

1962
(SECOND SESSION)

PARLIAMENT OF NEW SOUTH WALES

REPORT OF THE TRUSTEES
OF THE
AUSTRALIAN MUSEUM
FOR THE
Year ended 30th June, 1962

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ANNUAL REPORT

OF THE TRUSTEES OF THE AUSTRALIAN MUSEUM

For the Year ended 30th June, 1962

To His Excellency The Governor:

The Trustees of the Australian Museum have the honour to submit their 108th Report for the year ended 30th June, 1962.

During the first six months of the year the President was the Crown Trustee, Mr. F. B. Spencer. At the Annual General Meeting, Mr. Spencer expressed a wish that he should not be re-elected and Emeritus Professor A. P. Elkin was elected to this office. This is the first occasion in the long history of the Museum on which this important position has been held by a scientific trustee.

On account of pressure of other commitments, Mr. J. W. Goodsell, C.M.G., resigned from the Board of Trustees in August and Mr. S. Haviland, C.B.E., was elected to fill the vacancy thus created.

In our last Report we stated that we were of the opinion that until it becomes possible for scientific staff employed in the Museum to achieve parity of salary and status with similarly qualified University employees, the future progress of the Museum as a leading scientific and educational institution must remain uncertain.

During the year we have set up a sub-committee to examine the problems associated with this matter, which is one that we regard as being of the greatest importance.

Other sub-committees have discussed insurance and the cafeteria, which is being equipped on the top floor of the new wing.

The year has been one of continued progress in all departments. This is due in large measure to the good spirit of the staff in all categories and the resulting excellent co-operation.

During the year the building of the new wing has been completed, but it has not yet been handed over by the contractors since fittings of various kinds remain to be installed.

Plans are already in hand for the installation of ethnological exhibits on one of the floors and for a new fossil display on another floor. In the latter, miniature dioramas, depicting the life of the several geological periods, will be incorporated.

Sketch plans for a building for the storage of spirit specimens have been prepared by the Government Architect's Branch. It is hoped that these will soon be translated into working drawings and tenders called for its construction by the Public Works Department. The building, which will be octagonal in shape, will have workshops on the two lower floors and four storeys for the storage of spirit specimens. It will be constructed in such a way that, at a later date, it will be possible for a further four storeys to be added.

During the year two substantial grants of money were received for particular Museum purposes. One of these was a sum of £915 from the Nuffield Foundation of Australia to enable the recording of Aboriginal cave paintings in the Cobar-Louth district of western New South Wales and for archaeological investigations in the same area. The other, a gift of £800, was received from David Jones Ltd., and has been made for the purposes of financing a Museum collecting expedition to Swain Reefs. This is a part of the Great Barrier Reef where extensive collecting has never been undertaken and which is known to have particularly interesting faunal associations.

This grant was made to the Museum as a result of the interest shown by an Honorary Associate, Mr. L. Thomas, who will be the leader of the expedition.

During October and November the Director visited Thailand on behalf of U.N.E.S.C.O. in order to advise on the establishment of a natural history museum in Bangkok. On the return journey he spent two days at the National Museum, Singapore. During his absence, Mr. H. O. Fletcher was Acting Director.

GALLERY DEVELOPMENTS

Work has continued during the year on the installation of exhibits in the Fish Gallery and in the Australian Mammal Gallery.

Although the former has been in a state of preparation for a longer time than the latter, it is less complete. This is because of the time-taking nature of the work involved in making and colouring fish-casts and also because it has not yet been possible to obtain all the needed specimens.

The Australian Mammal Gallery now lacks only a few specimens—in particular, a red kangaroo, which is in process of preparation, and some labels and photographs illustrating environment. The windows above the display cases also need to be obscured.

When complete, the display will be an outstanding one and an excellent example of a modern instructional exhibit.

The display of the large specimen of pitchblende, which was presented to the Museum by the Atomic Energy Commission, is now complete and two geiger tubes which can be operated by visitors, have been installed. The contents of the table cases in the Invertebrate Gallery, which contain molluscs, have been re-arranged, and new labels placed in position.

The exhibit of South American mammals, which is at one end of the Skeleton Gallery, has been renovated and some birds have been added to the identification series of Australian birds.

A new departure has been a series of temporary exhibits of live animals. These, which have created much interest, have been of local tortoises, stick insects, large caterpillars and an enclosed nest of bull-dog ants. In addition, there has been a temporary exhibit of deepwater volute shells from eastern Australia.

During September and October a Maritime Exhibition was held in the Museum. This was set up by the Royal Australian Navy as part of their 50th Anniversary celebrations.

Only too often, on entering a Museum, visitors are confronted by a series of notices informing them of what they may not do while in the building. In the belief that at the outset visitors should be made to feel welcome and not the reverse, a large panel is being prepared, and will shortly be installed in the front hall, which will convey a message of welcome. It will also give information about Museum activities and facilities and particulars of the theme which links together the greater number of the exhibits.

STAFF MATTERS

Two new Curators have joined the staff during the year. These are Mr. H. J. de S. Disney and Dr. J. C. Yaldwyn. The former has been appointed Curator of Birds and the latter is in charge of the collections of crustacea and various other groups of invertebrate animals. Both have good academic qualifications and wide research experience. Following the separation into two of the former Department of Birds, Reptiles and Amphibians, Mr. H. G. Cogger has been appointed Assistant Curator of Reptiles and Amphibians.

A new post of Assistant Education Officer has been created during the year, bringing the total number of Education Officers to three. Mrs. Z. M. Harkness has been appointed to the new position.

Mr. F. A. McNeill, who retired from the service of the Museum at the end of last year, was employed in a part-time capacity until Dr. Yaldwyn commenced duties in March. The title of Honorary Zoologist has been conferred on him by the Trustees. Mr. K. Gillett, who has rendered good service to the Museum in several directions, has been appointed an Honorary Associate.

Miss F. Sachs, who had been Museum Assistant in the Department of Fossils, retired in October after 19 years' service with the Museum.

Mr. J. Kirkpatrick, who had been Assistant Education Officer for three years, was transferred to the Education Department and has been replaced by Mrs. S. Maguire.

The following have resigned during the year: Mrs. J. Gregg, Miss H. Anderson, Miss R. Wilkinson (Museum Assistants); Mr. F. Duncan, Mr. R. Thew and Mr. L. Flynn (Attendants). New appointments were: Mrs. K. Kota, Miss G. Fell, Miss M. Field and Miss J. Ferguson (Museum Assistants), Mr. E. Brown, Mr. N. Ivanoff and Mr. G. Fairweather (Attendants).

RESEARCH

In spite of unavoidable frequent interruptions of their work and duties associated with care of the collections, most of the scientific staff undertake research, both within the Museum and in the field.

The director is continuing his long-term project of the preparation of a monograph on Australian and New Zealand Cicadelloids and Cercopoids (insects).

The Deputy Director, Mr. H. O. Fletcher, is studying Lower Devonian fossils from various localities in the Cobar district.

Mr. Marlow is investigating the behaviour and ecology of a marsupial mouse (*Antechinus flavipes*). This project is being undertaken with captive animals in the Museum and by trapping, marking and liberating natural populations in the neighbourhood of Narrabeen.

Dr. McMichael is continuing with his studies on the mollusc family Volutidae and on Australian and New Guinea land shells. During the year he was able to examine Types in many European and United States Museums.

Mr. McCarthy has completed work on the Aboriginal rock engravings at Port Hedland, Western Australia, and has continued with studies of stone implements excavated from the Capertee Valley, New South Wales; also on Aboriginal cave paintings in the Cobar-Louth district.

Miss Pope has commenced a review of a family of barnacles (Chthamalidae) in Australia.

Mr. Smithers has undertaken further studies on Psocoptera (insects) and Mr. McAlpine of various groups of Diptera (flies).

Dr. Yaldwyn is preparing a review of the Crustacea Decapoda *Nathantia* (shrimps and prawns) of New Zealand.

Mr. Cogger has continued his studies of Australian agamid lizards, and a systematic revision of the Australian representatives of this family is well advanced. Associated with this work has been a preliminary survey of the herpetofauna of Central Australia in relation to its radiation and phylogeny. Concurrently, a field programme has been undertaken to study various aspects of the biology of new species of agamid lizard at Nymagee in central New South Wales. A marking/recapture programme has been carried out and recaptures have been promising. Considerable data on reproduction, growth, structure and population dynamics have been obtained.

FIELD WORK

The Director spent a fortnight collecting insects in the Mount Kosciusko area where he found some primitive insects of unusual interest (Peloriidae). These had formerly never been recorded from New South Wales.

During September, the Deputy Director spent a week in the Mootwingee-Gnalt area, north of Broken Hill, in company with Dr. A. A. Opik, of the Bureau of Mineral Resources, Mr. L. Hall, of the Geological Survey of New South Wales, and geologists from Woodside (Lakes Entrance) Oil Co., investigating a newly discovered sequence of Cambrian and Lower Ordovician rocks. An interesting and comprehensive series of fossils, mainly trilobites and brachiopods, was collected, including many new species and genera not previously recorded from Australia.

He also visited Canberra in August to discuss with Dr. Opik the identification and future work on a new Cambrian fauna from near Gnalt and, in company with Dr. E. O. Rayner, of the Geological Survey of New South Wales, visited Cobar and Ivanhoe during February, to investigate several new fossil localities in the Cobar district and the supposed presence of Cambrian rocks near Ivanhoe.

Miss Pope spent a week at Stradbroke Island, Queensland, with members of the Sydney University Biological Society. Extensive collections were made of off-shore marine fauna. She also spent several days, in company with Miss P. McDonald, Senior Education Officer, assessing the zoological possibilities and safety of south coast reefs for school biology classes. Some single day visits for general collecting purposes were made to Long Reef, near Sydney.

Mr. Whitley attended a Symposium on Scombroid fishes, organised by the Marine Biological Association of India. This was held at Mandapan Camp in South India during January.

In May, June and July of 1961, Mr. Cogger, in company with Mr. Hughes and Mr. Mackay, conducted extensive field work in Central Australia. The principal object of this work was to collect and study desert lizards and to investigate various aspects of the ecology of desert reptiles and the significance of the Central Australian mountain ranges in reptile distribution. The greater part of the expedition's time was spent in the Musgrave Ranges in South Australia, with shorter visits to the Mann, Tomkinson and MacDonnell Ranges, Ayers Rock and Mount Olga. The changes in the reptile fauna between the tops of the ranges and the surrounding desert were of considerable interest. About 500 specimens of reptiles and amphibians belonging to about 40 species were collected on the expedition, as well as smaller collections of mammals and birds, a number of invertebrates and minerals.

Mr. Cogger has been carrying out a field study on a population of agamid lizards in New South Wales, and in company with a preparator, Mr. Mackay, he has made a number of week-long visits to the study area at two-monthly intervals. On one occasion he was accompanied by the Curator of Birds, Mr. H. J. de S. Disney.

Dr. McMichael attended the 10th Pacific Science Congress at Honolulu. Subsequently he visited museums in the United States and Europe.

Mr. McCarthy, likewise, attended the Pacific Science Congress and while there studied the Polynesian collections at the Bishop Museum. He also spent a month in the Cobar-Louth area in western New South Wales recording and photographing 31 caves of paintings and excavating three floor deposits. During this time he was accompanied by two members of the Exhibition Department and by the Visual Aids Officer.

In April, Mr. McCarthy visited the Bathurst district for the purpose of examining stone implements and an axe quarry. He discovered whilst there extensive red ochre deposits which would have been used by the Aborigines.

Dr. Yaldwyn spent three days, during May, dredging in local waters.

Mr. Smithers and Mr. McAlpine have made several local insect collecting expeditions during the year. In addition, the Curator of Insects collected at Barrington Tops and the south coast district while Mr. McAlpine spent three weeks collecting in southern Queensland.

Mr. Chalmers spent three weeks in the Flinders Ranges, South Australia, in company with Mr. B. Flounders, of Whyalla. He was able to make extensive collections of minerals.

Miss P. McDonald returned to the Museum at the beginning of the year after visiting several museums in the United States as a guest of the American Association of Museums.

Mr. J. Beeman, Chief Exhibitions Officer, visited leading natural history museums in the United States. The principal purpose of his visit was to investigate use of gallery space in order that displays may be shown to the best advantage.

PUBLICATIONS

The name of the Museum's quarterly magazine was changed from *The Australian Museum Magazine* to *Australian Natural History* as from the issue of March 15, 1962. It was considered that the new name would more accurately describe the magazine's scope and would have a wider appeal. The change in name was accompanied by the adoption of a new and more modern front-cover design.

Volume XIII of the magazine was concluded during the year with the publication of Nos. 11 and 12, and Nos. 1 and 2 of Volume XIV were published. The concluding number of Volume XIII, a special issue devoted to the minerals of Australia, had a record sale. The Index to Volume XIII was published.

The magazine's circulation increased substantially, due mainly to advertising arranged through the Premier's Department and circulars sent to schools and libraries. Sales of some of the other publications have also increased.

Three parts of Volume XXV of the *Records of the Australian Museum*—Nos. 9, 10 and 11—were published during the year, and also a Museum Memoir, No. XI.

One new free natural history leaflet was published, 16 existing leaflets were revised and reprinted, and seven revised leaflets are with the Government Printer.

A feature of the year's publishing was the preparation of a 64-page booklet, *The Natural History of Sydney*, consisting mainly of articles published in the December, 1960, special *Natural History of Sydney* issue of the magazine, for which there was an unsatisfied public demand. The printing of this booklet is nearing completion.

A folder, *These are Invertebrates*, explaining the exhibit of the same name, was published, and sold so rapidly that a reprint was ordered within six months.

The booklets *The Australian Museum Handbook*, *Australian Aboriginal Decorative Art* and *Australian Aboriginal Rock Art*, the pamphlet *Australian Aborigines* and the coloured chart *Life Through the Ages* are also being reprinted.

Nine thousand folders giving information about the Museum's publications and containing subscription forms for the magazine were printed for distribution to likely purchasers.

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

Evans, J. W., Leafhoppers from Chile collected by the Royal Society Expedition to Southern Chile, 1958-59, *Ann. Mag. Nat. Hist.* Ser. 13, 4:513. Evolution in the Homoptera, in *The Evolution of Living Organisms*, Melbourne University Press. Factors associated with the possible origin of some of the higher categories of leafhoppers, XI *Internat. Congress Entom.* 1:43. Some Upper Triassic Hemiptera from Queensland, *Mem. Queensland Mus.* 14:14. Some observations, remarks and suggestions concerning natural history museums, *Curator* 5:77; McCarthy, F. D., The Story of Bagadjimbir or Mugan Brothers *Mankind* 5:420; Australian Archaeology, *Asian Perspectives* 4:123; The significance of Australian Aboriginal Art, *Hemisphere* 4:14. Aboriginal Art, Australian Territories 1:9. The Malanggan Mask, *World Theatre* 10:21; Australian Aboriginal Art, Introduction to Catalogue of Exhibition arranged by State Art Galleries of Australia, 1961; Whitley, G. P., Anthony Musgrave (Memorial Series No. 18) *Proc. Linn. Soc. N.S.W.* 86:122. Theodore Cleveland Roughley (Memorial Series No. 19) *Proc. Linn. Soc. N.S.W.* 86:295. A larval eel from Sydney, *Aust. Nat.* 12:10; Marlow, B. J., *Marsupials of Australia*, Jacaranda Press, Brisbane; Smithers, C. N., New Records and Key to the genus *Sisyra* in Southern Africa, *J. Ent. Soc. S. Afr.* 24:308; *Bittacus natalensis*, a record from Southern Rhodesia, *Ent. Mon. Mag.* 97:130; McMichael, D. F., New Species and records of marine mollusca from New South Wales, *J. Malacol. Soc. Aust.* 5:51; (with J. Boray), The identity of the Australian Cymnaeid Snail, host of *Fasciola hepatica* L. and its response to the environment, *Aust. J. Mar. Freshw. Res.* 12:150; (with O. H. Rippingale), *Queensland and Great Barrier Reef Shells*, Jacaranda Press, Brisbane; (with T. Iredale), A reference list of marine mollusca of New South Wales, *Aust. Mus. Memoir* 11, pp. 1-109; Yaldwyn, J. C. A new *Posiphaea* (crustacea) from Southern California waters, *Bull. S. Calif. Acad. Sci.* 61:15.

LECTURES

A series of popular science lectures was given in the Hallstrom Theatre during the year. The subjects and lectures were as follows:—

"Some Aspects of the Behaviour of Australian Reptiles and Frogs" (Mr. H. G. Cogger); "An Insect's World" (Mr. C. N. Smithers); "The New Zealand Tuatara, A Primitive Reptile" (Mr. W. Dawbin); "Albatrosses of the Tasman Sea" (Mr. M. D. Murray); "Opals" (Mr. R. O. Chalmers); "The Size and Abundance of Mammals" (Mr. B. J. Marlow).

Several members of the scientific staff as usual gave lectures on a variety of subjects to scientific and other organisations. In June, the Director delivered the Macrossan Memorial Lecture at the University of Queensland.

CO-OPERATION

As in former years the Museum has had much help of a varied nature from honorary members of the staff and scientific workers and members of the general public. This is much appreciated.

Mr. K. A. Hindwood (honorary Ornithologist) gave considerable assistance to the Department of Birds during the year, both while the Museum lacked an ornithologist and, also, since the new Curator, Mr. Disney, commenced duty.

Mr. L. Thomas (Honorary Associate) has, as in previous years, spent much time on voluntary work in the Museum.

During Dr. McMichael's absence overseas, Mr. T. Iredale and Mrs. Kerslake gave assistance in the Department of Molluscs by way of furnishing identifications and replying to enquires. Mr. T. Garrard also helped in several ways in this Department.

In connection with a planned Antarctic exhibit, a request was made to the Antarctic Division of the Department of External Affairs for some penguins to be obtained on behalf of the Museum. As a result, 6 Adele and 1 Emperor penguin were made available.

Mr. John Freeland made available for display in the public galleries an enclosed colony of bull-dog ants, and while this exhibit was on display he spent much time maintaining it in good order. It created considerable interest.

Mrs. V. Gregg and Mr. L. Haines have given assistance in the Department of Entomology.

During January and May school vacations students from the Alexander Mackie Teachers' College voluntarily assisted the Museum education officers in the Children's Room activities.

In the June issue of *Australian Natural History*, a tribute was paid to the late Mr. O. le M. Knight, an Honorary Associate, who gave valuable collections of fossil insects and minerals to the Museum and helped it in many other ways.

An outstanding gift received during the year, which is referred to in detail in the Report of the Curator of Anthropology, was a very large collection of stone implements presented by Mr. P. Gresser, of Bathurst.

Particular appreciation is expressed also to Mr. D. Stammer, of Mt. Isa, Qld., and Mr. T. Turnbull, of Brewarrina, New South Wales, for their continued efforts in obtaining valuable and extensive series of reptiles from their respective districts. Valuable collections of reptiles have also been presented by Mr. F. Parker, of Bougainville, and Miss C. Clarke, of Sydney.

For many years the Museum has provided facilities for the Microscopical Society of New South Wales to meet in the Museum. More recently, a meeting room has been made available also to the Malacological Society of Australia (New South Wales branch) and the Society of Entomologists.

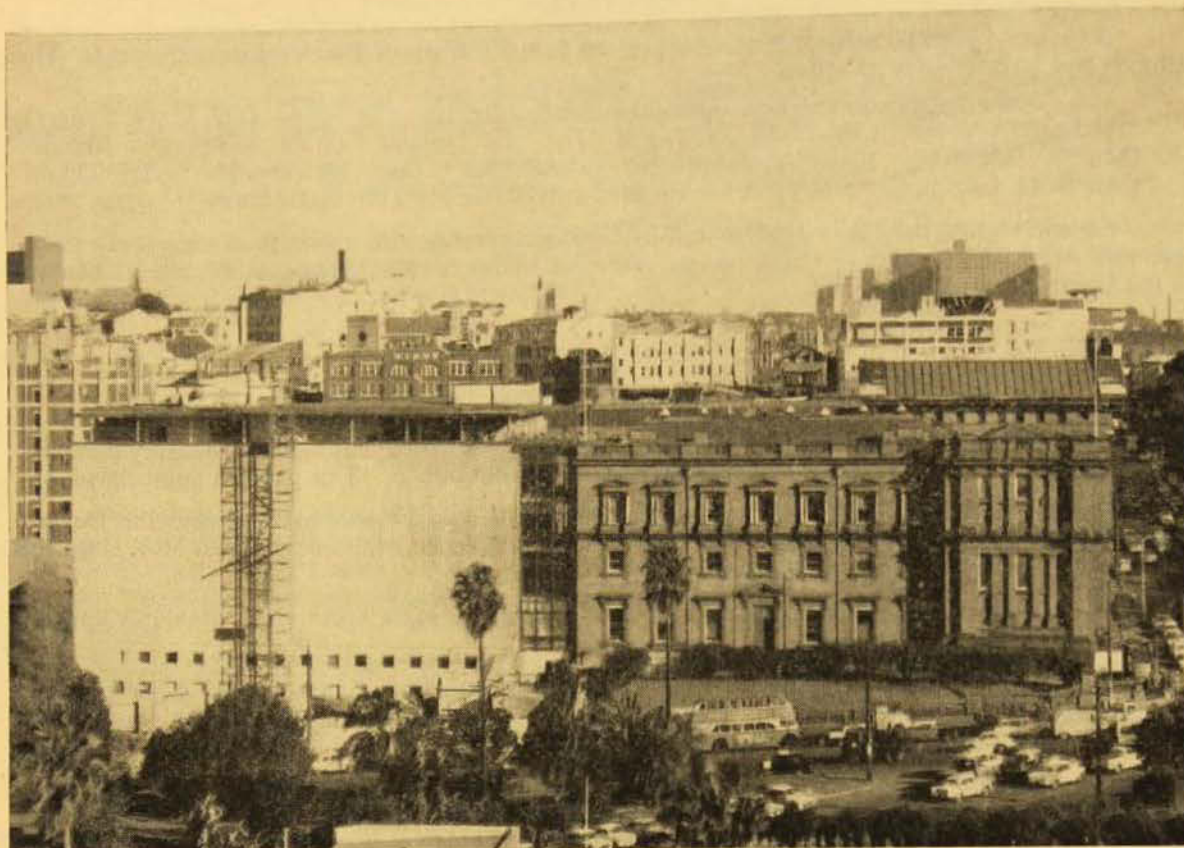
MUSEUM BUILDINGS AND GROUNDS

It was expected that repairs to the Museum roof would be completed before the end of the financial year, but owing to urgent work required elsewhere this has not been done. However, the work is in hand and will be completed at the earliest opportunity.

Leaks in the roof of the old building have been few and have occurred only in exceptionally heavy rain.

However, several floodings occurred in the sub-basement of the new wing due to choked down-pipes and unfinished work. This building is now weather-proof and should give little further trouble.

The fretting away of stonework both inside and on the outside face of the older parts of the Museum is causing some concern. As cement rendering of interior walls seems to be the best means of combating this trouble the Department of Public Works has been requested to thus render the greater part of the basement walls. Stonework round and about the entrance and exit is deteriorating and recently two ornamental rosettes fell from the main gable to the footpath in College Street. The remaining rosettes are to be removed, together with any other dangerous fretting stone discovered.



The New Wing of the Museum nearing completion

During the year the Attendants' Rooms and lavatories have been painted by the Public Works Department. The new library office and reading rooms have been painted and new plaster ceilings installed.

Fluorescent lighting has been installed in the library reading room and office and in the store and office of the Mollusc Department. Additional lighting has been provided in the Mammal display cases and floodlighting of a new mural in the Aboriginal Gallery has been provided.

With the exclusion of natural lighting ventilation problems have arisen and, during tests carried out in the summer months, relative humidity readings as high as 83 per cent have been recorded. The average reading was 75 per cent.

General maintenance in the Museum is becoming heavier. There are approximately 1,000 fluorescent tubes installed in the building and electricians are often on the premises several times a week.

For many years the Museum has maintained a store at Shea's Creek. Recently it became necessary to relinquish part of the area of this store and, so that this could be done, a quantity of storage cabinets and other furniture have been disposed of by sale.

VISITORS AND ATTENDANCES

During the year 307,177 people visited the Museum.

Distinguished visitors include Viscountess de L'Isle, the Duke of Wellington and the Sultan of Selangor. Among scientific visitors, the majority of whom studied some part of the collections, were Professor R. Heim (Director, Natural History Museum, Paris); Professor Sir Alistair Hardy, F.R.S. (Oxford University); Dr. G. Kuschel (University of Chile); Professor R. A. Stirton, Dr. R. Tedford (University of California); Mr. S. A. Rizvi (Pakistan); Mr. and Mrs. Gerald Durrell (London); Dr. R. Salomonsen (Royal Danish Museum, Copenhagen); Dr. V. Springer (U. S. National Museum); Dr. I. Vigeland (Natural History Museum, Oslo); Dr. W. Macnae (University of Witwatersrand); Dr. D. Davies (Oceanographic Research Institute, Durban); Dr. T. Macdonald (Montreal); Dr. R. Strahan (Hong Kong); Mr. E. Lincoln (University of Arizona); Mr. A. Kluge (California); Dr. A. Solem (Chicago Natural History Museum); Dr. A. B. Powell (Auckland Museum); Dr. J. L. Gressitt (Bishop Museum, Honolulu); Dr. J. Szent-Ivany (Department of Agriculture, Port Moresby); Mr. and Mrs. Simon-Thomas (Netherlands New Guinea); Dr. R. Taylor (Harvard University); Dr. E. Britton (British Museum); Professor P. Wingert (Columbia University); Professor J. A. Keast (Queen's University, Kingston, Ontario); Professor Zeuner (University of London); Professor P. Ramdohr (University of Heidelberg); Mr. K. Larsson (Gothenburg Museum).

Professor E. S. Hills, F.R.S. (University of Melbourne); Dr. M. F. Glassner (University of Adelaide); Mr. B. Campbell, Dr. T. Woodward (University of Queensland); Professor D. Brown, Professor A. Voisey and Dr. J. Lovering (New England University); Dr. A. Wood, Dr. A. Richards (University of New South Wales); Mr. G. Golson, Mr. J. Mathews (Australian National University); Mr. D. Griffin (University of Tasmania); Dr. D. Collis, Mr. I. Mackerras, Mr. K. Key, Mr. H. Frith, Dr. D. L. Serventy, Mr. R. Schodde (C.S.I.R.O.); Dr. D. Francois (N.S.W. State Fisheries Department); Mr. R. McKay (Western Australian State Fisheries Department); Dr. R. George (Western Australian Museum).

Mr. Suri bin Bokyani (Art Supervisor, Singapore) and Miss Chira Chandronannayavinit (National Museum, Bangkok) studied educational methods in the Museum.

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FINANCE

Expenditure from Consolidated Revenue for the year (excluding Statutory Endowment of £1,000) was £88,320 15s. 6d. compared with £85,337 2s. 9d. last year. ¹⁴⁰⁰⁰ Net expenditure from Trustees' Account Funds (including Statutory Endowment) was £9,429 12s. 10d. compared with £5,519 5s. 3d. for 1960-61. ²⁴⁶¹⁻¹⁰⁻⁸

The cash balance in the Trustees' Account at 30th June, 1962, was £5,707 10s. 1d. Trustees' Invested Funds at 30th June, 1962, were; Fixed Deposit £2,000; 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).

Acquisitions during the year comprised 154 specimens.

Donations of interest have included Devonian pelecypods from North America (Upsala College, New Jersey, U.S.A.); topotype specimens of *Glyptagnostus reticulatus* (Angelin) and *G. stolidotus* Opik (trilobites) from Cambrian rocks at Well's Creek, western Queensland, and a Lower Ordovician brachiopod, (*Lingulepis* sp.) from the Parcoota beds, near Alice Springs (Bureau of Mineral Resources); Devonian marine fossils from the Cobar district (Cobar Mines Pty. Ltd.); brachiopods of Permian age from Southland, New Zealand, including topotype specimens of two recently described species (New Zealand Geological Survey); a fossil fern (*Cladophlebis roylia* Arber) from Permian rocks at a depth of 758ft. near Wallarah (Joint Coal Board); two specimens of Murray Cod, *Maccullochella macquariensis* (Cuv. & Val.), from a diatomaceous earth deposit at Bugaldie (Mr. R. Horton); fossil wood (*Lepidodendron* and *Photolepidodendron*) from Carboniferous rocks near Buladelah (Mr. L. Harper, Main Roads Board).

A notable acquisition has been a series of well preserved jellyfish impressions (*Cyclomedusa*, *Madigania* and *Dickinsonia*) from rocks of Upper Proterozoic age at Ediacara, Flinders Ranges, South Australia. These are some of the oldest known invertebrate fossils with definite characters and were presented by Mr. B. Flounders, of Whyalla, South Australia. He also presented a well preserved series of archaeocyathids (primitive sponges) from Lower Cambrian rocks near Beltana.

Work has continued on the rearrangement, sorting, identification and cataloguing of the invertebrate collection of fossils. The large collection of pelecypods has been sorted generically while three groups of the brachiopoda have been completed and other groups are nearing completion. The graptolite collection has been checked and transferred from wooden storage boxes into steel cabinets. Ten new steel storage cabinets have been installed in the main fossil store and will house the extensive trilobite and fossil insect collection. A start has been made on the transfer of the trilobites.

Additional photographs and casts of Upper Devonian fishes (*Remigolepis* and *Bothriolepis*), together with photographs of Devonian fish-plates from Mt. Grenfell, near Cobar, were prepared and forwarded to Professor E. S. Hills, University of Melbourne; photographs of the holotype micro-slides of *Fossopora wellingtonensis* Etheridge were sent to Dr. J. G. Lafuste, Institut Royal des Sciences Naturelles de Belgique.

Casts of holotype specimens were prepared and forwarded as follows: *Productus ? solidus* Etheridge to Mr. G. McDonagh, University of Queensland; *Trigonotreta stokesi* Koenig and *Grantonia hobartensis* Brown to Professor Dorothy Hill, University of Queensland; *Syringothyris exsuperans* (De Kon.) to Mr. J. Roberts, University of Western Australia.

Specimens of *Atrypa* were presented to Dr. Boucot, California Institute of Technology, for determining the relationships of the genus. A small series of lingulids, including *Trigonoglossa* and *Ectenoglossa*, was given to the Bureau of Mineral Resources.

A series of named Permian gastropods was forwarded on loan to Dr. B. Waterhouse, New Zealand Geological Survey, for comparison with New Zealand species; dingo teeth from cave breccia at Wellington Caves were lent to Mr. E. Gill, National Museum, for age-dating tests; large Miocene shells from the Nullarbor Plains were made available for documentary film purposes.

A large collection of Pleistocene vertebrate remains, on loan to Mr. J. Mahoney, University of Sydney, has been returned. The specimens, now identified and named, are being registered and intercalated in the collection. Four type specimens of species of *Atrypa*, and the holotype of *Spirinella caecistriata* Johnston, thought to have been destroyed by fire in Canberra, have been returned by the Bureau of Mineral Resources. These specimens were part of some material on loan to the Bureau.

A list of type specimens of graptolites has been completed. Work is continuing in the preparation of a list of type brachiopods.

Approximately 230 inquiries were dealt with during the year, including the identification of many fossils. Reports of economic importance on the identification and geological age of fossil material were prepared for the Union Oil Development Corporation, the Joint Coal Board and Cobar Mines Pty. Ltd.

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

Anthropology: (F. D. McCarthy, Dip. Anthropol., Curator; Miss M. Field, Museum Assistant).

A total of 7,706 specimens was received in 60 acquisitions.

The outstanding gift was a collection of 5,368 stone implements from Mr. P. Gresser, of Bathurst, New South Wales. It consists of flake implements from over 90 camp sites in New South Wales and Queensland, and a fine series of ground edge axes, percussion and abrading stones, and millstones. Many new distributional records of geometrical microliths, Burren adze flakes, *pirri* uniface points, *juan* knives, cylcons and uniface block axes are represented in this collection.

Among 89 specimens presented by Mr. J. Suter are several perfect examples of the rare one-piece shell fish hooks, and an assemblage of stone fish hook files, flake and bone implements, axes and pigments, dug out of rock shelter floors in the Manly district. Mr. Suter has also presented the three finest and biggest *Tula* adzes yet added to our collection, found in a set on Nimaroo Station, Queensland. Mr. R. Taplin presented 183 stone implements from test trenches dug in rock shelter floors in the Kellyville district of New South Wales.

Other stone implements presented comprise 70 flake implements, Kenmore Park Station, central Australia (C. A. Stanfield); 99 uniface and biface points and scrapers, Eva Downs Station, Northern Territory (Rev. R. Cosier); 49 axe blanks and blades, including a fine series of uniface blocks, Mt. Isa, Queensland (Mr. J. Mathew); and a further series of 12 blanks from Mrs. D. M. Whaithe from the same sites; 23 flake implements, western Queensland (late O. le M. Knight); 11 uniface pebble and other implements, Bopeeche, and a lick-type muller which is the only one in our collection, Lake Wilson, South Australia (Mr. J. E. Johnson); 19 cylcons, axes, mullers and a magic stone, Menindee (Mr. J. Scobie); 2 unusually well made choppers, Ayer's Rock, central Australia (Mr. W. E. Harney); scraper, Mosman (Mr. G. P. Whitley); 26 Palaeolithic hand axes, Neolithic sickles, daggers and axes from Japan, Java, France, Denmark, England and Ireland (Mr. S. Kellner); and ground edge axes from West Wyalong (Mr. W. Slee); Queensland (Mr. J. B. Lynch) and George's River (Mr. R. Clinton).

We received two gifts of old New South Wales wooden weapons, comprising 6 clubs, boomerangs and a spear from Goodooga (Mrs. B. King) and 2 clubs and 2 boomerangs from the Bellingen River (Mr. O. V. Hammond), both forming the only series in our collection from these localities. A finely carved club (and an axe) from Cooyal Station, New South Wales, were purchased from Mr. C. H. Blackman. Other donations of Australian material comprise a twined mat, Arnhem Land, and lantern slides (Rev. C. Craven-Sands); an Aboriginal skeleton and skull, Lake Tandou (Mr. B. Barden) and a human mandible, Shellharbour (Mr. J. Pickard).

The Curator collected 319 flake and other implements from the excavation of rock shelter floors at Mt. Grenfell Station, 77 from similar deposits on Wittagoona Station and 1,303 from surface campsites in the Cobar-Louth district, all in western New South Wales. He also collected 45 axe blanks from a quarry near Oberon, New South Wales. Messrs. Cogger, Hughes and Mackay collected 59 flake implements in central Australia during a field trip.

Gifts of Pacific Islands material comprise 47 weapons, domestic objects and ornaments from New Guinea, Solomons and other Islands (Mr. C. A. Spargo); 55 weapons, New Guinea and Solomons (Mrs. Hopkins); 62 ornaments, bags and other articles, Bismarck Archipelago and Bougainville (Miss Jefferson); a model skull house (the only one in our collection) and a clay pot, Fiji (Mrs. Brayshaw); shell necklace, Solomons (Mrs. B. Berry); snail shell necklace, Aise, central New Guinea (R. Bulmer); sheet of bark cloth, Fiji (Miss R. MacCallum); hafted axe, Wahgi Valley, New Guinea (Mr. G. D. Roberts); shield, New Britain, and spear, Admiralty Islands (W. Norkett); model of trading canoe, Tami Island, New Guinea (Mrs. C. Walker); prehistoric stone mortar and clubheads, central New Guinea (S. B. Barker); 2 fans, Murray Island (Mr. K. Green); mounted gold lip pearl shell used in native trade (the only one in our collection), Wahgi Valley, New Guinea (Rev. C. Craven-Sands); bone dagger, Sepik River, New Guinea (Mr. S. Clifford); 6 bags and 2 grass skirts, Sepik River, New Guinea (Mrs. G. E. Power); axe blade, Trobriands (Mr. G. E. Clarke). Four wood carvings from the Mapric district of New Guinea were purchased.

We also received by gift a fine red cloth shawl from India (Mrs. F. McMahon); a parang and dagger in an elaborately decorated sheath, Borneo (Customs Department); arrowhead and oil jar, Egypt (Mrs. E. Melloy); metal hoe blade used by Maoris, New Zealand (Mr. O. C. Vigler); and a whalebone mere, New Zealand (Mrs. Pellew).

It is of interest to note that, since the value of primitive art objects has risen so rapidly in the past decade and dealers are actively seeking specimens, very few collections of Pacific Islands material are now presented.

A considerable amount of re-arrangement of the collection was carried out during the year. With the co-operation of the staffs of the Art, Preparatorial and Artificers departments, and of the technical assistants from various scientific departments, the collection of Australian material culture was removed from the old wing and the human skeletal collection from the Mammal store and cellar, into the new wing. The archaeological collection from old wooden cabinets in the batten cellar were transferred to steel cabinets (12 of which were added during the year) in a new store in the basement. The bark paintings were arranged in cabinets acquired from the Ornithology Department. The construction of glass fronted cabinets in the new wing store is awaited anxiously so that the immense Pacific and foreign portion of the collection may be moved from its present inaccessible and badly lighted storage in the New Guinea gallery.

The human skeletal collection has been completely checked and re-catalogued by technical assistants. A large number of Australian axes to be catalogued were classified by Mr. Nyandoh, from the Kuching Museum, Borneo. Thirty-nine Aboriginal skulls from the coast of New South Wales have been lent to the Anatomy Department of the University of Sydney, for a research project. An Aboriginal skull and box of limb bones, and 19 Melanesian skulls have been transferred to the Anatomy Department of the University of New South Wales.

The collection of original records of Aboriginal relics in situ was added to by scale drawings of 31 caves of paintings in the Cobar-Louth area of New South Wales. Mr. I. Sim continued to add similar records of unrecorded groups of rock engravings in the Sydney-Hawkesbury district.

The Curator has been appointed a member of the Interim Council of the Australian Institute of Aboriginal Studies set up by the Commonwealth Government to promote research into Aboriginal life and culture, and a member of the Historic Buildings Committee (re-Aboriginal relics) of the Cumberland County Council. He has attended Council meetings of the National Trust as the Museum representative.

Three trays of coins, in display cabinets, were stolen during the year. The theft involved Greek, Indian and Roman coins.

Mammals: (B. J. Marlow, B.Sc., Curator; Miss Gai Fell, Assistant).

One hundred and thirty new mammal specimens were added to the collections during the year; the majority of these were presented. The following specimens are of particular interest: a marsupial mole (*Notoryctes typhlops*) and several fat-tailed marsupial mice (*Pseudantechinus macdonnellensis*) obtained by Messrs. Cogger and Mackay in central Australia; an interesting series of neotropical bats obtained, by exchange, with Dr. A. Starrett, of California. Included among the 13 specimens were representatives of 4 genera which were not previously represented in our collection.



Part of a new display of Australian mammals

An excellent series of potoroos (*Potorous tridactylus*), from Tasmania, was presented by Mr. Leon Hughes, of the Wildlife Survey Section, C.S.I.R.O.

A strap-toothed whale (*Mesoplodon layardi*) was washed up on the beach at Curl Curl and the body was buried for subsequent recovery of the skeleton. Monotreme material of interest includes a male long-beaked spiny anteater (*Zaglossus bruijnii*) from Dr. Womersley in New Guinea and three platypus, presented by the New South Wales State Fisheries Department.

Two specimens of racoon (*Procyon lotor*) were received as a gift from Mr. A. Bunker, Pickering, Ontario. It is hoped that one of these may be prepared at a later stage as a gallery exhibit.

Work on the reorganisation of the mammal collection has continued. The whole spirit collection and the skins and skulls of marsupials have been completed, and about two thirds of the skins and skulls of the rodents have also been treated. The bats and skeletons remain to be dealt with.

Facilities were extended to Mr. J. Thompson (University of Melbourne) to examine brush-tailed possum material and to Mr. N. Wakefield (Field Naturalists' Club of Victoria) to examine specimens of *Antechinus* spp. Mr. J. Mahoney (Geology Department, Sydney University) continued his studies of native rodents, particularly *Pseudomys* spp. Mr. A. Newsome (Animal Industry Branch, Northern Territory Administration) visited the Museum to obtain data and examine specimens which had been collected in the Northern Territory. Mrs. P. Wooley (Department of Zoology, Australian National University), visited the Museum on several occasions to discuss techniques for the capture and maintenance of *Antechinus flavipes* in captivity.

The carcase of a short nosed bandicoot (*Isodon macrourus*) was sent to Mrs. P. Thomas, Department of Zoology, University of Adelaide, to provide specimens of endoparasites.

About 320 enquiries were answered during the year.

Birds: (H. J. de S. Disney, M.A., Curator; H. G. Cogger, M.Sc., Acting Curator until January, 1962; R. Hauenstein, Museum Assistant (part-time).)

This is the first annual report of this department since, with the approval of the Public Service Board, it was separated from the Department of Reptiles and Amphibians.

Mr. H. J. de S. Disney was appointed Curator of Birds in August, 1961, and commenced duties on 2nd January, 1962. Previously, he had been working, as Zoologist, with the Department of Agriculture, Tanganyika, East Africa, mainly on birds.

Four hundred and forty-nine specimens of birds were registered during the year. This number includes a collection of 372 New Guinea birds presented by Dr. R. Bulmer of the University of Auckland, New Zealand. One hundred and twenty-one of these specimens have been sent on loan to Dr. Gilliard, of the American Museum of Natural History, New York, who has kindly agreed to check the identifications.

The principal work since January has been a thorough inspection of all aspects of the department. The study collection of skins is in good condition, but a very high percentage of the birds has only metal registration number tags and no data labels. This makes serious research work almost impossible until labels are fixed and this has now been started. Many of the old specimens have very little data available and the colours are "foxed". Efforts will be made to increase the study collection with the full data needed by modern taxonomic work attached. Besides a good series of adult birds, series of immature and juvenile birds are also required now that bird banding is getting under way. As well as enabling banders to tell the age of the birds in the field, it will help also in the study of field-taxonomy.

As usual, numerous enquiries have been dealt with. These have been to do mainly with the identification of birds seen by the enquirers.

Reptiles and Amphibians: (H. G. Cogger, M.Sc., Assistant Curator; Miss R. Hauenstein, Museum Assistant (part-time).)

This is the first report of the Department as a separate unit. Approximately 1,800 specimens of reptiles and amphibians were registered during the year.

The research collections have been maintained in good order. The existing spirit house accommodation has, however, reached saturation point, and the integration of new acquisitions has accordingly come almost to a standstill. General reorganisation of the collections has also been stopped for want of adequate accommodation.

Work is continuing steadily on the preparation of a Bibliography and Check List of Australian Reptiles and Amphibians.

The Type list of Reptiles and Amphibians has been completed.

Numerous enquiries were dealt with covering a wide range of topics, but the majority, both from the public and from scientific institutions, has been concerned with the identification of reptiles and frogs. There were no enquiries of outstanding interest, except perhaps in relation to a series of reptilian bone fragments from two Aboriginal camp sites, submitted by Dr. M. Ryder, of the University of New England. Advice was given to Health and other authorities concerning the distribution of snake antisera in New South Wales.

Fishes: (Mr. G. P. Whitley, Curator; Miss L. Carter, Assistant).

About 700 fishes have been registered from eastern Australia, New Zealand, Lord Howe and Norfolk Islands, New Caledonia, the Gilbert Islands, Indonesia, Japan and India. Practically all of these have been identified specifically, catalogued and stored. They were mainly donations; a few were purchased for casting for the gallery, and some were collected by staff members in the field. Noteworthy donors were: Dr. R. Catala (fishes from New Caledonia and Gilbert Islands); Mr. and Mrs. B. Marsh (Norfolk Island); Miss Julie Booth (Lord Howe Island); Mr. George Coates (Queensland); and Dr. D. Francois (local species, including a new genus of goby from Sydney Harbour).

Several examples of *Chaetodon aphrodite* were received; this species was hitherto known from the single holotype described by Ogilby in 1889.

The backlog of accumulated specimens in the spirit house has been overtaken; the tanks and most of the bottles have been regularly replenished, only a few shelves remaining to be checked. The collections are therefore in good order. Many specimens and casts stored at Shea's Creek have been brought back to the Museum.

Assistance has been afforded to various authors writing or editing books on fishes.

The departmental list of types which was roneoed and distributed in 1957 is now out of stock. It has since been kept up-to-date in manuscript form by the addition of about 32 new species and subspecies.

Very numerous enquiries from the press, public and institutions have been attended to, and information supplied to Fisheries, Health and other Government departments. Reports of a supposed "monster" from Tasmania had world-wide repercussions resulting in much wasted effort in answering queries from press, radio, television stations, correspondents and visitors about what was eventually identified as decomposed whale tissue. Spearfishermen and others submitted many coloured transparencies of living fishes from Australia, Lord Howe and Norfolk Islands, for identification.

Data concerning shark attacks continued to be forwarded, as part of a world survey, to a central research organization at the United States National Museum, Washington.

Specimens were sent to India, Japan, New Zealand and Western Australia for study by research workers.

The Curator, at the request of the Trustees, is preparing a History of the Museum. The late Mr. Rainbow's manuscript dealing with the early history of the Museum has been entirely rewritten and a draft of the first eight chapters typed. These embrace the history of the institution from 1827 to the 1880's. The preliminary "blocking-out" of chapters dealing with the remaining decades is under way.

Molluscs: (D. F. McMichael, Ph.D., Curator; Miss J. Ferguson, Museum Assistant).

Acquisitions have included shells from Weipa, Gulf of Carpentaria (obtained through Mr. G. Webster, per favour of the Westminster Dredging Co.); freshwater mussels from Argentina including spirit material of some interesting larval forms (Dr. A. A. Bonnetto); shells from m.v. "Challenge" (presented by Mr. Garrard after he had published a report on the collection); some further "Challenge" shells (through an exchange with the National Museum of Victoria); a quantity of Madagascar shells (Academy of Natural Sciences of Philadelphia); some valuable dredged shells from off Brisbane (Department of Zoology, University of Queensland, and Mr. J. Laseron).

Certain sections of the collection were moved to enable new cabinets to be built, and when this was done the foreign marine gastropods were brought from the basement to the new cabinets and the whole marine collection rearranged. The foreign freshwater shells were also brought up from the basement to the mezzanine floor, so that the whole of the dry collection is now housed in the one part of the Museum, with the minor exception of the duplicate and unworked material stored in the basement.

A list of Types in the family Endodontidae has been completed.

Insects and Arachnids: (C. N. Smithers, M.Sc., Curator; D. K. McAlpine, M.Sc., Asst. Curator; Miss R. Wilkinson, Museum Assistant (until 21st December, 1961); Mrs. K. Kota, Museum Assistant (from 5th February, 1962).)

Nearly 10,000 specimens have been added to the collections, of which over 2,000 have belonged to Type series.

Over 300 specimens of Type series have been registered. Material despatched for study to outside authorities has included Elateridae (Mr. A. Neboiss, Melbourne); Siphonaptera (Dr. G. Dunnet, Scotland); Mygalomorpha (Miss P. Webb, Brisbane); Streblidae, Nycteribiidae (Mr. G. F. Gross, Adelaide); Sciomyzidae (Dr. G. Steyskal, Michigan); Cicadidae (Mr. A. Burns, National Museum, Victoria); Hippoboscidae (Dr. T. C. Maa, Hawaii); Stratiomyidae (Dr. D. Miller, Nelson, New Zealand); Notonectidae (Dr. A. Woodhill, Sydney); Coreidae (Dr. I. Ahmad, London).

Identifications have been carried out for the Universities of Sydney and New South Wales, the New South Wales Department of Agriculture, the National Museum of Victoria, C.S.I.R.O., and the Forestry Commission. Assistance was given in the preparation of a revised edition of the *Common Names List* of the C.S.I.R.O. Comparison of bee types was made for Dr. Michener, U.S.A.

Sorting, identifying and placing acquisitions and old material have continued, especially in Hymenoptera, Diptera and Neuroptera.

Progress has been made in transferring part of the pinned collection of insects to new cabinets made available during the year. The spirit collection is also in process of being re-organised and a start has been made with the re-arrangement of the slide collection.



New insect cabinets in the Department of Entomology

Worms, Echinoderms, Ascidians, Sponges and Barnacles: (Elizabeth Pope, M.Sc., Curator; Miss J. Walsh, Museum Assistant).

Several valuable general collections of invertebrates were received from new and interesting localities. These included several batches from Weipa (Gulf of Carpentaria), Dunwich (Stradbroke Island, Queensland) and a series taken on outlying reefs and islets in the Coral Sea.

Among the more notable accessions are:

A collection of sponges removed from a museum in Newcastle, New South Wales; some fresh-water sponges (Dr. A. A. Racek); a rare green Echiurid worm (Mrs. G. F. Myers); a series of 10 annelid worm species taken at Dunwich, Queensland (Mr. Tharumarajah); a series of spirorbid worms (Mr. B. Wisely, C.S.I.R.O.); a collection of interesting echinoderms from Weipa (Mr. G. Webster); a series of holothurians and ophiuroids from Dunwich, Queensland, and a collection of representative New Zealand echinoderms (Mr. H. B. Fell). In addition interesting material came from collections made by Dr. McMichael in the Coral Sea area (including the second record in Australian seas of the poisonous sea urchin, *Toxopneustes pileolus*) and a series of echinoderms from Norfolk Island (Mrs. Brian Marsh); a representative series of beches-de-mer from Heron Island, Queensland

(Mr. J. Bishop); a series of representative barnacles from Norfolk Island (Mrs. Marsh), and from Townsville, Queensland (Mr. Ron Kenny); a series of *Polycarpa fungiformis* (an ascidian), hitherto thought to be rare, from Moreton Bay, Queensland (Professor W. Stephenson). Collecting by skin-diving has added several specimens of the holothurian, *Urodemas perspicillum*.

A complete revision and reclassification of the extensive dry sponge collection is well advanced and is now hampered by lack of space in the available steel cabinets. Old sponge catalogues are being revised with a view to preparing an up-to-date one. A revision of the spirit collection of holothurians was carried out in order to make room for the incorporation of extensive collections from Heron Island and Dunwich, Queensland. Many unnamed specimens were identified and the catalogue was revised.

Routine care of the collections has included fumigation and re-spiriting of all groups and loans of extensive collections were arranged for the following: Dr. Penney, of South Carolina, U.S.A. (freshwater sponges); Mrs P. Mather, Brisbane (Ascidians of the families *Didemnidae*, *Synoicidae* and *Polycitoridae*); Dr. B. Jamieson, Department of Zoology, Sydney University (earthworms, family Megascolecidae).

Collections of common local garden earthworms were sent to Dr. Gates, of U.S.A., and cestode parasites from the fish *Mola mola* were identified for Dr. R. Catala of Noumea.

Many identifications have been made for other institutions and workers and for members of the public.

Some 928 animals have been registered, comprising 251 echinoderms, 19 sponges, 658 worms.

Type lists of dry sponge material have been begun but it is obvious that the word and label "TYPE" has frequently been used incorrectly and much checking in literature will be necessary before a final list can be prepared.

A record number of enquiries was dealt with during the year owing to the fact that urgent enquiries about fish and molluscs were answered while the curators of those Departments were overseas. Many enquiries about crustacea and coelenterates also needed to be dealt with. In all, some 200 enquiries were recorded, many of which came as requests for help in identifications from Universities and Government Departments.

The wet summer resulted in more than the usual number of enquiries about Gordian Worms, Shovel-headed Garden Worms and land planarians. Dr. Hughes, of the Lidcombe State Hospital and Home, complained of an outbreak of "leeches" in damp areas of the grounds. This proved to be the Planarian, *Placocephalus*, and is the first record of such a "plague".

Major enquiries have included barnacles (identified for Dr. McKenzie, Western Australian University); five species of polychaete worms and 20 batches of barnacles (Dr. Kenny, Townsville College University); a zoanthid anemone, *Sphenopus* and 3 batches of barnacles (Professor W. Stephenson, Queensland University); distribution of three high-shore species of crabs in Victoria and Tasmania (Dr. Griffin, University of Tasmania); large general collections of invertebrates from Broulee have been named for use in a class museum (Australian National University); help has been afforded on identifications for 5 rarer marine animals, literature references on leeches and flatworms, information on a local stinging Sea Urchin (*Areaosma*) and references to latest work on coelenterate stings (University of New South Wales, Department of Zoology); identifications of *Linckia guildingii* and *Ophiocrossota multispina*, also a classification of the Cirripedia for use in a senior student display (Miss I. Bennett); batches of barnacles named (Mrs. Evans); help was given with literature and naming of batches of polychaete worms, barnacles and crabs (Sydney University students); method of excavation of sandstone by local sea urchins and bibliography of Lord Howe Island (Mr. J. Standard, Sydney University); holothurians and several ophiuroids from 40 fathoms identified (Dr. J. MacIntyre, C.S.I.R.O.); literature references have also been supplied to C.S.I.R.O. Fisheries Section (Mr. B. Wisely); a bibliography of Lord Howe Island has been supplied (Department of Mines); help given with hydroid literature (Mr. Don Wilson, Maritime Services Board); Gordian Worms in local water supply (Boree Shire Health Inspector); tubifex worms in water supply in country, blue planarians attacking strawberries, earthworms and oil nematode identifications (Department of Agriculture); nematode worms in smoked fish flesh identified as *Contracoecum* (Department of Public Health); enquiries re new localities of Schistosome stings supplied; identity of "African Crawler" worm (Victorian Department of Wild Life); turbidity of seawater round Heron Island at certain seasons (Queensland Government Tourist Bureau.)

Eleven detailed enquiries were made about earthworms, mainly seeking information on their breeding and culture, or asking for sources of supply for use as laboratory animals.

Dr. Lambert, F.R.S., sought further information on polychaete classification and advice as to likely species for detailed research in biochemistry.

An interesting development, which became apparent from a number of enquiries from local doctors and laymen, is the new appearance on the surf-washed coast in certain areas round Sydney of schistosome dermatitis. Hitherto, the schistosome responsible has been confined to coastal lagoons. Investigations have shown that certain molluscs in rock pools have infestations of flatworms in their flesh and this may be a contributing factor.

Among sundry enquiries which might be classed as "unusual" were a request from an engineering firm for estimates of the quantity and seasonal variation of "jellyfish" in Munmorah Lake so that filters for a power-house intake could be designed accordingly, and a request by Mr. James, of Tabourie Lake, for help in suggesting methods of preservation of Beach Worms for sale as bait.

Plagues of crustaceans, in particular, the shore louse, *Ligia australiensis*, and the leaf-mould hopper, *Talitrus sylvaticus*, have been reported by numerous members of the public.

Crustacea, Coelenterata and Other Groups: (J. C. Yaldwyn, Ph.D., Curator) (from March, 1962).

A total of 213 specimen lots (i.e., one or more specimens registered under one number) were entered in the departmental registers during the year (202 crustacean lots and 11 coelenterate lots).

Important acquisitions during the year include the paratype of a Western Australian coral (Professor J. Wells, Cornell University, U.S.A.); a select and important collection of decapods (Dr. R. Catala, Noumea); a collection of corals from Swain Reefs (Mr. A. J. Meagher); some large crayfish, traditionally difficult to obtain for collections (Mr. T. R. Lindsay, Fiji); representative collections of Lord Howe Island decapods (Miss J. Booth); an extensive series of commercial prawns from the Indo-West Pacific (Dr. A. A. Racek, University of Sydney); further type microslides of freshwater copepods of the genus *Calamoecia* (Mr. I. A. E. Bayly, University of Queensland).

The complete rearrangement of the extensive and valuable coral collection into the new steel cabinets on the upper floor of Room 3 has been continued throughout the year by Mr. L. Thomas, Honorary Associate. This project is a big task and has been extended several times during the year as more of our scattered and stored coral collections have come to light. Mr. Thomas spent the greater part of approximately 40 days at the Museum during the year on this project, which is now about two-thirds completed, but further extensive work must await more steel cabinets becoming available.

Mr. McNeill, who was employed on a part-time basis for several months, completed the reorganisation of the dry collection of soft-corals (hydrocorallines and alcyonarians) and dealt with many enquiries.

Material of the following groups has been despatched on loan during the year:

Selected spider crabs (Mr. D. J. G. Griffin, University of Tasmania); several large collections of porcellanid crabs (Miss Janet Haig, Allan Hancock Foundation, Los Angeles); selected scyllarid lobsters (Dr. L. Holthius, Rijksmuseum van Natuurlijke Historie, Leiden); leucosid crabs (Dr. R. George, Western Australian Museum); freshwater amphipods (Dr. W. D. Williams, Monash University); sesamid crabs (Mr. B. Campbell, University of Queensland); calappid crabs (Professor W. Stephenson, University of Queensland); soldier crabs (Miss A. Cameron, University of Queensland); shore crabs (Dr. C. Amaca, Lisbon); fiddler crabs (Dr. W. Mcnair, University of Witwatersrand); freshwater ostracods (Miss A. Chapman of the Metropolitan Water, Sewerage and Drainage Board); freshwater conchostracans (Mr. J. Bishop, Sydney University); pycnogonids (Dr. W. C. Clark, D.S.I.R. Entomology Division, Nelson, New Zealand).

No direct progress can be reported in the preparations of Type lists. Our card index system records the presence of all recognised Types in our collections but the actual status of the majority of these requires individual investigation. A start has been made with the examination of a number of Types of Haswell's species of crabs in connection with work carried out in conjunction with Mr. D. J. G. Griffin of the University of Tasmania.

Numerous enquiries have been dealt with covering such subjects as the Reef, corals, crustaceans, medusae and general invertebrates.

Mineralogy and Petrology: (R. O. Chalmers, A.S.T.C., Curator; Mrs. Judith Naughton, Technical Assistant).

The number of minerals at 30th June is 40,951, an increase of 88. These include stilbite and associated minerals from Arkaroola Creek, north-eastern Flinders Ranges, quartz crystals from Corunna Hills, Eyre Peninsula, and jaspilite from Iron Duchess, Eyre Peninsula, all these being South Australian localities (presented by Mr. Ben Flounders, of Whyalla); specimens from the Musgrave Ranges (collected by Messrs. Cogger, Hughes and MacKay); a large rhodonite specimen from Danglemah, New England, New South Wales (presented by Frank Hambridge Pty. Ltd.).

Several hundred specimens are awaiting registration. These are: a large number of specimens collected by the Curator at various places in the north-eastern Flinders Ranges; a large collection of Broken Hill minerals, collected over a period of thirty years by the late H. H. Bampton, manager of one of the sections of the North Mine, Broken Hill, and presented by his widow; a collection for exchange from Dr. C. Guillemin, Ecole des Mines, Paris; a small collection of gold tellurides and other minerals presented by the management of the Emperor Gold Mining Co. Ltd., Fiji; some very attractive common opal, some cut and polished, from the Cleve-Cowell-Mangalo area, Eyre Peninsula, South Australia, from Mr. Ben Flounders; a small collection of Broken Hill minerals in exchange from Mr. A. H. D. Barratt, Broken Hill; and a small collection of cut and polished prase and silicified wood from Mrs. B. G. Amey.

The number of rocks at 30th June is 8,134, an increase of 20 specimens.

Fragments of a stony meteorite, as yet unregistered, weighing about 76 lb., and sent to the Mining Museum, have been transferred to the Museum where it is being pieced together. It is obviously incomplete and enquiries are being made to see if any of it is still in the Rowena district, 16 miles south-east of Collarenebri, New South Wales, where the fragments were ploughed up.

Fifteen new steel cabinets were received in April. This enables the work of transferring and checking the entire mineral collection to proceed.

In view of requests for collections of rocks and minerals being received from secondary schools working to the new 6-year syllabus, a number of sets has been made up. One such collection has been given to the Berrima and District Natural History Society and another to the Child Guidance Clinic.

A large collection of minerals for use in teaching was identified for Scots' College.

The following material has been made available for research purposes:—

Cobaltian ullmanite (Willyamite) and sternbergite; a collection from Kingsgate (mainly bismuth minerals); Tetrahedrite from North Lyell and forty specimens from Tulloch Mine, Rockvale (University of New South Wales); small slices from 15 Australian stony meteorites (Professor P. Ramdohr, University of New South Wales); pyrite (Mr. S. St. J. Warne, University of New South Wales); fragments of scheelite for checking chemical standards (Mr. J. Pyle, Department of Mines Laboratory); small fragments of minerals for X-ray comparisons (Mr. L. Fordon-Bellgrove, University of Sydney).

Approximately 200 enquiries have been attended to. Many of these involved identifications by optical and chemical means on a number of mineral specimens. Semi-precious and other minerals from north-western Australia and a number of Flinders Ranges minerals from Mr. Ben Flounders have been examined in detail. Many enquiries have been received from amateur geologists, mineral collectors and lapidaries regarding suitable areas in New South Wales where specimens might be collected. A considerable proportion of enquiries were on gemstones. One somewhat time-consuming enquiry was from the Atomic Energy Commission who were seeking a source of zeolitized sediments for use in the base exchange method of treating medium level atomic wastes. Another enquiry, involving long discussions, was from the Division of Reconstruction and Development of the Premier's Department regarding an application from overseas interests to establish a gemcutting industry in a country town in New South Wales.

Our molybdenite collection has been inspected by Dr. Lovering and Mr. J. Morgan (Australian National University), with a view to borrowing material in connection with the rhenium-osmium method of age determination.

Two lots of bore cores from the Joint Coal Board were examined petrologically and reported on. Advice has been given to two honours students at the University of New South Wales in connection with their field problems.

School Service: (Patricia M. McDonald, B.Sc., Dip.Ed., Education Officer; Mrs. S. B. H. Maguire, B.A.; Mrs. Z. M. Harkness, Assistant Education Officers).

The total number of children attending the Museum classes organised by the Education staff was 17,959 for the year. These attended during 448 class visits. Of these, 33 classes visit regularly once a month, each following an individual course of natural science or social studies. Two classes from country high schools were given special instruction during the school holidays. A record of unexpected classes has also been kept since 22nd May, 1962, and even in this short period 31 classes (a total of 944 pupils) visited the Museum and studied with the help of their teachers. This increase in the numbers visiting (18 per cent over the figures for last year) is in part due to the introduction of the new syllabuses for secondary schools following the implementation of the Wyndham Report.

Students from Sydney, Balmain and Alexander Mackie Teachers' Colleges were given lectures on the Museum educational services. A series of visits was made by students from the New South Wales Kindergarten Training College, Art students from Sydney Technical College, Zoology students from the University of Sydney and trainees from the New South Wales Ambulance Transport Service Board.

The total attendance at school vacation films was 10,096.

As usual, the Museum co-operated with the New South Wales Department of Education Play Centres during the January school vacation and children from many Centres attended the film screenings.

A Children's Room was opened to the public during the January and May school vacations. The main purpose of the room was to provide a centre where children could further their interest in natural history. Here were displayed some live specimens (e.g., lizards), and some material for handling, such as Aboriginal grindstones. There were also available a microscope, painting, drawing and modelling materials and reference books. Students from Alexander Mackie Teachers' College

assisted the Education Officers in the conduct of activities in the Children's Room and in the conducting of gallery tours for children. The room proved very popular, being constantly visited by many children as well as groups from play centres. However, its very popularity to some extent defeated its own purpose in that there were so many children there at the one time that very little serious study could be carried out by those wishing to do so.

School classes continue to be served by the loan of specimens and photographs, 72 loans being made during the year. Various specimens were added to the collections from the scientific departments of the Museum and in addition other collections of shells, birds' nests, and Egyptian material were given by private individuals.

One thousand and nine letters from teachers and pupils were answered during the year and 50 schools were provided with sets of leaflets. This latter practice does not, as it had been hoped, materially reduce the number of enquiries received, and consequently a considerable amount of time is still required to answer the voluminous correspondence.

In addition, there were numerous telephoned enquiries and interviews with teachers, students and parents requiring instruction and information.

Scripts concerned with the Australian fauna were checked for the A.B.C. radio sessions for New Australians and for A.B.C. television programmes for schools.

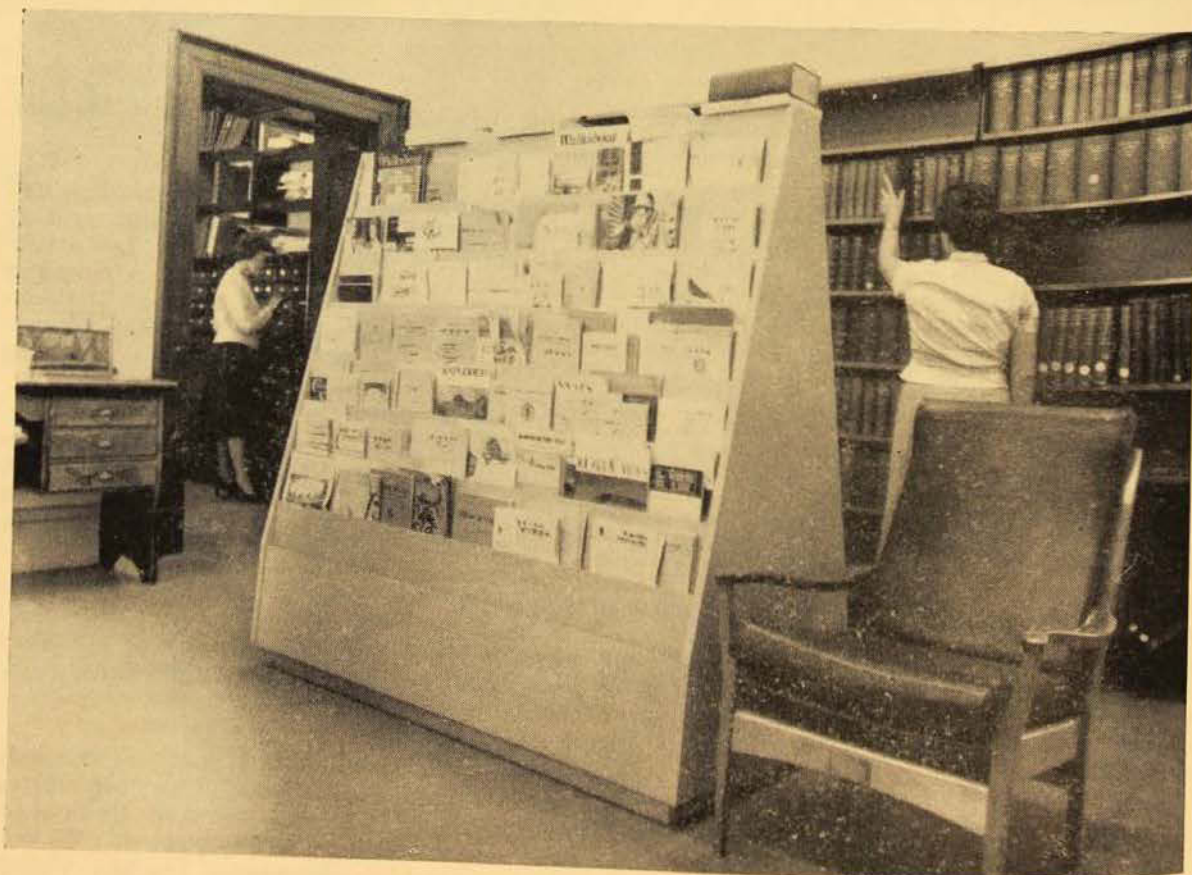
A report of the educational activities carried on in all major Australian museums and art galleries was compiled for the Children's Committee of I.C.O.M. This report will eventually be published in a U.N.E.S.C.O. Handbook.

Following the tour of American museums in May, 1961, a report on the educational services in those museums visited, together with recommendations for expanding and improving the services here, was prepared in July. In addition, an article on this American tour was written for Museum News and published in the October, 1961, issue.

The Educational Officer is a member of the committee formulating the new natural science curriculum for primary schools. While progress is necessarily slow, progress has been made towards the completion of the curriculum.

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

During the year 465 volumes were added to the library, of which 229 were books and the rest periodicals or parts of series; of these volumes 322 were presented or received on exchange, and 89 were part of the bequest from the late Mr. A. Musgrave. 362 volumes were bound for the library of which 276 were new bindings, the rest being repairs and rebindings.



The new library office and reading room

Loans made to libraries in Australia including both Government and private ones numbered 865. The Museum borrowed 28 volumes from other libraries. The interlibrary loans are steadily increasing as more workers realise the valuable material in the Museum library and there were many requests for microfilms and photocopies. Visiting scientists and research workers, both from Australia and overseas, made use of the Library. There were also requests for information and visits from members of the general public.

Recataloguing has continued during the year, 367 books and 166 periodicals having been classified and catalogued, 1,253 old cards withdrawn and 4,224 new cards inserted in the catalogue. All cards for periodicals were removed from the Main Catalogue and filed as a separate Periodical Catalogue. They are being checked against the detailed entry cards and the entries amended. This periodical catalogue is full of temporary cards which will be replaced as the full recataloguing is done. To date, 735 cards have been withdrawn and 1,318 new cards inserted; 406 cards have been made for the *Union Catalogue of Monographs in Australian Libraries* and 57 cards for the *Union List of Scientific Series in Australian Libraries* and sent to the National Library of Australia and the C.S.I.R.O. Head Office, Melbourne, respectively.

During November the staff moved into the new office and a reading room was opened. In February, two easy chairs were purchased out of money bequeathed to the Museum by the late Mr. A. Musgrave. A small bronze memorial plaque has been placed on each chair.

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

The Museum received much publicity during the year in the press and on television and radio. Newspaper publicity included articles on Museum expeditions; articles, accompanied by photographs, on new exhibits and Museum activities generally; interviews with newly-appointed Curators; reviews of the Museum's magazine; extracts from articles in the magazine; comments by Curators on natural history items in the news. The Museum and its publications have also received valuable publicity in teachers' and other educational journals.

Museum activities were televised by the Australian Broadcasting Commission several times and Curators gave radio talks on Museum expeditions and natural history subjects.

Two thousand coloured posters, advertising the Museum, have been printed for display, without charge to the Museum, in suburban trains.

About 500 enquiries on natural history subjects—mostly requests for the identification of specimens—were received by the Public Relations Officer and submitted to Curators. The Public Relations Officer also answered many enquiries about the Museum and its activities from newspapers, radio and television stations and members of the public.

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

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

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

The work of both sections has been concentrated on the completion of the Mammal and Fish Galleries, while designs and information have been accumulated for proposed exhibits in the new wing, and the reorganisation of the existing galleries.

During the year the usual illustrations, scientific drawings, and notices have been undertaken.

The Mammal Gallery is now complete, with the exception of some individual labels and two kangaroo mounts. Approximately 30 specimens were replaced and another 30 mounts reconditioned. The section of the Gallery containing South American mammals has been reorganised.

It will be difficult to terminate the programme of exhibits in the Fish Gallery, as many of the specimens needed are not available. Casts of the specimens in hand are now being prepared for the Commercial Fish Exhibit.

Drawings and models have been prepared of the remaining area in the Front Entrance Gallery, which include a shop, Antarctic and New Guinea exhibits. Plans for sections of these exhibits have been developed to the construction drawing stage.

A critical selection of the most interesting available native art material has been made from the collections and stored ready for use in the planned Gallery of Native Arts.

Drawings have been prepared for the proposed Fossil Gallery, and a scale model showing the layout of the floor space is almost complete. Also, some experiments have been carried out with miniature dioramas and detailed construction drawings have been supplied to the carpenters. Work on these dioramas will start as soon as the background units are built.

Three parties of school children and one of trainee teachers have been conducted through the Preparators' workshop to get an insight into the work which goes on "behind the scenes". A small group of biology certificate students from the Sydney Technical College has also visited the workshops.

Visitors from industrial firms have sought advice on plastic moulding and casting and advice has been sought from industry on electroplating our own moulds for hot press casting.

During the year a comprehensive range of basic tools for each member of the staff was purchased, as well as tools for general use. Accessories for the lathe and other machine tools have also been purchased as needed and as finance became available. Further equipment is required, in particular a second deep freeze unit.

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

During the year well over 800 negatives were exposed, 1,800, photographic prints prepared, 680 35 mm. colour photographs and 4,400 feet of 16 mm. cine film exposed. The work covered a wide variety of photographic techniques required to illustrate scientific, popular and public relations subjects. These were prepared for Museum use and other institutions in Australia and overseas. Interesting subjects include a large series of photographs exposed in a mosaic pattern over the surface of the large "Canowindra" fossil fish specimens and a number of subjects to illustrate the December, 1962, special issue of *Australian Natural History*.

Pressure of incoming work makes it difficult to keep the registration and cataloguing of permanent photographic collections up-to-date. The new system introduced for the cataloguing of 35 mm. colour photographs is working well and registrations already number over one thousand. Many colour and black and white illustrations are awaiting attention.

A number of colour slides has been presented through the year, the majority by Mr. Justice Myers and Mr. F. Gibson.

During field work in central western New South Wales, the opportunity was taken to take photographs required for Gallery purposes. This resulted in the provision of two negatives which were subsequently enlarged to seven feet by nine feet and have been installed in the Mammal Gallery.

A canvas of the staff supplemented the Museum collection to provide 40 colour habitat photographs for the Australian Mammal gallery. These have been printed commercially and are being installed in the Gallery.

Colour photographs are materially assisting in the colouration of fish casts for the Fish Gallery where a number of photographs have already been used in the displays.

Investigations were made into materials for large-size colour transparencies for Gallery display and a special report prepared. The value of colour prints or transparencies cannot be over-emphasised. However, under certain conditions, large monochrome transparencies or prints can be almost as effective with the advantage of lower cost and greater permanency. Colour materials have been tested and a number of 5 in. x 4 in. colour negatives are on hand which are capable of great enlargement when required.

From May to July, 1961, was spent in the Musgrave Ranges in central Australia. Photography resulted in the exposing of over 480 colour and 200 black and white still photographs, 1,800 feet of 16 mm. colour cine film as well as 800 feet of black and white cine film for A.B.C. television.

During September-October four weeks were spent photographing and recording Aboriginal cave paintings in western New South Wales. In this work over 100 colour and 300 black and white photographs were exposed as also were 1600 feet of 16 mm. colour cine film.

A number of technical enquiries from staff, schools and the public have been dealt with.

It is anticipated that the Public Works Department will shortly commence work on the alterations necessary in Room 6, South Wing, to convert it into photographic premises.

Main activity in film production has been concentrated on the production of a film dealing with Aboriginal cave paintings in western New South Wales.

Progress on the two films *Frogs* and *Lizards*, referred to in last year's report, has had to be interrupted, mainly to allow work on the cave painting film, field work and other commitments. Some footage has nevertheless been obtained, and both productions are well advanced, but each needs difficult-to-obtain, life-cycle sequences to complete them.

Film material obtained in the field in central Australia has provided some valuable sequences for use in the *Lizards* film. The remainder of the film, which includes a unique sequence showing a gecko lizard burrowing, will form the basis of a film dealing with natural history subjects in a dry environment.

The inadequacy of our cine camera for much of our work not only makes it extremely awkward to film some subjects but causes wastage of film. This is of great importance in circumstances such as those in central Australia, where valuable time was spent endeavouring to obtain a worthwhile film record.

The National Film Library (Canberra) expressed interest in a number of older silent black and white film productions and arrangements were made for Library officials to view them. An old 35 mm. (1914-18?) commercial film in our possession showing the then Prime Minister, the late W. M. Hughes, proved of great historical interest and was transferred to the National Library, Canberra.

The acquisition of an additional 16 mm. projector has improved cine film projection facilities in the Hallstrom Theatre. A new 35 mm. (2 x 2) slide projector has replaced an older projector being used by the Education Officer for school class instruction, enabling the use of a wider variety of slide material.

A. P. ELKIN, President.

J. W. EVANS, Director.

Appendix A

**THE AUSTRALIAN MUSEUM—SUMMARISED STATEMENT OF RECEIPTS AND
PAYMENTS FOR THE YEAR ENDED 30th JUNE, 1962**

RECEIPTS								£	s. d.	£	s. d.
Appropriation Account—										88,320	15 6
Treasury Appropriations											
Trustees' Account—								1,000	0 0		
Statutory Endowment								2,000	0 0		
Grant towards Museum Requirements								4,490	18 6		
Museum Publications—Sales and Subscriptions								143	2 4		
Museum Shop Sales								303	15 3		
Donations								800	0 0		
Donation by David Jones Ltd.								100	0 0		
Donation by Mr. Frank B. Spencer								588	15 2		
Interest								100	5 0		
Advertising								438	15 4		
Postage Receipts								20	17 7		
Assignment of Copyrights								915	0 0		
Grant from Nuffield Foundation								41	16 8		
Refund of Customs Charges								65	0 0		
Sale of Cabinets								50	0 0		
Compensation for lost Minerals								17	1 7		
Miscellaneous Receipts										11,075	7 5
Balance as at 1st July, 1961—											
Cash at Bank and in hand								6,061	15 6		
Investments								9,550	0 0		
										15,611	15 6
										115,007	18 5
PAYMENTS											
Appropriation Account—											
Salaries, etc.								76,113	11 9		
Insurance on Buildings								40	1 7		
Travelling and Subsistence Expenses								2,575	14 6		
Freight, Cartage and Packing								102	12 4		
Books, Periodicals and Papers								1,487	9 10		
Fees, Commissions, etc.								28	11 0		
Laundry Expenses								89	0 10		
Postal and Telegraphic								329	17 0		
Other Insurances								706	3 2		
Stores, Plant and Equipment								3,347	13 6		
Grant towards Museum requirements								2,000	0 0		
Storage Equipment								1,500	0 0		
										88,320	15 6
Trustees' Account—											
Museum Publications—Cost								3,085	3 0		
Stock for Museum Shop								73	15 2		
Stores, Plant and Equipment								3,618	0 7		
Publication Sales Receipts paid to Treasury								67	4 0		
Postage Receipts paid to Treasury								450	17 0		
Travelling Expenses								1,382	3 1		
Expenses paid from Nuffield Grant								454	10 4		
Customs Charges								37	15 4		
Museum Specimens								129	2 6		
Entertainment								11	5 3		
Miscellaneous Expenditure								119	16 7		
										9,429	12 10
Balance as at 30th June, 1962—											
Cash at Bank and in hand								5,707	10 1		
Investments								11,550	0 0		
										17,257	10 1
										£115,007	18 5

J. W. EVANS, Director.