

PARLIAMENT OF NEW SOUTH WALES.

ANNUAL REPORT

OF THE TRUSTEES OF THE

AUSTRALIAN MUSEUM

FOR THE YEAR ENDED 30TH JUNE, 1947.

Ordered to be printed, 10 March, 1948.

TO HIS EXCELLENCY THE GOVERNOR,—

The Trustees of the Australian Museum have the honour to submit to Your Excellency their ninety-third Annual Report for the year ended 30th June, 1947.

1. Trustees.

The Board of Trustees suffered the loss of four Elective Trustees during the year, two (Sir S. Walder and Mr. C. A. Sussmilch) by death and two (Professor E. Ashby and Dr. G. A. Waterhouse) by resignation.

Dr. G. A. Waterhouse resigned in April, 1947, since his health made it impossible for him to attend meetings. He had been a Trustee since 1926, having been President in 1930 and Chairman of the Scientific and Publication Committee for some years. For many years he took a very active interest in the Museum's affairs, and in 1930 he presented to the Museum his magnificent collection of butterflies.

Sir Samuel Walder had been a Trustee since 1941, and by his death on 24th November, 1946, the Museum lost a Trustee who had taken a keen interest in its affairs.

Mr. C. A. Sussmilch had been a Trustee since 1943, and his death on 6th December, 1946, deprived the Board of one who took the keenest interest in both the scientific and administrative work of the Museum.

Professor Eric Ashby, who had been a Trustee since 1940, resigned in September, 1946, on account of his departure from Australia to occupy the Chair of Botany at the University of Manchester. During his period of office as a Trustee he rendered valuable service to the institution.

The vacancies resulting from death and resignation were filled by the election of Professor A. P. Elkin, Mr. Frank McDowell, Dr. R. J. Noble and Mr. E. J. Kenny.

In December, 1946, Mr. H. B. Mathews was unanimously elected President for the year 1947.

During the year, leave of absence was granted to Mr. F. B. Spencer during his absence abroad, and to Dr. G. A. Waterhouse on account of ill health.

The list of Trustees at 30th June, 1947, is shown in Appendix A.

2. Staff.

At the meeting of the Australian and New Zealand Association for the Advancement of Science held in Adelaide during August, 1946, the Museum was represented by the Director and Messrs. E. Le G. Troughton, A. Musgrave and F. D. McCarthy and Miss Joyce Allan.

The Director was elected a Vice-President, and Mr. E. Le G. Troughton a Member of the Council, of the Art Galleries and Museums Association of Australia and New Zealand.

In March, 1947, two science trainees were appointed, Mr. J. A. Keast in Zoology and Mr. J. F. Lovering in Mineralogy, and they entered upon the Science course at the University of Sydney.

Mr. A. A. Strom, Education Officer, was transferred from the Museum early in 1947, and the resulting vacancy has not yet been filled.

The four members of the staff who were still on military duty at 30th June, 1946, returned to the Museum, and subsequently Mr. F. H. West, Attendant, was transferred to another Department. The resulting vacancy was filled by the appointment of Mr. L. Patton as Attendant.

An additional Assistant Mechanic was appointed during the year, Mr. J. Baldie being selected for the position.

3. Field Work.

Mr. H. O. Fletcher visited Boremore where he collected Silurian trilobites and corals, and Thuddungra, near Young, where he inspected a reported occurrence of fossils in a magnesite deposit. He also inspected a newly-recorded horizon of Permian Marine fossils at Burraborang in company with officers of the New South Wales Geological Survey.

Mr. F. D. McCarthy, as opportunity offered, continued the recording of groups of aboriginal rock carvings.

Miss E. C. Pope carried out field work along the beaches of the Far North Coast of New South Wales, and also spent a few days collecting at Angourie.

Mr. J. H. Wright, accompanied by Messrs. G. Binsted, H. D. Hughes and R. Mackay, spent a week in the field at Wyong and gave instruction in field methods to the younger staff members.

Messrs. H. D. Hughes and R. Gaven accompanied Mr. A. Musgrave to Barrington Tops and gained useful field experience.

4. Gallery Exhibits.

The cast made of a huge Shark-ray from North Queensland was placed on exhibition and forms a striking addition to the gallery exhibits.

Improvements have been made in the exhibits in the Reptile Gallery, and changes are being made in the type of exhibit in the Bird Gallery.

The completed model of an Australian aboriginal was placed on exhibition in the Entrance Hall.

Mr. E. J. L. Hallstrom generously donated a sum of five hundred pounds to the Trustees for the purpose of collecting the necessary material and installing a habitat group of Black Cockatoos. This generous action is greatly appreciated and it is a matter for regret that with existing shortages of labour and material, it has not yet been possible to arrange for the construction work necessary before the assembly of the group itself.

5. Library.

During the year 819 volumes were added to the library, irrespective of unbound parts and pamphlets. Overseas exchanges are being received in expanding numbers, and it is gratifying to report that some series are now complete to date.

Whilst the library is intended primarily for the staff, it is also accessible to research workers and students, many of whom use it freely. Apart from scientific workers it is also availed of by members of the press, artists, and others.

As in previous years books have been lent as inter-library loans to departments and various institutions in different parts of the Commonwealth. By arrangement, many filmstrips have been made for distant workers, thus avoiding the despatch of costly and heavy volumes. The librarian has also devoted a considerable portion of his time to editorial work and the supervision of printing of museum publications.

6. Publications.

During the year Volume IX, Parts 2, 3 and 4 of the "Australian Museum Magazine" were issued.

Volume XXI of the Records was completed with the issue of Part 8 in May, 1947.

Memoirs IX and X were issued during the year. They comprised an account of the Stone Implements of Australia, by F. D. McCarthy, and a Catalogue of the Cerambycidae (Coleoptera) of Australia, by K. C. McKeown.

Arrangements were made for printing a second edition of "Australian Aboriginal Decorative Art" for which there had been a steady demand since the first edition was exhausted.

7. Lectures.

The Popular Science Lectures delivered at the Museum were well attended and provided information for the public on a variety of subjects.

The lectures to school children, as usual, aroused a good deal of interest amongst the pupils attending.

The attendances at the lectures were as follows:—

11 Popular Science Lectures	940
13 School Lectures	2,297

Members of the staff also delivered a number of lectures to scientific societies and groups interested in various aspects of natural history.

8. Education Officer.

The Education Officer conducted a large number of school classes and brought the Museum into closer touch with a number of the schools. However, early in 1947 he was transferred from the Museum to other work. It is hoped to obtain replacement of this officer so that the work with the schools can be continued and expanded. The work aroused the interest of both teachers and children and gave signs of being just as successful as it has proved to be in other countries.

9. Broadcasting.

The Staff has continued to make its contribution to the nature study sessions of the school broadcasts by the Australian Broadcasting Commission.

10. Films.

The film showing the occurrence and use of Building Stones of New South Wales was completed. Further shots were obtained to complete the film on the Natural History of the Barrington Tops district, and occasional shots were obtained, as opportunity offered, for a mammal film.

11. Buildings and Equipment.

Portion of the College Street front of the building was steam-cleaned, resulting in very great improvement in the appearance of the building.

Work was commenced on the building of mezzanine floors in the rooms of the entomologist and the conchologist. This will give additional space and improved conditions for the storage of specimens in those two departments.

The glass roof of the building suffered severe damage in the hailstorm of 1st January, 1947—more than one hundred panes were broken—and the roof was rendered weather-proof temporarily by a covering of galvanized iron.

The storage problem is still acute. A sum of money was placed on the Loan Estimates for a small brick storage building, but the amount provided would not be sufficient for the proposed building in view of increased costs.

12. Finance.

The total expenditure from Consolidated Revenue Fund for the year (excluding Statutory Endowment of £1,000) was £20,927 2s. 3d., compared with £17,485 7s. 3d. last year. Net expenditure from Trustees' Account Funds (including Statutory Endowment) was £969 4s. 6d., compared with £577 14s. 3d. for 1945-46.

The cash balance in the Trustees' Account at 30th June, 1947, was £1,178 7s. 10d. Trustees' Invested Funds at 30th June, 1947, were: Commonwealth Inscribed Stock, £1,750, Commonwealth Savings Bank, £2,623 9s. 6d.

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

13. Public Attendances.

Statistics of attendances for the years 1937-38 to 1946-47 are as follows:—

	Week-days.	Sundays.	Total.
1937-38	157,161	54,809	211,970
1938-39	155,751	52,154	207,905
1939-40	170,354	63,907	234,261
1940-41	194,249	75,994	270,243
1941-42	172,278	73,775	246,053
1942-43	176,129	80,985	257,114
1943-44	200,520	82,751	283,271
1944-45	178,317	78,397	256,714
1945-46	160,584	67,922	228,506
1946-47	120,194	54,801	174,995

The figure for 1946-47 shows a very decided decrease in the number of visitors to the Museum. This has caused the Trustees some thought, but it does not seem possible to give any specific reason for the decrease. It is noteworthy that the attendances on Sundays have not dropped below the pre-war figures, but that the great decrease has been in week-day attendances.

14. Narrandera Museum.

The Director visited Narrandera to discuss with interested persons proposals for the future of the Museum, and furnished a report thereon to the Minister for Education.

Mr. G. C. Clutton also visited the Narrandera Museum for the purpose of inspecting the collections and giving advice and assistance for their proper care and preservation.

15. Thefts of Butterflies from the Collections in Australian Museums.

In January, 1947, it was found that many specimens were missing from the collection of Australian Butterflies in the National Museum, Melbourne. A check of the similar collections in the South Australian Museum, Adelaide, and the Australian Museum revealed that specimens were also missing from those institutions. The total number of missing specimens was about 3,000 (1,600 from Sydney, 800 from Melbourne and 600 from Adelaide). As a result of inquiries which were made, the matter was placed in the hands of the Police authorities, who communicated with Scotland Yard. Ultimately, Scotland Yard officers recovered some 3,000 specimens from Colin Wyatt, of Farnham, Surrey. Wyatt was charged at West Ham Magistrate's Court on Wednesday, 21st May, 1947, with having these stolen butterflies in his possession. He pleaded guilty and was fined £100 by the magistrate.

The specimens were returned to Australia and arrangements made for the entomologists of the three Museums to meet and sort out the specimens belonging to the various collections.

At the request of the Trustees, the Chairman of the Public Service Board arranged for an investigation by Mr. Inspector O'Donnell and Mr. Senior Auditor Jeayes into the methods adopted to secure the safe-keeping of Museum exhibits at this Museum. After conducting an exhaustive inquiry the investigators furnished a report to the Public Service Board, in which their main conclusion reads: "Following our examination of the present situation it is our opinion that the Museum authorities are taking all reasonable precautions to watch the interests of the Trustees and of the institution generally in regard to the safe-keeping of the exhibits in its charge. . . . The opinions expressed as to the adequacy of existing precautions are, as indicated in the body of this report, influenced to a degree by acceptance of the principle that the Museum should not be unduly hampered in its function of encouraging and promoting research. This, however, is assumed to be basic to the problem."

The policy of the Trustees with regard to the collections available for study is that reasonable access should be granted to bona fide students.

16. The Collections and Scientific Work.

The exhibits and stored collections have received regular attention and are in good order. Storage space is inadequate and for some parts of the collections is quite unsuitable. For the proper preservation of some portions of the stored collections it is essential that the storage space should be protected from dust and from damp. Until such space is provided there will always be the problem of combating dust and various moulds which attack specimens under damp conditions. The only satisfactory solution which can be envisaged is the provision of a new building in which the collections can be housed under conditions satisfactory for their care and preservation.

Some of the gallery exhibits suffered considerable damage as a result of a severe hailstorm on 1st January, 1947, which damaged more than one hundred panes of glass in the roof of the building.

A valuable accession was the gift, by the Commonwealth Bank authorities, through the good offices of Mr. V. Clayton, of blocks which had been used in illustration of the publication "Bank Notes." These included many natural history subjects and will be of great use from time to time, as illustrations and in preparation of lantern slides.

Members of the staff contributed articles for the Museum Magazine, a publication which retains its popularity with the public. Members of the Staff also, as usual, delivered numerous lectures and talks to various societies and groups interested in natural history.

Birds. (J. R. Kinghorn in charge, J. A. Keast, Scientific Trainee.)

Of the many specimens forwarded for identification or information, very few were in a fit condition to add to the reference collections. The reference collections in the gallery drawers, and those in the bird room and basement, have received regular attention and occasional checking against the registers and card indices. The remaining boxes containing the MacGillivray collection of eggs have been unpacked, the clutches separated into small boxes, and stored in the cabinets but they have not, as yet, been registered or arranged in systematic order.

Mildew continues to affect birds and eggs in the basement, and though the preparators have treated the birds, practically nothing can be done about the eggs because of their delicate shells. Unless suitable accommodation can be found within the next year or two, many valuable clutches will be permanently stained and ruined.

Several overseas and interstate ornithologists have worked at certain groups or genera, and every help possible has been given to them, but the basement is not a satisfactory place for visitors to work in.

Reports on the economics of certain species, including quail, ibis, and ducks, have been made to the Department of Agriculture, and advice on importations and exportations given to the Chief Secretary and the Customs Department.

Reptiles and Batrachians. (J. R. Kinghorn in charge.)

More than three hundred and thirty specimens were added to the collections; of these, most were obtained by exchange with the Hebrew University, Jerusalem, the remainder being presented by individual donors.

The spirit collections receive weekly attention, and most of the "old collection" unidentified specimens have been named and placed in their correct positions on the shelves. The registers and catalogues are kept up-to-date, and occasional checks are made with these in relation to the specimens.

Many rare specimens, including types, have been examined for overseas workers, this often calling for scale counts of large series. On occasions during the last six months, many specimens have been examined in great detail for a herpetologist at the South Australian Museum, and results and advice given to him from time to time. A considerable amount of work has been done on the genus *Tympanocryptis*; a new species of *Typhlops* has been described from New Britain and much work has been done on the genus *Rhynchoelaps* and allied groups of snakes.

Mammals and Skeletons. (E. Le G. Troughton in charge.)

In addition to the routine attention to the skin and spirit collections, a re-arrangement of a section of the skin and cranial specimens was carried out by Mr. Barnes, making space for the considerable collection of New Guinea material which resulted from the scrub-typhus investigations in conjunction with the A.I.F. Scientific Section, and the U.S.A. Typhus Commission. Curatorial attention was specially concerned with the indexing and storage of more than 200 specimens (skins and skulls). A representative series of spirit specimens was also dealt with.

Series of specimens for demonstration purposes were selected for despatch to the Zoology Department of the New England University College; The Teachers' Training College at Pietermaritzburg; The University at Poona; and the Hebrew University at Jerusalem. Suitable specimens were requested in exchange, and interesting material has already been received from the institutions at Pietermaritzburg and Jerusalem.

Considerable time was given to the writing of captions for a series of sheets of stamps presented by Mr. J. W. Dovey as a collection representative of "Zoological Philately." The descriptive matter, dealing with 70 odd sheets, was completed to the donor's satisfaction.

Information and facilities were provided for Mr. E. Worrell for collecting in the Northern Territory, and for Messrs. Shaw Mayer, Walter Goodfellow, and Lawrence for collecting

in New Guinea. A series of tree-kangaroos (*Dendrolagus*) from the Mt. Hagen region of New Guinea, collected at altitudes of 9-11 thousand feet by Mr. N. B. Blood, of the Administrative Service, and sent to Taronga Park, were provisionally identified at the request of the Superintendent. Arrangements for eventual presentation of the specimens to the Museum were made by the collector, and two specimens have already been received.

The usual consultations were held with the Chief Secretary's Department; as a result, a three-months' open season declared for kangaroos in the Monaro district during an excessively severe winter period was reduced to one month; a report was supplied regarding the Protection Act in relation to the platypus and requests for the exportation of rugs, and a report was supplied recommending absolute prohibition of the introduction of the Golden Hamster (vole family of rodents), in view of its extreme fecundity, destructive plague occurrences, and association with epidemic diseases. General assistance included: the Premier's Department regarding the fauna of Mount Kosciusko; the Department of Agriculture regarding indigenous and exotic mammals; the C.S.I.R. regarding identification of whales stranded on the coast; the Anatomy Department of the University regarding specimens of various orders of mammals for research; the McMaster Laboratory regarding the importation of monkeys and rodents for research purposes, and the School of Public Health and Tropical Medicine on bats and other mammals, regarding researches in parasitology. The City Health Officer and Dental Association were supplied with specimens and information for Health Week Display.

Amongst the mainly skeletal material supplied for demonstration purposes to local and overseas institutions was the skeleton of a platypus for the University at Poona, and another is under preparation for the New England University College. In return, interesting crania have already been received from the Hebrew University at Jerusalem. Cranial and dental material was made available for study by under-graduate and post-graduate students, and for Mrs. W. S. C. Stark, of a Netherlands university. A preliminary examination has been made of a very long series of macropod crania submitted for identification by the Director of the South Australian Museum on behalf of Dr. Southcott in relation to his researches in parasitology.

With a view to subsequent revision, preliminary research work was carried out upon the marsupial genera *Sminthopsis* and *Dendrolagus*, and the bat genera *Taphozous* and *Saccolaimus*. A report on the mammalian fauna of the Kosciusko region, in relation to the general need for conservation, was submitted in connection with the natural history survey arranged by a combined Committee of the Linnean and Royal Zoological Societies on behalf of the Kosciusko State Park Trust. The following articles were submitted for publication: On "Wildlife and Soil Conservation" for the special *Arbours Day Supplement* of the "Education Gazette"; Notes on Museum Field-work, and on the mammalian fauna of New Guinea, for the journal of the School of Pacific Administration; an introduction to the marsupial order for the "Junior Encyclopaedia"; an article for the "Museum Magazine" on the birth of kangaroo twins and triplets.

Fishes. (Mr. G. P. Whitley in charge.)

More than a thousand fishes (chiefly Atherines, and including the types of a new species of Bream) were presented by the Division of Fisheries, C.S.I.R. From Ocean Island, Lt.-Colonel P. B. Laxton sent a collection including some species new to our collections. A collection of fresh-water fishes from inland Queensland was purchased from Mr. N. Geary. Duplicates of some unnamed "Endeavour" fishes were registered.

By exchange, we received European species from Professor T. Gislén, Lund, Sweden, and Palestine fishes from the Hebrew University, Jerusalem. Some interesting sharks' jaws were received from South Africa, Western Australia and New South Wales, as well as a variety of fishes from private donors.

Two type-specimens of Tongue Soles were lent to Dr. P. Chabanuad, Paris, and a cast of one of our *Latimeria* scales was made for Dr. P. Fischer, also of the Paris Museum. Specimens were sent to A. Svetovidov, Academy of Sciences, Leningrad, in anticipation of an exchange.

No collecting trips were made this year, apart from brief visits to the local shore-line during favourable tides.

The Shark Ray exhibit was completed for display, otherwise only minor additions to the gallery have been made. The Spirit House collections are in good order and practically all the year's acquisitions have been registered, catalogued and distributed.

Owing to pressure of routine work, research work was limited to describing some new or rare fishes in the "Endeavour" and Museum series. Progress was made on the second part of the "Fishes of Australia," and keys to genera and species prepared.

Advice on the standardization of vernacular names of food fishes in the various States was given to the Interstate Conference of Fisheries Inspectors, and a scheme was tabulated for adoption throughout the Commonwealth. Information about fish imported from South Africa was given to several commercial firms.

The stamps depicting fishes in the Dovey "Zoological Philately" collection were classified. Maps of the distribution of food fishes were drawn for the Lecturer in Economic Geography, University of Western Australia. Ichthyological information was given to the British Museum (Natural History), American Museum of Natural History, C.S.I.R. Division of Fisheries (Cronulla, Melbourne and Perth), the California State Fisheries Laboratory, and the Australian Scientific Mission, Tokyo.

Insects and Arachnids. (A. Musgrave in charge, and K. C. McKeown; Nancy B. Adams, Assistant.)

Identification of specimens and preparation of information for the public occupied much time, inquiries regarding insects being especially numerous.

The collection of Australian Diptera of the families Anthomyiidae and Tachinidae was overhauled and the literature catalogued. A catalogue of the Australian Tettigoniidae was prepared. References in a Bibliography of Cyrtidae were checked for Mr. N. J. B. Plomley, of the Queen Victoria Museum, Launceston. A catalogue was also prepared of the Australian moths of the family Noctuidae. Information was collected about the French collector and naturalist, P. Verreaux.

The Barrington Tops Plateau was visited in January, a large number of specimens being collected and colour films taken for a film of the district which is now in course of preparation.

An exhaustive check was made of the Waterhouse Collection of Australian butterflies, following the discovery of the theft of a considerable number of specimens.

Miss Adams prepared drawings to illustrate papers for publication. She also worked on the Goldfinch Collection of Moths, and placed many specimens of beetles in their place in the cabinet collections.

Shells. (Joyce Allan in charge.)

During the year revision of the Pelecypoda Reference Collection was continued and several families completely revised according to modern nomenclature.

A very large number of private and school collections were received for identification. Information and assistance was also supplied to various newspapers, Fisheries Departments in Sydney, Brisbane and Mackay; to the Fisheries Division, C.S.I.R., Cronulla, Sydney; Zoology Department, Universities of Sydney and Brisbane; School of Tropical Medicine, and Department of Trade and Commerce; University College, Christchurch, New Zealand; Geological Survey, Wellington, N.Z., and to a number of overseas institutions and scientific workers.

During the year the duplicate collection of shells, which is mainly used for school collections, exchanges and exhibition purposes, was moved from the basement of the main building to the new store. An exhibit of economic shells was arranged for the Royal Easter Show.

Field work has been carried out locally when particular specimens were required.

Research was continued on the identification of pelagic cephalopods for the C.S.I.R. Fisheries Division, Cronulla, and a paper on this is now in course of preparation. Work on Opisthobranchia collected at the Clarence River Heads was carried out, and the results of work on the Nudibranchia were published in the Records, Vol. XXI, 1947. Further work on this collection has been carried out and also on the Opisthobranchia of Lord Howe Island.

At the request of the Fisheries Division, C.S.I.R., Cronulla, an article was prepared on the economics of the Trocas Shell, and this appeared in a recent issue of the "Fisheries Newsletter." Assistance in research work on the Revision of the families Rissoidae and Marginellidae has been given to Mr. C. Laserson, Honorary Correspondent, who is undertaking the revision of several difficult molluscan groups, using his own private collection as a basis for this work.

Considerable interest was aroused amongst economic zoologists on the prevalence of, and the damage caused to cultivated crops by, an African species of large tree snail introduced into New Guinea, New Britain and other islands by the Japanese during their temporary occupation during the war. Specimens of this were received for identification and its presence in the South Pacific was of unusual interest.

During August-September, 1946, the Congress held by the Australian and New Zealand Association for the Advancement of Science was attended and a short paper read to Section D

on the "Present Position of the Molluscan Fauna of Australia." The opportunity was taken to work with the Conchologist at the South Australian Museum, and it was possible to clear up many conchological matters with him and also with Dr. Marwick, of the New Zealand Geological Survey; Miss Irene Crespin, Commonwealth Palaeontologist; the late Dr. F. Singleton, Melbourne University; Miss H. Macpherson, Conchologist, National Museum, Melbourne, and several others attending the Conference.

During the latter part of 1946, Dr. Paul Fischer, University of Paris, worked on the Conchological collections for several months in this Department, and much benefit was gained from this overseas contact.

Crustacea and Other Invertebrate Groups. (F. A. McNeill in charge; Elizabeth C. Pope, M.Sc.)

The complete revision, checking and re-arrangement of the reference collection of Echinodermata was practically completed. Numerous small batches of specimens acquired during recent years were incorporated in the collection, as was also a large portion of the collection of Crustacea Amphipoda handed over by Mr. K. Sheard.

Collections made by Miss Pope along the northern coast of New South Wales were studied and named.

The steel storage stacks containing the dry collections were transferred to the main building where they are now more readily accessible for study and reference.

Freshwater Bryozoa were sent to M. A. W. Racourt, of Leiden, Holland, who studied and identified them. Named species of Echinodermata were received from Dr. H. Lyman Clark. Sea urchins sent to Dr. Mortensen at Copenhagen for study were named and returned to our collection.

Assistance rendered to other institutions and to individuals was extensive and included: Department of Agriculture, technical information on a commercial move to import earthworms from New Zealand; Mr. F. Allen, of C.S.I.R. Fisheries Division, assistance in study of Bryozoa concerned in fouling growths; Dr. Florence, information on literature concerning bathers' itch; Commonwealth Department of Commerce and Agriculture, provision of crabs and crayfish for exhibit at Royal Easter Show. A list of type sponges is being prepared for use by Dr. Laubenfels.

Miss Pope carried out field work along the northern coast of New South Wales and made extensive collections. She also collected Euphausiid shrimps at Parsley Bay, Port Jackson, following a report of unprecedented swarming.

Research work has been continued on the stalked barnacles, and cytological work on the flatworms has been continued.

The invertebrate exhibit in the gallery suffered extensive damage during a hailstorm on 1st January, 1947, and advantage was taken of the opportunity to re-arrange and improve much of this exhibit.

A collection of representative echinoderms was assembled and sent to the Zoology Department of New England University College.

Minerals. (R. O. Chalmers, A.S.T.C., in charge; J. F. Lovering, Scientific Trainee; Frida Sachs, Assistant.)

Registrations totalled 114 specimens. Donations include three large crystals of scheelite from Nundle, New South Wales (Mr. Martin Zwer), a fine polished slab of green garnet from Nelson, New Zealand (Dr. P. Marshall), and a series of minerals from the Londonderry Feldspar Quarry, Western Australia (Australian Glass Manufacturers' Co. Pty. Ltd.). This latter includes the lithium minerals, petalite and lepidolite, and two new beryllium minerals, duplexite and bowleyite. A fine specimen of duplexite from Londonderry was presented by Mr. A. D. Combe, who also generously presented to the Museum his large and very fine mineral collection.

Approximately 172 inquiries were dealt with. Apparently much stimulus in the study of gemmology has been derived from the formation of the Gemmological Association of Australia because a large proportion of these inquiries related to the identification of gemstones. As well as from private individuals these inquiries came from Government Departments (e.g., various Divisions of C.S.I.R.) and Industry (e.g., A.W.A., Metz Gold Mines, etc.). On request a selection of radio-active minerals was loaned to the Commonwealth Bureau of Geology, Geophysics and Mineral Resources in connection with a hand-book for prospectors which the Bureau is preparing.

A considerable amount of assistance was given to the Metropolitan Water, Sewerage and Drainage Board in connection with the preparation of their geological relief model.

Various people have made use of the library facilities in the Department, especially Dr. L. E. Koch, Commonwealth Research Fellow in Geology, in connection with his studies of various systems of determinative mineralogy.

Rocks. (R. O. Chalmers in charge; J. F. Lovering, Scientific Trainee; Frida Sachs, Assistant.)

Specimens registered numbered fifty-eight.

A number of New Zealand specimens were added to the collection, notably a large polished slab of spheroidal granite presented by the New Zealand Government and a number of interesting specimens, including also some spheroidal granites, presented by Dr. P. Marshall.

On behalf of the British Museum a request for polished slabs of Australian marbles was made to the firm of Melocco Bros., who had been of assistance in the making of the "Building Stones" film. The firm generously presented a handsome set of sixteen polished slabs and also presented a duplicate set to this Museum.

Mr. W. J. Nicholls, of Rylstone, and Mr. H. G. Hammond, of Werri Creek, also presented specimens.

Until the end of September much work was carried out in completing the "Building Stones" film, including two visits to the country and numerous visits to Sydney localities. All editing and preparation of titles was done in this period.

Two meteorites were sent for display in the Sydney Observatory on extended loan.

Storage conditions of the rock collection have been unsatisfactory during the year, due to the very poor lighting and to the leaking condition of the roof. Arrangements are in hand to remedy these two matters.

Some preliminary bibliographical work was done in connection with methods of meteorite analysis.

Fossils. (H. O. Fletcher in charge.)

Acquisitions during the year ended 30th June, 1947, totalled 572 specimens, of which 322 were donations and 250 were collected during field-work.

Collections of outstanding interest include Silurian trilobite remains from Borenore. These specimens were presented by Mr. G. McDonald and proved to be a new species of *Encrinurus*. Further Permian fossils from Rylstone were presented by Mr. W. Nicholls. Well-preserved corals of Silurian age from Mt. Frome, near Mudgee, were donated by Mr. H. Barton. A fine series of eighty-eight specimens of *Streptorhynchus senilis* Phillips, from the Upper Permian of Pelican Creek, Bowen River Coalfield, was received from the Geological Survey of New South Wales. A representative series of Carboniferous fossils from the Burindi Series near Eccleston, Barrington Tops, was donated by Mr. G. D. Gilbert. A further collection of insect remains from the Permian insect horizon at Belmont was presented by Mr. O. le M. Knight and Mr. D. Walker. Mr. Knight also presented a small series of well-preserved examples of *Lepidodendron* from Devonian deposits at Yalwal, near Nowra.

The following holotypes of new Bryozoan species were added to the collection during the year: *Stenodiscus stanwellensis*, *Fistulipora etheridgei*, *Leioclema porosa*. The species were described by Mrs. Beattie from Australian Museum specimens.

During the year some time was devoted to the sorting, classification and cataloguing of the collection, and additions were made to the exhibited collections.

As Honorary Palaeontologist of the Geological Survey of New South Wales, Mr. Fletcher was called upon to report on collections of fossils and other palaeontological problems.

A collection of Permian fossils from Southland, New Zealand, was forwarded by Dr. J. Marwick, of the New Zealand Geological Survey; a paper on this material, for publication in the Transactions of the Royal Society of New Zealand, is almost complete.

A collection of Permian insect remains of the Order Mecoptera was lent to Mr. Riek, Entomological Division, C.S.I.R., Canberra, to enable him to carry out research in that group. The type Mecopterid material was forwarded on loan to Dr. A. J. Nicholson, Chief of the Entomological Division.

In September Mr. Fletcher visited an unrecorded Silurian fossil horizon near Borenore. A large series of incomplete specimens was collected of a new species of *Encrinurus*. Corals were also secured from a limestone horizon and these included several species of *Halysites*.

In December the area was again visited in company with Mr. F. Booker and Mr. L. Hall, of the Geological Survey of New South Wales. The sequence of the Silurian beds in the area was determined and an attempt was made to correlate the sequence with an Upper Silurian area at Gap and Spring Creeks.

In June a visit was paid to Thuddungra, near Young, to investigate the occurrence of supposed large bivalve fossils in a quarry where magnesite is being mined. It was found that the supposed fossil shells were actually conchoidal fractures in the magnesite boulders, the whole occurrence being an igneous mass. Mr. Fletcher was accompanied by Mr. J. Whiting, Geological Survey of New South Wales, on this

investigation. A day was spent on an examination of Permian sandstones of Upper Marine age in the Burragorang Valley. Fossils had previously been found by Mr. K. Mosher, of the Geological Survey, in sandstone near the Wollondilly River. A new outcrop was discovered but it yielded only poorly preserved material.

Three short research papers were prepared and were read at the 1946 Adelaide meeting of the Australian and New Zealand Association for the Advancement of Science. They are entitled: "Present Opinion in New South Wales regarding the Boundary between the Permian and Carboniferous Systems in New South Wales," "An Extension of the Geological Range of *Eurydesma*," and "A Brief Suggested Correlation between the Permian Sequence of the Hunter Valley of New South Wales and the Springsure Section of Queensland." A paper on Silurian Trilobites from Borenore, including description of a new species of *Encrinurus*, is almost complete.

Anthropology. (F. D. McCarthy in charge.)

Stone implements dominated the accessions for the year, and included approximately two thousand microlithic implements from eastern Victoria as a first instalment of a more comprehensive collection from Dr. R. M. Wishart (Melbourne), and almost two thousand implements from the coastal and western districts of New South Wales from Mr. H. J. Wright (Sydney); smaller series were received from Messrs. B. Adecock (Victoria), N. MacLeod (Rylstone, New South Wales), Dr. L. Adam (Victoria), H. M. Cooper (South Australia), H. K. Bartlett (South Australia), W. J. Enright (New South Wales), and E. D. Coulter (New South Wales). An interesting series of stone implements presented by Mr. O. B. Pryor were collected by him in Palestine, and Mr. H. V. V. Noone presented a fine series of French burins and other flake implements from palaeolithic deposits. Mr. J. M. Cliff continued to forward specimens collected in the Condamine River area, Darling Downs, Queensland. Mr. McCarthy also made representative collections from Moana and Burra, South Australia. Mr. J. A. Costelloe, an Administration Officer in New Guinea, presented three prehistoric stone figures of a bird, an animal's head, and a mortar, and six other stone implements from the Wahgi Valley. A fine example of a fighting axe from Mt. Hagen was presented by Lieut. W. A. McGregor and Dr. N. W. G. Macintosh.

Other accessions include a series of old Queensland aboriginal weapons from Mr. E. Larcombe, a fine Barang sword-knife in sheath from the Philippine Islands, once the property of Professor A. B. Malinowski, from Mrs. F. Limpus, and Pacific Island specimens from a number of donors who presented single and small series of curios. Purchases include collections of Sepik River specimens from Mrs. Clark, Papuan specimens from Mrs. Pickering, and a small mixed collection from Niue, Papua, and Loyalty Islands from Miss Mansfield. Sorting of the C. C. Towle collection of stone implements was continued.

Mr. H. K. Bartlett, of Adelaide, examined our collection of Trobriand Island specimens displaying art motives.

A card-catalogue of ethnological lantern-slides and pamphlets was completed, and a commencement made with the compilation of a reference catalogue of a mass of data extracted from literature in connection with various research tasks carried out in past years.

The figures for the Races of Man in Oceania exhibit are still in course of preparation; the Australian is finished and coloured, the Maori, Indonesian and Pygmy await colouring, and the Melanesian is well advanced, whilst the Tasmanian has yet to be modelled.

Six bark paintings received on loan from the South Australian Museum were exhibited for six months and a new series of designs was placed in the north-east Queensland shield exhibit.

Series of reports were both compiled and issued during the year. Those published comprise Memoir IX on the stone implements of Australia, a detailed analysis of the large stone-elevators from five workshops on the north coast of New South Wales, a review of anthropology in Australian Museums (*Oceania*), and records of new groups of rock engravings in the Sydney district, Nos. 33-37 (*Mankind*). Manuscripts completed include a report on a cave excavation at Lapstone Creek, New South Wales, which revealed two prehistoric cultures (for *Museum Records*), a review of the Prehistoric cultures of Australia (to be read at the Congress of the A.N.Z.A.A.S. in Perth, August, 1947, and to be published in *Oceania*), and a description of the remarkable group of rock engravings in the Peter Howe Sanctuary, Somersby, New South Wales. A preliminary manuscript was prepared on the stone implements from about twenty workshops in far western New South Wales, but this is to be extended to include material from other sites in the C. C. Towle Collection.

Good progress was made with the manuscript of a monograph on the aborigines of the Sydney-Hawkesbury district, New South Wales, chapters II to X of which were completed, but other work has interrupted this important study of our local aborigines.

Limited field-work was occupied in recording new groups of rock engravings. Three days were spent with Mr. E. Mercer, C.S.I.R., recording and checking recordings of about twelve groups in the Terrey Hills-Kuring-gai Chase area, two days with members of the recording committee of the Anthropological Society recording five groups near Arden Trig. Station, Kuring-gai Chase, a week with Mr. F. L. S. Bell, City Librarian, recording about ten groups, some of which are very extensive, in the Somersby district, a day with Mr. Bell recording a large group of whales at Jibbon, National Park, and another day recording three small groups at Castlereagh. The extensive series of axe-grinding grooves at Castlereagh and the large collection of stone implements made by Mr. Bunyan in the Emu Plains area were also examined.

During a visit to Adelaide a detailed examination was made of the collection of stone implements in the South Australian Museum, and problems of nomenclature and typology were discussed with Adelaide workers.

Amongst the numerous inquiries dealt with were the following: Information to the Newcastle Y.M.C.A. about the Hunter River aborigines; to the Barrier Field Naturalists Club on the aborigines of the Mootwingee area and their rock art; to Lieut.-Commander E. May in England on Captain Cook's compass; to Lieut.-Colonel Laxton, Commissioner for Lands, Gilbert and Ellice Islands, on data available about the natives of this group; to Major R. O. Noone, British Army Intelligence, on literature dealing with Asiatic and Oceanic countries; to Mr. J. C. Kok, of Java, on Australian ethno-botany; to Mr. J. H. W. Williams, of Mackay, Queensland, on stone implements; to Dr. N. W. G. Macintosh and Major Williams-Hume (of Siam) on Australian prehistory; to Dr. Brodsky on Javanese masks; and Mr. Gillespie regarding an exhibit of stone implements at the Knox Grammar School, Sydney.

Numismatics. (F. D. McCarthy in charge; G. C. Heyde, Hon. Numismatist.)

Mr. G. C. Heyde, Honorary Numismatist, continued his revision and classification of Australian tokens, upon which he is compiling a catalogue, and Australian medals. He attended to a number of inquirers seeking information and valuations of large series of coins.

Sets of Australian (1916 silver) and New Guinea coins were purchased from the Royal Mint, and a 1935 set of New Zealand silver coins was purchased from the Bush Aid Missionary Society. The unused stock of 357 bronze medals, together with five others of different kinds used as awards for the International Exhibition, Sydney, 1879, and Melbourne, 1880-81 was transferred to this Museum by the Mitchell Library.

Department of Preparation. (G. C. Clutton, Preparator, in charge; J. Kingsley, Preparator; W. Barnes and J. H. Wright, Assistant-Preparators.)

During the year 22 birds and 4 crustacea were mounted, and 44 mammals, 178 birds and 5 reptiles were prepared. One skeleton was mounted, and 45 skulls prepared.

In the photographic section, 372 negatives and 186 lantern slides were made, 861 prints prepared and 581 prints mounted in the album.

Sixteen moulds and 108 casts were prepared for the Geology Department of Sydney University.

The film of Building Stones of New South Wales was completed and is being duplicated. The Barrington Tops film was almost completed.

A number of figures are being modelled for an exhibit of Races of Man in Oceania.

Some work was done for the Commonwealth Department of Commerce and Agriculture for an exhibit at the Royal Easter Show, 1947.

Accessions for the year 1946-47 totalled:

Vertebrata	1,624
Invertebrata	2,603
Geological	716
Ethnological	4,748
Miscellaneous	372
	<hr/> 10,063

Papers and articles published during the year totalled:

Memoirs of the Australian Museum ..	2
Records of the Australian Museum ...	3
Australian Museum Magazine	23
Other Publications	6

H. B. MATHEWS, President.
A. B. WALKOM, Director.

APPENDIX A.

TRUSTEES OF THE AUSTRALIAN MUSEUM AT 30TH JUNE, 1947.

Crown Trustee	H. B. Mathews, B.A.
Statutory	His Honour the Chief Justice. The Hon. the Colonial Secretary. The Hon. the Attorney-General. The Hon. the Colonial Treasurer. The Auditor-General. The President of the Medical Board.
Appointed	The Hon. the President of the Legislative Council. The Crown Solicitor. The Surveyor-General and Chief Surveyor. The Hon. the Minister for Works. The Hon. the Minister for Education.
Elective	E. C. Andrews, B.A. C. Gordon MacLeod, M.A., M.D., Ch.M. Professor A. N. Burkitt, M.B., B.Sc. Professor W. J. Dakin, D.Sc. Frank B. Spencer. John Spence, C.M.G. O. G. Vickery, B.E., M.I.E. (Aust.). Wallace C. Wurth, C.M.G., LL.B. Professor A. P. Elkin, M.A., Ph.D. F. McDowell. R. J. Noble, M.Sc., B.Sc.Agr., Ph.D. E. J. Kenny, M.Aust. I.M.M.

APPENDIX B.

THE AUSTRALIAN MUSEUM.

Statement of Receipts and Payments for the Year 1st July, 1946, to 30th June, 1947.

Trustees Funds.

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
To Balances—1st July, 1946—							By Printing and Publishing Magazines.....	213	15	5			
Cash at Bank and in Hand	1,103	7	8				Publishing Guides	148	10	0			
Investments—							Purchase of Specimens	25	0	10			
Commonwealth Inscribed Stock	1,750	0	0				Stores and Services	102	3	0			
Savings Bank	1,584	14	4				Utility Truck	260	9	0			
				4,438	2	0	Films	100	0	0			
Statutory Endowment	1,000	0	0				Display Case	52	0	0			
E. J. Hallstrom Donation	500	0	0				Re-credits to Votes	47	8	5			
Sales of Publications	441	16	3				Miscellaneous Expenses	19	17	10			
Interest on Investments—											969	4	6
Inscribed Stock	59	7	6				Balances—30th June, 1947—						
Savings Account	38	15	2				Cash at Bank and in Hand	1,178	7	10			
Donations	23	8	6				Investments—						
Miscellaneous Receipts	19	12	5				Commonwealth Inscribed Stock	1,750	0	0			
				2,082	19	10	Savings Bank	2,623	9	6			
											5,551	17	4
				£6,521	1	10					£6,521	1	10

Vickery Bequest Account.

	£	s.	d.	£	s.	d.		£	s.	d.	£	s.	d.
To Balance at Bank 1st July, 1946	137	1	4				By Balance at Bank, 30th June, 1947	152	17	4			
Investments	400	0	0				Investments	400	0	0			
				537	1	4					552	17	4
Interest on Investments	13	0	0										
Interest on Savings Account	2	16	0										
				15	16	0							
				£552	17	4					£552	17	4

APPENDIX B.

THE AUSTRALIAN MUSEUM.

Statement of Consolidated Revenue Fund Expenditure.

1st July, 1946, to 30th June, 1947.

	£	s.	d.	£	s.	d.
Salaries and Payments in the Nature of Salary—						
A1. Salaries and Wages	17,477	11	11			
A2. Temporary Assistance	259	6	10			
A3. Allowances	128	0	0			
A5. Overtime	442	12	10			
				18,307	11	7
Maintenance and Working Expenses—						
B1. Subsidiary Staff Charges—						
Workers' Compensation Insurance	62	7	4			
Employers' Contributions under State Superannuation Act, 1916.....	963	11	0			
B2. Expenses in Connection with Buildings—						
Fire and other Insurances ...	289	8	8			
Maintenance of Lawns and Grounds	54	2	7			
B3. Subsistence and Transport Expenses—						
Travelling and Removal Expenses	176	14	3			
Freight, Cartage, and Packing	49	19	1			
B4. General Expenses—						
Books, Periodicals, and Papers	478	11	3			
Fees, Commissions, and Remuneration for Services rendered	40	19	0			
Laundry Expenses.....	20	10	2			
Postal, Telegraphic, and Telephonic Services	72	1	6			
Stores, Provisions, Stationery, Furniture Equipment, Minor Plant, etc.	369	11	2			
Maintenance Costs not elsewhere included	19	14	1			
				2,597	10	1
				20,905	1	8
A7. Difference in Pay to Officers and Employees on Service with the Defence Forces.....	17	15	3			
C9. Superannuation Contributions—Officers on Service with the Defence Forces.....	4	5	4			
				22	0	7
				£20,927	2	3