock. The cases have been relined, painted and fitted with fluorescent lighting.

Another has been the preparation of mounted animals, skeletons and specimens preserved by the wet box technique for the new Mammal Gallery.

Museum Photographer and Visual Aids Officer (H. D. Hughes, A.R.P.S.)

During the year, 418 negatives and 1,606 prints were prepared and registrations made of 61 negatives, 410/35 mm. slides and 21/3½ in. x 3½ in. slides.

Apart from those for Museum use, photographs have also been prepared for overseas and Australian scientific research organisations. This year's work has ranged from still photography of simple copywork to cine-film coverage of live animal subjects.

A number of colour (35 mm.) slides has been presented, the largest single donor being Mr. K. Gillett, of Waverley, with 67 Barrier Reef subjects which were mounted and registered with the assistance of the donor. Over 1,000 35 mm. colour slides have been received from the estate of the late Mr. A. Musgrave. These cover a wide variety of subjects.

A large number (well over 2,000) colour slides await registering, cataloguing and mounting, as do many (at least 1,000) monochrome negatives. Such a large number of subjects makes it extremely difficult to produce additional prints at short notice when required. It is hoped that provision will be made for the services of an assistant to help to cope with this work.

Work has progressed, as subjects became available, on two colour films, "Frogs" and "Lizards". Work print from exposed footage has been rough-edited and both films are nearing completion. Final sequences needed include life cycle scenes which are dependent on favourable conditions and other factors.

The possibility of a film dealing with the Museum has been considered and a draft script prepared.

Inquiries have been made in regard to the use of colour transparencies in gallery display.

A number of technical inquiries from staff, schools and the public were dealt with either verbally or by letter. Two regular inquirers often make donations of their more suitable colour slides.

New equipment acquired has included two Grafmatic 5 in. x 4 in. cut film magazines, three Leitz lenses 35 mm., 65 mm., and 135 mm. focal lengths, with one Visoflex II reflex housing and one extension bellows attachment.

FRANK B. SPENCER, President.

JOHN W. EVANS, Director.

Appendix A

**THE AUSTRALIAN MUSEUM—SUMMARISED STATEMENT OF RECEIPTS AND
PAYMENTS FOR THE YEAR ENDED 30th JUNE, 1961**

RECEIPTS

	£	s.	d.	£	s.	d.
Appropriation Account—				82,320-15-6		
Treasury Appropriations				85,337-2-9		
Trustees' Account—						
Statutory Endowment	1,000	0	0	1,000-0-0		
Grant towards Museum Requirements	2,000	0	0	2,000-0-0		
Subsidy from Sydney City Council	1,000	0	0	4,440-12-6		
Museum Publications—Sales and Subscriptions	3,666	5	3	143-2-4		
Museum Shop Sales	159	3	4	303-15-2	800-0-0	
Donations	303	14	6	588-15-2	100-0-0	
Interest	492	5	4	100-5-0		
Advertising	25	0	0	438-15-4		
Postage Receipts	281	12	10	20-17-7		
Assignment of Copyrights	157	16	11	915-0-0		
Insurance Compensation	110	14	3	41-16-8		
Refund of Customs Charges	9	12	0	65-0-0	50-0-0	
Sale of Cabinets	42	10	0	17-1-7		
Miscellaneous Receipts	16	3	11	9,264-18-4	11,075-7-4	
Balance as at 1st July, 1960—	6,061	15	6			
Cash at Bank and in hand	2,316	2	5	15,611-15-6		
Investments	9,550	0	0	14,866-2-5		
				11,500-18-5		
				106,468-3-6		

PAYMENTS

Appropriation Account—	75,171	10	676	113	-11-9	
Salaries, etc.	43	14	3	40-1-7		
Insurance of Buildings	1,433	7	52	575-14-6		
Travelling and Subsistence Expenses	90	0	0	102-12-4		
Freight, Cartage and Packing	1,598	17	9	1487-9-10		
Books, Periodicals and Papers	50	0	0	28-11-0		
Fees, Commissions, etc.	69	11	8	89-0-10		
Laundry Expenses	329	19	5	329-17-0		
Postal and Telegraphic	547	5	6	706-3-2		
Other Insurances	3,002	16	3	3347-13-6		
Stores, Plant and Equipment	2,000	0	0	2000-0-0		
Grant towards Museum requirements	1,000	0	0	1500-0-0		
Storage Equipment				85,337-2-9	82,320-15-6	
Trustees' Account—						
Museum Publications—Cost	2,858	0	5	3085-3-0		
Stock for Museum Shop	165	14	6	73-15-2		
Stores, Plant and Equipment	1,727	13	1	3612-0-7		
Publication Sales Receipts paid to Treasury	70	3	6	67-14-0		
Postage Receipts paid to Treasury	290	17	4	450-17-0		
Travelling Expenses	118	13	10	1382-3-1	454-10-4	
Customs Charges	41	16	8	28-2-6		
Entertainment	213	1	5	11-5-3		
Miscellaneous Expenditure	33	4	6	119-16-7		
Balance as at 30th June, 1961—	5,707	10-1		5,519-3-3	9,429-12-10	
Cash at Bank and in hand	6,061	15	6	17257-10-1		
Investments	9,550	0	0	15,611-15-6		
				106,468-3-6		
				11,500-18-5		

J. W. EVANS, Director.