



## PARLIAMENT OF NEW SOUTH WALES.

## AUSTRALIAN MUSEUM.

(ANNUAL REPORT OF THE TRUSTEES FOR THE YEAR ENDED 30th JUNE, 1939.)

Presented to Parliament in accordance with the provisions of Section 10 of the Australian Museum Act, 1902.

*Ordered to be printed, 13 March, 1940.*

TO HIS EXCELLENCY THE GOVERNOR.

The Trustees of the Australian Museum have the honour to submit to your Excellency their eighty-fifth Annual Report, being that for the year ended 30th June, 1939.

## 1. TRUSTEES.

At the December meeting of the Board, Mr. F. S. Mance was re-elected to the office of President for the year 1939.

At the International Congress of Anthropology and Ethnology, held at Copenhagen in August, 1938, the Trustees were represented by Professor A. N. Burkitt, who resumed attendance at Board meetings on 10th February, 1939.

Mr. E. C. Andrews was appointed to represent the Trustees at the Sixth Pacific Science Congress, to be held at San Francisco during July-August, 1939, and leave of absence was granted to him for a period of four months.

Mr. G. M. Blair, Elective Trustee, died on 26th February, 1939. He had been a Trustee since 3rd July, 1925, and his expert knowledge as an architect was of the greatest use to the institution. The Trustees placed on record their appreciation of the services of Mr. Blair to the Museum, and their great sorrow at his death. Dr. A. B. Walkom was elected to fill the vacancy.

Another great loss was suffered by the tragic death of the Hon. H. M. Hawkins, M.L.C., who was killed by a fall on 16th June, 1939. He had been an Elective Trustee since February, 1929, and his wisdom and capacity for business were of the greatest service to his colleagues on the Board.

The Trustees received from the Executive Member of the 150th Anniversary Celebrations Council a communication thanking the Trustees for their co-operation in making the Exhibition a success, with particular reference to the aboriginal, coral, and shell displays provided by the Museum.

A list of the Trustees as at 30th June, 1939, appears in Appendix A.

## 2. STAFF.

Mr. W. Boardman, B.Sc., Second Class Scientific Assistant, resigned on 21st January, 1939, and joined the staff of the Australian Institute of Anatomy, Canberra, as Zoologist. The appointment of a successor to Mr. Boardman is now in the hands of the Public Service Board.

On 1st September, 1939, after a long period of illness, Mr. T. A. Henson, Chief Mechanic, retired in terms of section 66 (3) of the Public Service Act; he had been a member of the staff for over thirty-four years. Mr. H. Jackson, Assistant Mechanic, was promoted to fill the vacancy, and Mr. S. E. Roe was appointed Assistant Mechanic, entering upon duty on 19th June, 1939.

Mr. L. L. Hamman was appointed a temporary Attendant and took up duty on 9th September, 1938.

To assist the Librarian, the services of Mr. J. D. Fernon, a junior assistant on the staff of the Public Library, were made available.

It was approved that Mr. T. Iredale, Conchologist, be permitted to describe the Mollusca obtained in putting down two bores at Heron Island, Great Barrier Reef; the results will be published by the Great Barrier Reef Committee. Permission was granted to Mr. Whitley and Mr. Iredale to contribute a paper on "Marine Faunal Regions of Australasia" to the proceedings of the Sixth Pacific Science Congress, San Francisco.



Mr. E. L. Troughton, Mammalogist, was granted six months' extended leave, during which he proposes to visit Museums in America and Britain and examine their collections, and also to inquire into questions of faunal preservation and biological surveys.

### 3. HONORARY STAFF AND HONORARY CORRESPONDENTS.

The following were re-appointed to the Honorary Staff for a period of five years from 1st January, 1939:—

Dr. G. A. Waterhouse.  
Mr. A. F. Basset Hull.  
Mr. E. F. Hallmann, B.Sc.  
Professor T. Harvey Johnston.  
Mr. H. J. Carter, B.A.  
Dr. E. A. Briggs.  
Mr. M. Ward.  
Dr. H. L. Kesteven.  
Mr. G. A. Thomas.  
Mr. K. A. Hindwood.

Three additional Honorary Correspondents were elected during the year, namely, Mr. Ernest Wunderlich, in recognition of his many services and donations; Dr. Ian Macgillivray, who presented to the Museum the valuable egg collection made by his late father, Dr. W. G. K. Macgillivray; Mr. Thomas Hunter Smith, Wanganui, New Zealand, from whom the Museum has received specimens and interesting scientific information.

### 4. FIELD WORK AND COLLECTING.

But little field work was accomplished during the year. At the end of July, 1938, Messrs. T. Hodge-Smith and H. O. Fletcher paid a short visit to Cathcart, in the Bombala district, to examine a phosphatic deposit, and in January and February, 1939, Mr. Fletcher spent some days making stratigraphical observations in the Hunter River Valley.

During the Easter vacation aboriginal deposits and caves in the Wollombi and Macdonald River district were examined by Professor J. L. Shellshear and Mr. F. D. McCarthy.

Short trips were made to Gunnamatta Bay and other places in the neighbourhood of Sydney for the purpose of collecting marine material.

A request by Dr. C. T. Madigan, University of Adelaide, that Mr. Fletcher be allowed to join an expedition into the Simpson Desert in June and July, 1939, was favourably considered by the Trustees, and the necessary leave was granted by the Public Service Board.

### 5. DONATIONS.

Many gifts of specimens were received during the year as detailed later, but special mention may be made of a few. Dr. G. A. Waterhouse, Trustee, presented four medals issued by the Sydney Branch of the Royal Mint to commemorate the Accessions of Queen Victoria, Edward VII and George V. Mr. F. W. Marks, O.B.E., Trustee, presented a numismatic collection, including a complete set of Queen Victoria 1887 Jubilee coins. Mr. Orwell Phillips, Honorary Correspondent, made a donation of £15 towards the purchase of ethnological material.

Messrs. Percy Marks Ltd. presented a comprehensive collection of Australian opals, greatly enhancing the value of the Museum collection of this gem.

### 6. GALLERY IMPROVEMENTS AND GROUP EXHIBITS.

The display of meteorites was transferred from the ground floor to the mineral gallery, and by provision of a suitable background and new fittings with glass shelving the exhibit is greatly improved.

Enlarged models to illustrate the life histories of the Ant Lion and the Caddis Fly have been completed by Mr. J. Kingsley, and are now on view. Two groups entitled "The Life History of the Dragon-Fly" and "Ants' Guests" are in course of preparation.

The proposed Aboriginal Group Exhibit, figuring a rock shelter, was further considered, but the estimated cost being in excess of funds in hand construction was deferred. An exhibit entitled "The Story of Man" was advanced, the special fittings and stands being installed.

Metal guard rails have been placed in front of the Habitat Groups in the Rest Hall, and the Government Stores Department supplied 100 upholstered folding seats for use throughout the galleries.



New fronts have been fitted to the Flying Fox, Boatswain Bird and Admiralty Isles Groups, and a new and improved lighting system has been installed in these groups. Old types of table cases hitherto in use in the mineral gallery have been removed and replaced by new upright cases with metal frames.

#### 7. LIBRARY.

During the year 660 volumes were added to the library. A great proportion of these consists of loose parts which, by provision of assistance not available during previous years, have been collated into complete volumes. Noteworthy among the accessions was the fine archaeological library presented by Mr. Ernest Wunderlich, F.R.A.S., a former President of the Board of Trustees. This library represents the garnerings of a lifetime, and many of the works it contains would be quite beyond the resources of this Museum to acquire by purchase.

Considerable progress has also been made in cataloguing, approximately 2,000 cards having been added; the expansion of sections which had become congested; and in the re-arrangement of the periodical store.

The library continues to be a source of great interest and use to institutions and scientists throughout the Commonwealth, and such demands upon it are increasing. The press, publishers, students and artists also realise the help that only such a specialised library can afford. With the assistance of Mr. K. W. Burrow, of the Fisher Library, University of Sydney, a large number of micro-camera films have been prepared for research workers in other States and New Zealand. Such films have the advantage of being cheap to make and cost little to post; moreover, they save forwarding costly and heavy volumes and the worker has his references for permanent filing. Appreciation of such service has been expressed by the recipients, and the Museum is grateful to Mr. Burrow and the University for such co-operation.

As in previous years a considerable amount of time has been devoted to editorial work and the overseeing of the Museum's publications through the press.

#### 8. PUBLICATIONS.

During the year Volume XIX, Part 8 (Index), and Volume XX, Parts 3 and 4 of the "Records" were published, also Memoir VII, "Australian Meteorites," by T. Hodge-Smith. Of the Australian Museum Magazine, Volume VI, Parts 10-12, and Volume VII, Part 1, appeared.

An illustrated "Guide to the Australian Museum" was issued during the year.

#### 9. LECTURES AND BROADCASTS.

As in former years, Popular Science Lectures and School Lectures were regularly delivered, as well as a number of voluntary addresses by members of the staff to various societies and educational bodies. A number of broadcasts were also delivered.

The attendances at the various series of lectures were as follows:—

	Attendances.
13 Popular Science Lectures .. .. .	1,797
10 School Lectures .. .. .	2,039
53 Voluntary Lectures .. .. .	1,972

#### 10. CARNEGIE CORPORATION GRANT.

With the aid of this grant the Trustees have acquired a series of 16 millimetre educational films on natural history subjects for use in schools, and already they have been utilised for this purpose. The films in stock include a fine series depicting the life of the Great Barrier Reef, and others descriptive of the marine zoology of the Sydney district. Such subjects as the life history of the platypus, the birds of Lord Howe Island, the Lyre Bird, White Ants, fish breeding, the Huntsman Spider, the fishing methods of the Australian aborigines are also included, and other films are in course of preparation by Mr. G. C. Clutton, photographer, in co-operation with members of the scientific staff.

Occasionally live specimens of particular interest come to hand, and the opportunity is taken to make short films of such subjects. Thus, by courtesy of the Trustees of the Taronga Park Zoological Gardens, a cinematograph record, partly in colour, was obtained of the Pearly Nautilus, an animal that is very seldom seen in the live condition.

#### 11. AUSTRALIAN AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

The Association met at Canberra, 11th-18th January, 1933, this being the 50th Anniversary of its foundation. The meeting was attended by the following members of the scientific staff:—Dr. C. Anderson, Messrs. J. R. Kinghorn, E. L. Troughton, A. Musgrave, T. Hodge-Smith, F. A. McNeill, G. P. Whitley, H. G. Fletcher, E. B. McCarthy and Misses Joyce Allan and Elsie Bramell.



## 12. AUSTRALIAN AND NEW ZEALAND ART GALLERIES AND MUSEUMS ASSOCIATION.

This Association held its Second Congress at Canberra in January, 1939, concurrently with the meeting of the Australian and New Zealand Association for the Advancement of Science. Meetings were attended by the various members of the scientific staff and discussions on various aspects of Art Gallery and Museum work took place.

## 13. BUILDINGS AND EQUIPMENT.

Several improvements to the buildings have been made during the year, and various items of maintenance were attended to by the Department of Works and Local Government. These included provision of an improved lighting scheme for the galleries in the North Wing, repair to the ceiling in the entrance hall and to the flooring in the Mineral Gallery.

Steel storage cabinets and shelving for storage of films and photographic apparatus were provided.

## 14. FINANCE.

The amount of £200 in 4 per cent. Consolidated Inscribed Stock fell due on 19th December, 1938, and was re-invested in the Commonwealth Cash and Conversion Loan at  $3\frac{1}{2}$  per cent., 1952-54.

A special item of £800 was included in the Parliamentary Appropriation for the purchase of display and storage cases and for special exhibits and furnishings for the galleries.

The total net expenditure from Consolidated Revenue Fund for the year (excluding Statutory Endowment of £1,000) was £18,567 1s. 2d., compared with £19,276 14s. for last year. Net expenditure from Trustees' Account Funds (including Statutory Endowment) was £1,192 6s. 8d., compared with £1,251 2s. 5d. for 1937-38. The expenditure for the year from the Trustees' Account (Carnegie Corporation Grant) was £261 2s. 7d.

The cash balance in the Trustees' No. 1 Account at 30th June, 1939, was £237 10s. 7d., whilst that in the Trustees' Carnegie Corporation Grant Account was £305 18s. 8d.

Statement of receipts and payments for the year will be found in Appendix B.

## 15. PUBLIC ATTENDANCES.

Statistics of attendances for the years 1932-33 to 1938-39 are appended:—

				Week-days.	Sundays.	Total.
1932-33	..	..	..	166,749	53,901	220,650
1933-34	..	..	..	136,006	48,478	184,544
1934-35	..	..	..	150,481	58,734	209,215
1935-36	..	..	..	145,916	56,501	202,417
1936-37	..	..	..	145,860	52,283	198,143
1937-38	..	..	..	157,161	54,809	211,970
1938-39	..	..	..	155,751	52,154	207,905

## 16. GENERAL.

The earlier opening hour of 10 a.m. in lieu of 12 noon was resumed on Wednesday, 9th November, 1938.

A number of table cases withdrawn from the Mineral Galleries were transferred to the Technological Museum, and other surplus material is being disposed of through the Government Stores Department.

## 17. THE COLLECTIONS AND SCIENTIFIC WORK.

*Mammals* (E. Le G. Troughton in charge).

The more important donations included specimens of Koala and Wallaroo from the Taronga Park Trust; Koala, Native Cats and Wallabies from Koala Park; the second known specimen of the False Water-Rat (*Xeromys*) and a series of rats of several genera, from the Queensland Bureau of Sugar Experiment Stations; a Tree Kangaroo, Dorcopsis Wallaby and phalanger, collected in the Wau district, New Guinea, by Messrs. N. H. Fisher and L. Noakes; a small series of marsupials from the Tambellup district, Western Australia, presented by Mr. F. R. Bradshaw; a series of bats from Bougainville Island, Solomons Group, collected by the Rev. J. B. Poncelet. Interesting series of marsupials and indigenous rats, from the South Portland district, Victoria, were received from Mr. Herbert Kurtze. Mr. Consett Davis and Mr. Charles King presented rats and marsupial mice from the Port Davey district, South-west Tasmania, a locality hitherto unrepresented in the collection. Exchanges included species of large and small bats received from the Museum of Comparative Zoology, Harvard University, and the most important purchases were five specimens of platypus from the Manilla district, New South Wales, and a small series of the Tasmanian platypus, obtained by permission of the Tasmanian Fauna Board.

Attention was devoted to the completion of the Platypus Habitat Group, and to the re-arrangement and lighting of the Fruit Bat and Lord Howe Island Groups.



Assistance to other departments and authorities included the identification of cane-field mammals, especially rodents, for the Queensland Department of Microbiology, the Bureau of Sugar Experiment Stations, and the Colonial Sugar Refining Company, in connection with investigations into economic matters and the incidence of leptospirosis, endemic typhus and "Q" fever. Advice was given to the Chief Secretary's Department regarding the protection of fauna and the probable beneficial effect of the Brush Possum in destroying mistletoe. Identifications were made for the Glenfield Veterinary Research Station, and information was given to the Chief Veterinary Officer, Department of Agriculture, regarding dingo scalps alleged to represent crosses between Alsations and other dogs with the dingo. Assistance was given to Dr. W. K. Gregory and other members of the Lerner Expedition of the American Museum of Natural History, and Mr. Troughton accompanied Mr. H. C. Raven, a member of the Expedition, on a brief visit to the Jenolan Caves.

Mr. Troughton acted as a Museum delegate on a committee convened by the Premier's Department to consider proposals for Government control of Koala Park, and was also a member of a committee formed by the Chief Secretary's Department to consider the establishment of faunal reserves. As Honorary Secretary of the Biological Survey Committee of the Australian and New Zealand Association for the Advancement of Science, Mr. Troughton prepared a brief history of survey proposals, attended the Association's meeting at Canberra in January, 1939, and contributed to faunal discussions.

Owing to other duties research was mainly confined to the examination of series of skins and crania of rats with the view to the compilation of a diagnostic report on species of importance from the point of view of health and economic problems; a preliminary paper on such species, including two new sub-species, was published in the "Records."

*Skeletons* (E. Le G. Troughton in charge).

The principal donation consisted of a series of twenty-nine crania of Pacific Island natives, received from the Maritime Services Board through the Department of Anatomy, University of Sydney. These skulls will be used to replace more accurately localised Papuanian crania now displayed in the Ravi Group.

Cranial and dental research material was made available to Dr. A. A. Abbie, Anatomy Department, University of Sydney, and Dr. J. Wanderly, Melbourne. An exchange of primate crania with Professor R. W. Wegner, Frankfurt, Germany, was completed, and study material was provided for Mr. F. J. Fenner, Adelaide. A series of crania was provided for the "Story of Man" exhibit in the Museum.

*Birds* (J. R. Kinghorn in charge; W. Boardman, Assistant for part of the year).

Only sixty birds have been added to the collection, but many others, unsuitable for making into skins, were forwarded from various parts for identification and report. The Macgillivray collection of several thousand eggs, presented towards the end of last year, has not yet been incorporated in the main collection there being no proper storage accommodation. A small but interesting collection of eggs, made years ago by the well-known collector, K. H. Bennett, was presented by Mrs. G. M. Bennett.

The reference collection has been systematically attended to, but despite the utmost vigilance the cases and specimens show signs of mould infestation. The provision of more suitable storage is urgently required.

Information has been supplied to various overseas ornithologists and specimens of hawks have been examined and reported on for the Homing Pigeon Protection Society. Reports have been prepared for the Chief Secretary's Department on certain birds in the schedules of the Birds and Animals Protection Act, and for the Department of Agriculture on the economic status of various birds. Mr. Kinghorn paid several visits to Taronga Park Zoological Gardens to identify recent additions from India and Malaya. A small collection of birds was examined for Dr. Gunther, Mandated Territory of New Guinea.

As Honorary Secretary of the State Advisory Committee on the Importation and Exportation of Fauna, Mr. Kinghorn examined shipments of birds, and potential bird pests were prohibited entry into the Commonwealth.

An exhibit of useful birds was made at the Easter Show of the Royal Agricultural Society.

The reference collections have been made available to working ornithologists. Dr. D. L. Serventy examined various species of sea birds and Mr. Albyn A. Stewart visited the Department on various occasions to discuss ornithological problems in connection with a report on birds in captivity. Mr. Bruner, Philadelphia, United States of America, spent some time on the examination of egrets. Zoological and art students made considerable use of the bird collections; many specimens were lent for study purposes, and much information was supplied to correspondents, visitors and the press.

Mr. Kinghorn attended the Canberra meeting of the Australian and New Zealand Association for the Advancement of Science, and took part in several discussions, particularly one dealing with faunal problems.



*Reptiles and Batrachia* (J. R. Kinghorn in charge; W. Boardman, Assistant for part of the year).

A large number of specimens was received during the year, but not all have yet been registered and incorporated.

The reference collections have been attended to, the catalogues checked, and many spirit specimens removed from the gallery and added to the duplicates.

A list of the reptiles of the Federal Capital Territory was prepared for Dr. I. M. Mackerras, skulls and embryological material were provided for Dr. H. L. Kesteven, and assistance and information were afforded to Dr. C. H. Kellaway and Dr. H. O. Lethbridge. Additional notes on the Giant Toad (*Bufo marinus*) introduced into the Queensland cane-fields, were made and forwarded to Mr. R. W. Lever, Entomologist to the Department of Agriculture, Fiji, and to the American Society of Herpetologists. Notes on various subjects of interest have been exchanged with several American herpetologists, including Dr. Howard K. Lloyd and Mr. J. R. Slevin, and with Mr. H. W. Parker, British Museum of Natural History. Research was conducted on some Queensland reptiles, the results, including a description of a new species of snake, being published in the "Records."

Mr. Kinghorn attended a meeting of a Faunal Committee and a conference dealing with Faunal Reserves, both convened by the Chief Secretary's Department, and also several meetings of the Educational Broadcast Advisory Committee, of which he is a member.

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

Many donations were received during the year. The rarest comprised scales of the unique Crossopterygian fish (*Latimeria chalumnae*) recently discovered in South Africa, presented by Mr. H. S. Grant, Chief Taxidermist, who received them from Mr. W. A. Sargent, of East London. A large collection of fishes from the Northern Territory was presented by Mr. Melbourne Ward, and a smaller series by the Rev. W. S. Chaseling. A new fish, allied to Ray's Bream, from Milton, South Coast, New South Wales, was received from Mr. T. C. Roughley, Technological Museum. Marine species from Queensland were presented by Captain A. Nicolson, and Messrs. H. S. Mort and Bruce Jamieson. While on annual leave, Mr. T. Iredale, Staff, collected 674 specimens from the Noosa River, Southern Queensland, and a series of freshwater fishes from Central Queensland was received from Mr. N. Geary. Western Australian species were obtained from the Museum and Fisheries Department, Perth, and tunnies, pelagic and other fishes were presented by the Fisheries Investigation Station, Cronulla, New South Wales. From other sources several rare and interesting species and also some sharks' eggs were obtained.

Various improvements have been carried out in the Exhibition Gallery, including the addition of some new casts of large fishes. The scales of *Latimeria* have been put on view, with illustrations and explanatory details, and other specimens have been supplied with fresh labels.

Enquiries on fishes and related subjects have largely increased. Information was given to members of the Lerner Expedition; American Museum of Natural History, New York, concerning game fishes and an East Indian Ray (*Rhino*). Others to whom information on fishes and ichthyological literature was given included Dr. A. Herre, California; Dr. Carl Hubbs, University of Michigan; Dr. A. F. Bruun, and Dr. Vill. Ege, Copenhagen; officers of the State Fisheries Branch, Zoology Department, University of Sydney. Mr. Whitley made several trips to Cronulla to identify fishes in the collections of the Fisheries Investigation Station and to work on the biometrics and nomenclature of tunnies.

Owing to the increasing amount of routine work research was curtailed, but Mr. Whitley determined many species and prepared descriptions of a number of new species. He has in hand a revision of the elasmobranchs, with a view to the preparation of a handbook on sharks. Much of the "Endeavour" collection has been overhauled, and the sharks, skates, elasmobranch eggs and Holocephali have been sorted and determined.

*Insects and Arachnida*, (A. Musgrave in charge; K. O. McKeown and Miss N. B. Adams, Assistants; Dr. G. A. Waterhouse and H. J. Carter, Honorary Entomologists.)

Much of the work during the year has been concerned with the care and management of the collections, and the supplying of identifications and information to the public; some of the material submitted has been of economic interest. Apart from donations a series of Queensland insects was purchased from Mr. N. Geary, and a large general collection from the estate of the late Luke Gallard.

During the year much assistance has been given to various State Departments and others. These included the New South Wales Department of Agriculture; the Division of Economic Entomology, Canberra; the Fisheries Department, New Zealand; the School of Public Health and Tropical Medicine, University of Sydney; the Museums of Auckland, New Zealand, and Adelaide, South Australia; the Department of Agriculture, Queensland; the Teachers' College, Armidale, New South Wales.



Mr. Musgrave has continued his researches on Australian Pentatomidae; in connection with this work we are greatly indebted to the Stockholm Museum, Sweden, from which we have received on loan Stål's types of Australian species in that institution. Mr. Musgrave has also prepared abstracts for the zoological section of Australian Science Abstracts, published in the Australian Journal of Science.

Mr. McKeown has carried on revisionary work in the Australian Passalidae and Lathridiidae (Coleoptera) and the Adonata. He has also continued his researches on Australian Cerambycid beetles and on the food of trout in Australia. He collaborated with Mr. K. A. Hindwood on an enquiry into the food of the Barn Owl (*Tito alba*). In February he visited Leeton in connection with experiments on the prevention of damage to irrigation channels by the Fresh-water Crayfish (*Parachanna bicarinatus*). This work was attended with considerable success and further research and experimentation is in progress. Mr. McKeown made inspections for Messrs. Burns, Philp & Co. Ltd., in connection with insect infestations in stored foodstuffs.

The labelling of types in the Museum collection of Coleoptera has been completed, and Mr. McKeown has prepared a reference list of the types for publication.

Dr. Waterhouse reports that the most notable additions to the collection of butterflies during the year were a pair of the rare *Agryris ianthis* Waterh., bred by Mr. J. Macqueen at Milmeran, Queensland, and a series of *Ogyris amaryllis* Hew., collected by himself at Carrol Bay, near Sydney. Small collections were purchased from Mr. N. Geary, Southern Queensland, and Mr. F. L. Whitlock, Western Australian.

The following registrations of butterflies were made during the year:—

Waterhouse collection 4,698; Museum collection, 211; Lyell collection, 25; total, 4,934. The position as regards registration of the whole collection is now as follows: Waterhouse collection, 23,667; Museum collection, 772; Lyell collection, 207; total, 24,646. Under twenty species now await registration, and it is expected that this will shortly be completed.

A revised list of the holotypes of species and subspecies of Hesperidae in the Museum was prepared.

Some time ago it was found that *Anthrenus* was attacking specimens in some of the store boxes. The room was cyanided but *Anthrenus* has again been found in some of the boxes. It is unfortunate that the situation of the room renders it liable to infestation of this kind, but at present no other suitable accommodation is available.

Miss Adams was employed in setting and labelling specimens and the preparation of drawings to illustrate published papers. She also assisted Dr. Waterhouse in the registration of butterflies.

*Conchology.* (T. Iredale in charge; Miss J. Allan, Assistant.)

Two very large collections from the Northern Territory were received, one from the western part collected by Mr. Melbourne Ward while on board H.M.A.S. Moresby, the other from the East Coast of Arnhem Land, presented by the Rev. W. S. Chaseling. The Northern Territory was previously but poorly represented in the Museum collection, and these accessions will add much to our knowledge of the molluscan fauna of this region. Material has been obtained through the voluntary efforts of various collectors including Messrs. H. Bernhard, H. S. Mort, C. F. Laceron and others, which have resulted in the acquisition of a number of specimens from the Sydney district, and Mr. A. A. Cameron has forwarded much important material from beaches near the mouth of the Clarence River. The engineer of the Hunter District Water Supply and Sewerage Board submitted shells obtained from borings at Tomago, inland from Newcastle, at depths of 40 to 70 feet. These are of great interest, as the upper part contained estuarine shells, whereas the lowest layer contained marine species. This research is being continued and the results should prove of interest to geologists and palaeontologists.

Assistance was given to the Fisheries Investigation Station, Cronulla, the Commonwealth Palaeontologist, the State Fisheries Branch, and many visitors who brought shells for identification.

Miss Allan has continued the re-arrangement of the gallery collection and has re-organised the foreign reference collection and the duplicate collection, with a resultant saving of storage space. Collections of shells were supplied to schools and an exhibit was provided for display at the Golden Gate Exposition, San Francisco.

Research was carried on as opportunity offered. The second part of the Report on the Mollusca of Low Isles is in course of preparation by Mr. Iredale, who has also completed a review of the land Mollusca of Western Australia.

*Lower Invertebrates.* (F. A. McNeill in charge; A. A. Livingstone, Assistant.)

Among important acquisitions were collections of Decapoda from the Clarence River, presented by Mr. A. A. Cameron; Decapoda and Madreporaria, Cape Melville, Northern Territory, by the Rev. W. S. Chaseling; crustacean and trematode parasites on the Black Marlin Swordfish and the Mako Shark, by Mr. Sil Rohu; a medusa new to the fauna of New South Wales, collected in Port Jackson by Mr. T. B. Meillon. The described collections of Antarctic Hydrozoa and Pycnogonida, totalling thousands of specimens were received from the Publication Committee of the 1911-1914 Australasian Antarctic Expedition.



Two large collections of Echinoidea were forwarded at the request of Dr. T. H. Mortensen, Copenhagen, and returned after examination by that authority. Trematodes and Nematodes were forwarded on loan to Dr. T. Harvey Johnston, University of Adelaide, and a collection of leeches was sent to Dr. Anton Bruun, Copenhagen, for investigation. Specimens submitted by the Technical College, Broken Hill, were identified and returned.

Considerable progress has been made in transferring the dry collection of invertebrates to the steel storage cabinets recently installed.

Mr. McNeill has continued to co-operate with Mr. R. A. Johnson, Maritime Services Board, in the work of compiling Supplementary Report No. 2 on marine borer problems. In this work close association has been maintained with the Queensland Forest Service, which is engaged in similar work.

Mr. McNeill has made progress with his report on the Decapoda collected by the British Barrier Reef Expedition, and Mr. Livingstone has continued work on the Bryozoa of the British, Australian, and New Zealand Antarctic Expedition.

Specimens of Stomatopoda were examined for Dr. Waldo L. Schmitt, United States National Museum, Washington, and information on the fauna of waterworks and its eradication was given to the Metropolitan Water, Sewerage and Drainage Board. Marine specimens were identified for Miss E. C. Pope, Linnean Macleay Fellow in Zoology, and information on the literature of Amphipoda was supplied to Mr. K. Sheard, South Australian Museum. Material was identified for the Forests Division and Fisheries Section of the Council for Scientific and Industrial Research.

*Anthropology.* (C. Anderson in charge; Miss E. Bramell and F. D. McCarthy, Assistants.)

The more important accessions were: a collection of clubs, spears, ceremonial boards, grave-posts and other articles from the Northern Territory presented by the Department of the Interior; incised cigarette holders, water drums, and body ornaments, from north of the Sepik River, Territory of New Guinea, by the late H. D. Ewe; stone axes from the Sepik River, by Dr. F. K. G. Mulleried; whale-tooth pendants, by Dr. G. A. Waterhouse, Trustee; models of club-houses, from the Purari Delta and Port Moresby, by the Government of Papua; Australian aboriginal stone implements by Messrs. S. A. Spencer, H. Burrell, and A. J. Barrett.

Purchases included the final instalment of the Sepik River Collection, obtained by Mr. E. J. Wauchope; axes and millstones, Lower Macquarie River, from Mr. R. Sawyer; Polynesian and New Guinea articles from Mrs. Purcell Cohen; a fine stone mortar, Bulolo district, Territory of New Guinea, from Mr. G. N. Richards; articles made by aborigines of the Macleay and Manning River districts, obtained by the assistance of Mr. W. J. Enright.

By exchange with L'Ecole Francaise d'Extreme Orient we obtained a series of stone implements from Tonkin, Cambodia, and Annam, and a number of West African musical instruments, by exchange with Achimota College.

All the Australian and the small material from New Guinea and the Solomon Islands has been transferred to steel storage cabinets and is now readily available for reference. The collection of stone implements has greatly increased in recent years and additional cabinets are necessary for convenient storage of this material.

Extensive re-arrangements and improvements in the gallery exhibits have been made during the year and the work is still proceeding. A thorough revision of the contents of the New Guinea hall has been carried out to make room for an exhibit of the Sepik River culture.

A display of native baskets and bags was made at the exhibition held by the New South Wales Society of Arts and Crafts.

In the Easter holidays, with Mr. F. M. Davidson, Singleton, Mr. McCarthy made a reconnaissance of aboriginal sites in the Wollombi district. They were later joined by Professor J. L. Shellshear and Miss Bramell, and an examination was made of promising sites along Wattagan Creek, in the neighbourhood of Wollombi, and along the Cessnock road. Seventeen groups of rock paintings, some of which have not been described, were visited. In June, Professor Shellshear and Mr. McCarthy made an inspection of cave paintings and deposits at Wolgan Gap, near Lithgow.

With Mr. C. C. Towle, Mr. McCarthy made a collecting trip to western New South Wales, visiting Mount Foster, Brewarrina, Lake Narran, and other places. An aboriginal stone arrangement was inspected, and a large series of stone implements made on the trip was added to the Museum collection.

Dr. Carl Schuster, Travelling Fellow of the Guggenheim Foundation, New York, who is making a world survey of certain motifs in primitive art, spent about two weeks in the department, recording designs illustrated by specimens in the Museum collection; additional data and photographs are being sent to him as new material comes to hand. Mr. Douglas Annand, who designed part of the Australian sections for the New York World's Fair, and the New Zealand Centenary Exhibition, made use of the collection and sought advice on suitable subjects and articles for display. Specimens were made available for the making of photographs of casts.



It is regretted that, on account of the cost involved, it was not found possible to proceed with the construction of the projected Aboriginal Habitat Group; it is hoped that this work will not be unduly postponed.

To ascertain the number and extent of aboriginal sites considered worthy of preservation a conference with the Surveyor-General was held and a list was prepared, to which is being added information received from District Surveyors. When this list is completed, it will be possible to estimate the probable expenditure involved in making the necessary reservations. The survey of rock paintings and engravings in Kuring-gai Chase is being made the subject of a conference, at which the Australian Museum will be represented.

At the request of the Secretary of the Girl Guides' Association, Miss Bramell conducted an examination of candidates for the Aboriginal Badge of the Association.

*Numismatics.* (C. Anderson in charge; Miss E. Bramell and F. D. McCarthy, Assistants.)

All accessions for the year were obtained by donation. Apart from the coins and medals presented by Mr. F. W. Marks and Dr. G. A. Waterhouse, Trustees, already mentioned, we received from the Sesqui-centenary Council a set of medals awarded at the Empire Games held in Sydney in 1938, together with the dies from which they were made. Mr. J. W. Woodhead presented a collection of coins of Great Britain, Europe, and America, and small mixed series of coins were received from Mr. J. R. B. Stewart, N. P. Bigelow, and H. McIver.

*Fossils.* (C. Anderson in charge; H. O. Fletcher, Assistant.)

Registrations during the year numbered 673, and included several collections of special interest and value. Mr. H. Coley presented an additional series of fossils from the Wandagee stage (Permian), Western Australia, and from Professor W. H. Shideler, Miami University, Ohio, United States of America, we received by exchange a beautifully preserved set of middle Palaeozoic specimens. A similar collection was presented by Miss Dorothy Pearce. Mr. C. F. Laserson presented a number of plants and fishes from the Jurassic of the Talbragar River, New South Wales, and Mr. A. H. Voisey made another donation of Carboniferous fossils from the Burindi beds of the Gloucester District, New South Wales. Two fine specimens of the fossil fish *Cleithrolepis granulata*, obtained in excavating at Woronora Dam, were presented by Mr. S. T. Farnsworth, Engineer-in-Chief of the Metropolitan Water, Sewerage, and Drainage Board. Important specimens of various species were received from the Geological Survey of New South Wales. From the Geological Survey of India we obtained by exchange plaster casts of type specimens of *Martiniopsis* from the Salt Range, India, and by exchange with the Geology Department of the British Museum we received a number of plaster casts of Australian fossils figured and described by Morris in Strzelecki's "Physical Description of New South Wales."

The work of classifying and sorting the large invertebrate collection has been continued, and the brachiopods, echinoderms, and plants are now ready for cataloguing.

The exhibited collection has been improved by the addition of several special exhibits such as "The Evolution of Plants," "Fossils of the Sydney District," "Interesting Permian Fossils." Hand-printed labels have been supplied and the new system of lighting has greatly improved the exhibit.

Dr. Dorothy Hill, Queensland University, did some research work on the palaeozoic corals in the collection, and Professor E. C. de Courcy Clarke and Dr. Curt Teichert, University of Western Australia, visited the Museum and examined the collection of fossils.

As in the previous years, Mr. Fletcher acted as Honorary Palaeontologist to the Geological Survey and he was also appointed Acting Lecturer in Palaeontology to the University.

A study collection of fossils was prepared and forwarded to the St. George High School, Kogarah, for the use of Leaving Certificate pupils, and another was sent to the New England University College.

*Mineralogy.* (T. Hodge-Smith in charge; R. O. Chalmers, Assistant.)

Additions to the Mineralogical collection during the year numbered 569 specimens. A valuable collection of opals from all the important Australian opal fields was presented by the firm of Percy Marks Ltd. This gift, together with a purchased collection, made possible a fine gallery display illustrating the modes of occurrence of Australian opal and including a variety of patterns and colours. Mr. George Smith, a keen and discriminating collector of minerals, has assisted greatly in building up our collection, specially of New South Wales minerals, and this year he presented his collection to the institution. Other donations include the collection of Mrs. Harry Burrell, containing among other specimens, a fine Queensland opal, rutulated quartz from Tingha, New South Wales, and a number of polished agates. New Zealand dreikanter were presented by Mr. T. Hunter Smith; chromite and garnetite from New



Caledonia, by Mr. M. Bressler; brucite, Hawkesbury River Railway Bridge, by Mr. Cowles; calaverite and petzite, Kalgoorlie, Western Australia, by Mr. P. McCourt. Other donors of specimens were Mr. E. A. Baile (tantalite in pegmatite, Aringie, Central Australia); Captain J. Kilpatrick, R.N.R. (muscovite in pegmatite, India).

By exchange with Professor W. H. Shideler, Miami University, Ohio, and various American mineral dealers, we obtained a number of interesting specimens, including fluorescent calomel, polished agate, a cut and polished specimen of kunzite, a polished section of pseudo-wavellite, wulfenite, and others. A number of rare minerals from Russian localities we received by exchange with the Karpinski Geological Museum, U.S.S.R.; these included, khibinite, loparite, lovorhorite, cinkolite, stroganovite, tyumunite, and others not previously represented in the Museum. Exchanges were also effected with the Museum of the Indian Geological Survey, Dr. E. S. Simpson, Western Australia, and Mr. J. J. Johnston, Sydney.

Purchases included gold from Charters Towers, Queensland, a very large specimen of autunite from Mt. Painter, South Australia, a collection of Australian opals, and a number of cassiterite crystals from Elsmore, New South Wales.

Seven new upright cases have been installed in the mineral gallery, leaving only two additional cases to complete the replacement of table by upright cases.

Collections of minerals have been sent to the Sydney Girls' High School, and the St. George Girls' High School, and the Sydney Technical College.

*Petrology.* (T. Hodge-Smith in charge; R. O. Chalmers, Assistant.)

Accessions numbered 525 specimens and 150 micro-slides. The most important was a large series of rocks collected by the Australian Antarctic Expedition, 1911-1914. A further series of rocks from Five Islands, South Coast, New South Wales, was presented by Mr. R. O. Chalmers, and Mr. H. O. Fletcher collected a number in the Maitland district. Other accessions include rocks collected by Mr. F. D. McCarthy in the Wellington district and rocks from the Jenolan Caves area, presented by Mr. Keith Grant.

The main mass (236.6 grammes) of the Silverton aerolite, a slice of the Arltunga siderite (157.5 grammes) and a nearly complete stone of the Holbrook meteorite fall, were obtained by exchange. A slice of the Henbury iron was presented by Mr. J. Rayner. Twelve australites were presented by Mr. George Smith and one by Mr. J. Meldrum.

Mr. Chalmers has almost completed work (including analyses) on the rocks of the Five Islands. An analysis of the Henbury iron meteorite was made for the Commonwealth Geophysical Survey, and also of an iron meteorite from the Basedow Range, Central Australia.

Mr. Chalmers was appointed to conduct the Second Year Geology Course at the Sydney Technical College, during the absence abroad of Dr. G. D. Osborne.

#### PREPARATIONS.

1. *Taxidermist's Branch.* (H. S. Grant in charge; J. H. Wright and W. Barnes, Assistants.)

New specimens skinned or preserved numbered 142 mammals, 75 birds, 282 reptiles, 175 fishes, and 58 crustaceans. New study specimens prepared totalled 137 mammals and 82 birds.

The Koala Group was completed by the addition of artificial branches and 1,000 prepared leaves to form the foliage of the main tree. Two new birds were added to the Bird of Paradise Group, replacing older specimens. The Lyre Bird Group was reconditioned and fitted with light boxes, which considerably improved the appearance of the exhibit. Plans were prepared for the installation of new fronts, light boxes and backgrounds to the Flying Fox and Lord Howe Island habitat groups.

Hawks were received and identified in connection with the bounty offered by the Homing Pigeon Society, and some of the rarer species were made into study skins.

Two Forgotten Birds of Paradise and a platypus were mounted for the Taronga Park Trust, and at the request of the Department of Education 25 birds were mounted for the Teachers' Training College, Armidale. The collection of mounted birds and mammals at Fort-street Primary School was renovated and other specimens were added. A Wedge-tailed Eagle was mounted for the Goulburn, and an Albino magpie for the Bathurst Museum.

For the Commonwealth Government a number of characteristic Australian mammals and birds were mounted for display in the Australian section of the Golden Gate Exposition, San Francisco, and the New York World's Fair.

By arrangement with the Taronga Park Trust and Sydney Ferries Ltd. special exhibits were arranged in the display windows of the Company at Circular Quay. Exhibits were prepared and arranged in the windows of various business houses.

Assistance was given to Messrs. H. C. Raven and L. Ferraglio, members of the Lerner Expedition, American Museum of Natural History who made use of the taxidermists' workroom to assemble their collections.



Mr. Barnes assisted Mr. Troughton in the cataloguing and storing of mammal skins and was responsible for the re-arrangement and extension of the mammalian craniological collection.

Mr. Grant was a member of the special committee appointed by the Premier's Department to consider the taking over of Koala Park by the Government and was later appointed Museum representative on the Committee of Management. He also continued as Acting Secretary and was for a time Secretary of the State Advisory Committee dealing with the import and export of fauna and in this capacity he dealt with numerous applications for permits to export birds and examined many shipments and consignments of birds by plane or rail. At the request of the Chief Secretary's Department he prepared a report and made recommendations on the housing of birds on boats travelling to the East. He also accompanied police officers on inspections of aviaries and bird shops and gave evidence in two cases of prosecution for breaches of the Birds and Animals Protection Act.

During the absence of Messrs. Troughton and Whitley, Mr. Grant attended to the routine duties of their departments.

For the Stock Branch, Department of Agriculture, several skins of dingoes of various types were reported on in connection with the payment of scalp bounties.

## 2. Articulators' Branch. (G. C. Clutton in charge; J. Kingsley, Assistant.)

The number of skulls prepared during the year totalled 152, photographic negatives made to illustrate the "Records," "Australian Museum Magazine," and for preparation of lantern slides numbered 230. Over 500 photographic prints were made, and 176 lantern slides were added to the collection. Nine moulds and fourteen casts were prepared during the year.

Mr. Clutton was largely engaged in the work of making nature films for use in schools and otherwise. A 700 foot 16 mm. film entitled "Life on a Tidal Flat" was completed and titled. This entailed several visits to Gunnamatta Bay, the most suitable locality near Sydney for the making of such a film. Another film, "Creatures of the Rocky Seashore" was taken at Shellharbour, South Coast, and at Bottle and Glass Point, Port Jackson, and a third entitled "Beach Life" is in course of preparation.

In the making of these films Mr. Clutton was assisted by officers of the scientific staff who have special knowledge of the animals whose habits were being portrayed, namely, Miss Joyce Allan and Messrs. F. A. McNeill, G. P. Whitley, and A. A. Livingstone, who also supplied titles for the films. In addition to these longer films a number of "shorts" were also taken and will be assembled to form convenient lengths. These included cinematograph records of various subjects taken at Taronga Park Zoological Gardens, of a Marsupial Mouse, and a Native Porcupine. New titles were also supplied for two films of Barrier Reef subjects made by Mr. Noel Monkman and acquired by the Trustees.

Mr. Kingsley continued work on the preparation of insect habitat groups, including the making of enlarged models of insects and plants. He also made a miniature model of the projected aboriginal group.

The Common Seal of the Museum was hereunto affixed by Order of the Board this twenty-sixth day of October, 1939.

F. S. MANCE, President.

W. T. WELLS, Secretary.

## APPENDIX A.

### TRUSTEES OF THE AUSTRALIAN MUSEUM AT 30TH JUNE, 1939.

Crown Trustees .....	Mr. James McKern.
Statutory .....	His Honour the Chief Justice. The Hon. the Colonial Secretary. The Hon. the Attorney General. The Hon. the Colonial Treasurer. The Auditor General (Mr. John Spence, C.M.G.). The President of the Medical Board.
Appointed .....	The Hon. the President of the Legislative Council. The Crown Solicitor. The Surveyor General and Chief Surveyor (Mr. A. Max Allen). The Hon. the Minister for Works and Local Government. The Hon. the Minister for Education.
Elective Trustees .....	Dr. G. H. Abbott, M.B., Mast. Surg. Mr. E. C. Andrews, B.A., F.G.S. Dr. C. Gordon MacLeod, M.B., Ch.M. Dr. G. A. Waterhouse, B.E., F.R.E.S. Mr. F. S. Mance, A.I.C.A. The Hon. F. F. Wall, M.D., M.L.C. Professor A. N. Burkitt, M.B., B.Sc. Professor W. J. Dakin, D.Sc. Mr. F. W. Marks, C.B.E., F.C.A. (Aust.). Mr. H. B. Mathews. Dr. A. B. Walkom.



## APPENDIX B.

## THE AUSTRALIAN MUSEUM.

## Summarised Statement of Net Receipts and Payments for the Year ended 30th June, 1939.

RECEIPTS.				PAYMENTS.			
Dr.				By			
To Balance 1st July, 1938	£	s.	d.	By Salaries—	£	s.	d.
Treasury (Consolidated Revenue Fund)...	123	12	2	Scientific Administration	6,231	0	7
Appropriation (Item 85)	18,115	11	10	Office	1,404	0	8
Treasury (Item C86) to meet cost of increases in Basic Wages	...	...	...	Library	587	0	10
of Departments generally	99	14	7	Preparators	2,035	19	3
Treasurer's Advance Account	348	14	9	Mechanics	334	18	10
Statutory Endowment	1,000	0	0	Attendants	2,383	0	7
Interest on Investments	29	7	6				
Sales of Publications	251	4	7	Less: Refund to Vote for Work Performed	15,087	18	6
Donations	11	19	1		90	0	4
Miscellaneous Receipts	8	13	11	Total Salaries	14,997	7	5
				Overtime	414	2	0
				Temporary Assistance	214	5	7
				Value of Extended Leave to Officer Retired			348 11
				Subsidiary Staff Charges—			
				Employers' Superannuation Contribution			708 13
				Expenses in Connection with Buildings—			
				Maintenance of Lawns and Grounds			42 0 3
				Transport Expenditure—			
				Travelling Expenses			12 15 1
				General Expenditure—			
				Postal and Telegraphic Services			62 3 1
				Books, Periodicals, and Papers			499 15 1
				Fraight and Cartage			62 11 1
				Bookbinding			100 8 1
				Photography and Slides			20 7 1
				Laundry Expenses			26 11 1
				Fees to Lecturers			40 19 1
				Minor Replacements and Additions to Plant, etc.			199 13 1
				Purchase of Specimens, Construction of Group and other			963 19 1
				Exhibits and Display and Storage of Specimens			530 14 1
				Stores, Stationery, and Sundry Services			46 10 1
				Publicity and Advertising Lectures, etc.			473 12 1
				Publications, Magazine and Museum Guide			19,755 7 1
				Balance at 30th June, 1939...			237 10 1
							£19,996 18 5
				By Purchase of Films, Printing, etc.			109 7 1
				Cinema Equipment			33 8 1
				Field Expenses of Officer			28 7 1
				Balance at 30th June, 1939			5261 2 1
							305 18 1
							£567 1 3

Anded under the provisions of Section 11, of the Australian Museum Act, 1902, and found correct.  
 Sydney, 13th November, 1939.

(Signed) J. R. MOORE,  
 Assistant Auditor-General.