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PARLIAMENT OF NEW SOUTH WALES

REPORT OF THE TRUSTEES

of the

AUSTRALIAN MUSEUM

for the

Year ended 30th June, 1953

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ANNUAL REPORT

OF THE TRUSTEES OF THE AUSTRALIAN MUSEUM

FOR THE YEAR ENDED 30TH JUNE, 1953

To His Excellency the Governor,

The Trustees of the Australian Museum have the honour to submit to Your Excellency their ninety-ninth Annual Report, for the year ending 30th June, 1953.

1. Trustees.

In December, 1952, Mr. H. B. Mathews was unanimously elected President for the year 1953.

The list of Trustees as at 30th June, 1953, is shown in Appendix A.

2. Staff.

The Museum suffered a great loss by the sudden death on 21st August, 1952, of Mr. Keith Collingwood McKeown, Assistant Curator of Insects. Mr. McKeown had been a member of the Museum staff since 1929 and had, prior to that, served with the Water Conservation and Irrigation Commission for 14 years. He had made many scientific contributions to the study of Entomology, especially the Coleoptera, and was also well known for his books on popular natural history.

Messrs. J. A. Keast and J. F. Lovering, Assistant Curators of Birds and Reptiles, and Minerals and Rocks respectively, each completed a thesis and obtained the degree of Master of Science of the University of Sydney.

Messrs. Keast and Lovering, and D. F. McMichael, Assistant Curator of Shells, were each awarded United States Scholarships to enable them to spend a year studying overseas during 1953-54. Messrs. Keast and McMichael will study at the Museum of Comparative Zoology at Harvard University, and Mr. Lovering at the California Institute of Technology.

Mr. D. K. McAlpine, Science Trainee, completed his second year at the University, obtaining Credit in both Zoology and Botany.

Mrs. B. A. Graham, B.Sc., Dip. Ed., Education Officer, resigned from the Education Department in November, 1952, in order to spend a year abroad, during which time she will visit many museums and observe the development of their school services.

Miss P. McDonald, B.Sc., was, in January, 1953, seconded to the Museum as Education Officer to fill the vacancy resulting from the resignation of Mrs. Graham.

Mr. H. Jackson, Chief Mechanic, entered on leave in February, 1953, prior to retirement, having served the Museum for a period of 42 years.

Mr. J. P. Baldie, Mechanic, was promoted to the position of Chief Mechanic, and Mr. F. J. Morgan was appointed to fill the vacancy as Mechanic.

3. Museum Collecting Expedition to North-west Australia.

At the time of the last Annual Report the Museum Expedition had commenced the return journey from Darwin and had arrived at Katherine. Tennant Creek was reached on 1st July, 1952, and a visit was paid to the Peko Mine where a collection of copper minerals was obtained. From Tennant Creek the party proceeded to Alexandria Downs Cattle Station, on which a rare Wallaroo was known to have lived. However, on account of the prolonged drought, there were no animals living in the area and the natives said that the Wallaroos had moved north into the McArthur River country years ago.

The party reached Mount Isa on 7th July, collected in the vicinity and arranged for a collection of minerals to be forwarded to the Museum in the near future. The journey from Mount Isa to Cairns was via Cloncurry, Normanton and Mount Garnet. Owing to the exceptionally dry season, collecting in the Gulf country was disappointing. South of Cairns, collecting was carried out in rainforest areas near Cardwell—a district which is the type locality for many Queensland species of birds with restricted range.

Between Townsville and Sydney, collecting was done as opportunity offered. A visit was made to the Blair Athol open-cut coal mine, and to the mines at Rockhampton, including Mount Morgan.

At Singleton, all roads were blocked by floods and the party came on to Sydney by train on 6th August. The two trucks were brought to Sydney on 12th August, when road transport became possible.

Extensive collections were made throughout the Expedition and it is now possible to give the following summary of the resulting additions to the Museum collection:—

Birds.—About 325 bird specimens were obtained, representing some 120 species. Collections were made at Ayer's Rock (50 specimens), The Granites and Tanami (25), Forrest River (85), Port Keats (70), Barkly Tableland and the Gulf Country (25) and Cardwell (20). A number of rare forms were collected, some of which were not previously in the Museum collections. At least 40 represent new subspecies.

Minerals.—Thirty-eight mineral types were collected, mainly copper, tungsten and tin compounds, and arrangements were made for collections of minerals from various mining fields to be forwarded to the Museum later.

Fossils.—From the vicinity of the Port Keats Mission, about 425 specimens were collected, representing about 30 species of Permian Mollusca. On the Barkly Highway two localities yielded 25 specimens of parts of the Cambrian trilobite, *Dictyopyge.*

Mammals.—About 100 mammals were collected, mainly from Ayer's Rock, The Granites, Forrest River, and the east coast of Queensland. They include indigenous mice and rats, bats, flying foxes, wallabies, bandicoots, and possums. Several rare species are included, and some of them have not been collected in the last eighty years.

Reptiles.—About 500 specimens of snakes and lizards were collected. They include some rare species, a number of new locality records, and possibly also new species.

Amphibia.—Some 400 frogs (including about 340 from the Forrest River Mission) were collected.

Insects and Arachnids.—A large collection was made and, as material of these groups from North-west Australia is poorly represented in the Museum collections, this will be a valuable addition.

Geology.—Geological observations were made by Mr. Rayner throughout the trip, and especially along the little-travelled track from Alice Springs to Gordon Downs, and at all the mining centres visited. Detailed work was done on the Permian-Jurassic sequence at Port Keats.

Other Collections.—Freshwater and marine fish and marine coastal life, as well as ethnological material, were collected at Port Keats.

Soil samples were collected from various localities, for bacteriological research by Dr. Tchan, Bacteriologist to the Linnean Society of New South Wales.

Samples of mud and sand containing Crustacea eggs were collected for Professor P. D. F. Murray.

A photographic record was made of all phases of the expedition. Approximately 3,000 feet of 16 mm. Kodachrome were exposed. Some 800 35mm. Kodachrome transparencies, 200 35 mm. black and white photographs and 120 2½ x 3½ black and white photographs were taken.

4. Field Work.

Mr. F. A. McNeill accompanied a visiting American, Colonel J. K. Howard, on a six weeks collecting trip to localities along the Great Barrier Reef, between Gladstone and Cairns. Many specimens of marine invertebrates and fish were obtained for the Museum collection.

Mr. H. O. Fletcher visited Cessnock to examine remains supposed to be those of a labyrinthodont. He also visited Weetaliba, near Binnaway, to investigate an occurrence of Pleistocene vertebrate remains. Bones were plentiful but mostly fragmentary, having been redistributed in the alluvium. At the request of the Joint Coal Board he also inspected the Morpeth Hill Bore No. 2 to obtain fossil evidence from the core regarding the position of the beds in the Permian sequence. Three visits to the Beacon Hill quarry near Brookvale resulted in the acquisition of a number of specimens of Triassic fish.

Messrs. R. O. Chalmers and J. F. Lovering paid a series of visits to quarries at Prospect, and also visited St. Mary's breccia quarry and the Warragamba Dam site. The co-operation of the management and men at Prospect has resulted in many valuable additions to the Museum collections, all mineral specimens discovered during quarrying operations being set aside for the Museum. This helpful attitude is very much appreciated.

Messrs. Chalmers and Lovering also visited White Cliffs, Euriowrie and Broken Hill while on recreation leave, and collected many specimens for the Museum.

Mr. J. A. Keast made several trips in connection with his work on Silvereyes, including one to the South Coast to compare southern with northern types of the species. He also accompanied Professor J. A. Moore of Columbia University on field trips collecting frogs.

Mr. D. F. McMichael made several collecting trips in connection with his research work on freshwater mussels and freshwater snails. He visited the South Coast, Prospect and surrounding districts and the National Museum, Melbourne.

5. Gallery Exhibits.

One new exhibit, a section illustrating Prawns and Prawning, was completed in the Invertebrate Gallery and plans were made for two further sections.

Preparations were made for a series of murals of aboriginal subjects to be installed in the Anthropology Gallery and small scale drawings were made for the first of the series.

Efforts made to complete the collection of medals awarded by scientific societies in Australia met with a ready response and the newly acquired medals were displayed as a separate exhibit before being incorporated in the collection.

Some progress was made in rewriting the labels in the Mammal Gallery.

Towards the end of 1952, it was discovered that a number of small Egyptian curios, and a small leather case containing Cook relics consisting of a pair of dividers, a pencil and a scale rule, had been removed from two cases in the Anthropology Gallery. The Egyptian curios were quickly recovered by the police, but the case containing the Cook relics has not yet been recovered.

6. Library.

One hundred and fifteen volumes were registered during the year by the Library. These comprised 68 books (40 of which were presented) and 47 bound periodicals. There are some prospects of an improvement in the bookbinding position as regards the time taken to complete the work. The high cost of binding, together with the shortage of funds, however, still remains a problem.

A great many requests were received, as in previous years, from research institutions, government departments and universities throughout the Commonwealth and in New Zealand for assistance in obtaining loans or copies of literature. Advice and assistance in consulting literature has also been given to research workers, students and members of the public who visited the Library, often in sufficient numbers to overtax the limited accommodation.

A number of books on loan to the Commonwealth Bureau of Mineral Resources were damaged or destroyed during the fire at the Bureau's headquarters in Canberra in April, 1953. Most of the damaged volumes can be rebound, and steps have been taken to replace those destroyed or damaged beyond repair.

The Editorial Assistant, as in past years, has assisted in the editing and preparation of material for publication.

7. Publications.

During the year Volume X, Parts 11-12 and Volume XI, Parts 1-2 of the *Australian Museum Magazine* were issued, and Volume XXIII, No. 2 of the *Records* appeared.

A new edition of *Australian Aboriginal Decorative Art* was published, in which an additional coloured plate was included, and the section dealing with Arnhem Land was rewritten to incorporate observations made during the Australian-American Expedition to Northern Australia.

A series of drawings illustrating the life and customs of the Australian Aborigines, which appeared in the *School Magazine*, 1952, was reprinted, by permission, as a pamphlet for sale to school children and the visiting public.

8. Lectures.

The Popular Science Lectures continued to attract satisfactory audiences. Twelve lectures were delivered and the attendance was 1,817, an average of 151, as against 1,216 (average 101), for the previous year. These lectures are an integral part of the educational work of the Museum and it is pleasing to note that the interest in them is maintained from year to year.

9. Buildings and Equipment.

Once again we regret to record that no progress was made towards the provision of adequate and suitable storage accommodation. With the continued additions to the Museum's collections and with the need of providing really adequate accommodation for the safe storage of the existing collections, the most urgent requirement of the Museum is an additional storage building. The "temporary" storage sheds which have been in use for many years are not properly weatherproof, and consequently the collections stored in them can not help but deteriorate in spite of the most careful attention. In August, 1952, the Department of Public Works reported that, on account of the restriction of loan allotment, it was not possible to put this work in hand—though preparation of plans and working drawings had reached an advanced stage in previous years. It is urged that serious consideration be given for some commencement of the proposed new building in the interests of proper preservation of the irreplaceable national collection of specimens representative of the native fauna and of the life and culture of the natives of Australia and the South-west Pacific.

During the year new floors were put down in the Mineral Gallery and the Bird Gallery, effecting a marked improvement in the appearance of those galleries. Flourescent lighting was installed throughout the Mineral Gallery, and similar installation in the Australian section of the Anthropology Gallery was approaching completion.

10. Finance.

Expenditure from Consolidated Revenue for the year (excluding Statutory Endowment of £1,000) was £47,976 16s. 6d., compared with £42,372 14s. 0d. last year. Net expenditure from Trustees' Account Funds (including Statutory Endowment was £3,009 7s. 2d., compared with £4,537 7s. 10d. for 1951-52.

The cash balance in the Trustees' Account at 30th June, 1953, was £761 0s. 3d. Trustees' invested funds at 30th June, 1953, were Commonwealth Inscribed Stock, £5,850; Sydney County Council Inscribed Stock, £1,000; Commonwealth Savings Bank, £606 9s. 7d.

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

11. Public Attendances.

Statistics of Attendances for the years 1948-49 to 1952-53 are as follows:—

Year.	Week-days.	Sundays.	Total.
1948–49	151,181	67,091	218,272
1949–50	154,211	70,890	225,101
1950–51	167,675	72,194	239,869
1951–52	169,787	77,317	247,104
1952–53	211,544	78,148	289,692

12. Publicity.

As usual, specimens were made available to firms for window displays, and these firms, in return, give some publicity to the Museum. Occasional loans have been made for display in Picture Theatres in association with films including natural history features, and in some cases, in return for this facility, occasional slides drawing attention to the Museum have been thrown on the screen during the interval at theatres.

A more extensive exhibit than for many years past was prepared for the Royal Agricultural Show, 1953. This consisted of a display of birds and snakes in an agricultural setting, and attracted considerable attention.

13. Screening of Educational Films.

Screening of educational films is becoming an increasing activity. During school vacations natural history films are now shown on weekday afternoons and attract large audiences of school children and adults. Also, during the greater part of the year, one or two films are shown during the lunch hour twice monthly. As these screenings become more widely known they are attracting increased attendances.

14. The Collections and Scientific Work.

The collections, both in the galleries and in storage, have been examined regularly and have received attention when necessary. One result of this vigilance on the part of the Preparatorial staff is the keeping in check of infestation by insects and moulds. The collections are in good order and condition.

Much of the time of the scientific staff was occupied in answering the usual wide range of inquiries on natural history and allied subjects. These inquiries come from all parts of the State and beyond, and are made by members of the general public as well as by various State and Commonwealth Scientific departments and research workers. The staff also prepared articles for the *Australian Museum Magazine* and some of them continued to prepare abstracts of current scientific literature for the appropriate sections of *Australian Science Abstracts*.

In August, 1952, a meeting of the Australian and New Zealand Association for the Advancement of Science was held in Sydney. Most members of the scientific staff made some contribution to the success of the meeting, either by assisting in the organisation of the various sections or by contributions

to the scientific programme. It may be appropriate here to point out also that members of the staff make a valuable contribution to the work of scientific societies by the part they take in the administration and activities of those societies. They are represented on the State Fauna Protection Panel, and on the Councils of such societies as the Linnean Society of New South Wales, the Royal Society of New South Wales, the Royal Zoological Society of New South Wales and the Anthropological Society.

Members of the staff also deliver a number of voluntary lectures to societies and groups interested in natural history and contribute news broadcasts from time to time on items of topical interest.

The exhibition featuring the life and culture of the Australian aborigines, prepared under the auspices of the Australian Unesco Committee for Museums, was completed, and despatched to the United States by the Commonwealth Office of Education. A large part of the work of preparing this exhibit was carried out at this Museum by members of various sections of the staff and the result of their co-operation is a spectacular and educational exhibit which should attract very great attention in the cities where it is displayed.

Birds, Reptiles and Batrachians. (J. R. Kinghorn, Curator; J. A. Keast, M.Sc., Assistant Curator.)

Most important additions to the collection were the specimens collected by the Museum expedition in North and North-west Australia. These included about 320 birds, several of which were new to the collection, and between 600 and 700 reptiles and amphibians. There were a number of rarer types and the range of several species was greatly extended.

General research on reptiles was continued. Many notes were made and filed for future work. Study of *Rhynchoelaps* is still held up on account of the necessity of examining a type specimen which is at present inaccessible.

Examinations of many birds and reptiles have been made to assist overseas workers as well as visiting scientists, including Professor C. Hartshorn of Chicago, Professor J. Hough of Colorado, Professor J. A. Moore of Columbia University and Mr. E. T. Gilliard of New York. Professor Moore worked on the frog collections and in his field work collected and photographed almost every species known in the State.

Mr. Keast continued his research on the genus *Zosterops* and is to take some of his material to study while he is working under Dr. E. Mayr at Harvard.

Assistance has, as usual, been given to the Department of Agriculture and the Customs authorities with regard to the importation of birds and plumage.

Mammals and Skeletons. (E. Le G. Troughton, Curator; R. B. Donnelly, Science Trainee.)

Acquisitions included 92 specimens collected by the Museum Expedition to North-west Australia, comprising a monotreme (Spiny Ant-eater), eight genera of marsupials, seven genera of indigenous rodents (Murinae) and five genera of bats (Chiroptera); a 2-inch pouch embryo of a wombat received from Mr. W. Medway-Smith; a False-Vampire Bat (*Macroderma gigas*) and a glider-possum from Miss D. Levitt, of the Mission at Groote Eylandt; a skull of the rarer Lesser Piked Whale (*Balaenoptera acutorostrata*) and crania of seals, from the Commonwealth Antarctic Research Division; two incomplete skeletons and fairly complete skulls of aborigines from the Cronulla district; and a skull of an individual above average size from the Clarence River district. By exchange, two skulls of the coyote (*Canis latrans*) were received.

Information and advice was provided in regard to bandicoots in relation to the preparation of anti-tick-bite serum (for Dr. Webster); monotremes and other fauna for the Toronto Zoo (for Department of the Interior); selection of photographs and marsupial material for instructional purposes (for Professor J. A. Moore of Columbia University); the phalanger family and recent work on the opossum (for Dr. C. G. Hartman); generic names of mammals (for Dr. J. E. Hill, of the British Museum); and mammal reservoirs of scrub typhus in the Bulolo district (for Dr. C. E. M. Gunther).

Advice and facilities were afforded Mr. W. B. Swanson, a Fulbright Graduate Student in regard to his programme and study of mammal collections, and Dr. H. C. Reynolds, Research Associate of the University of California concerning studies of monotremes and indigenous mammals. Facilities were also provided for Dr. Gabriel of the University of Sydney to examine the entire series of human crania, and for Mr. N. J. B. Plomley to examine the series of fibulae of kangaroos to assist in identification of bones used in implements made by Tasmanian aborigines.

Special attention was given to the condition of the mammal room collection of skins and crania and the spirit collection.

Scripts for films of the Spiny Ant-eater and the possum family were revised for Australian Instructional Films, and copies of the completed films were later presented to the Museum.

Fishes. (G. P. Whitley, Curator.)

Acquisitions numbered about 450 specimens which came from all the Australian States except South Australia, New Zealand, Papua, Willis Island, and Lord Howe Island. The fishes collected by the Australian Museum Expedition, 1952, a marlin sword-fish, and some new species and locality records were of most interest and notes on them have been made for publication. A collection of fishes brought from the Gilbert Islands by Dr. R. Catala of Noumea, has been sent on loan to the University of Hawaii for study in association with fish material from Bikini and adjacent island groups.

Exchanges of fish were made with the Department of Harbours and Marine, Queensland, and with Canterbury University College, Christchurch, New Zealand.

Technical information was prepared for a wide range of workers on fish in numerous institutions, including the Smithsonian Institution, Stanford University, the University of Hawaii, the U.S. Department of the Interior, F.A.O., Bangkok, C.S.I.R.O. Division of Fisheries, Commonwealth Fisheries Office, Premier's Department, Chief Secretary's Department, and Museums in other States. Some South African shark jaws were reported on for Mr. C. Biden of Johannesburg.

Two papers completed for the "Records of the Australian Museum" are in the press: "Studies of Ichthyology, No. 16," and "Fishes collected by The Australian Museum Expedition, 1952". One paper, "Figures of some Australian Fish Types", appeared in the *Proceedings of the Royal Zoological Society of New South Wales.*

Insects and Arachnids. (A. Musgrave, Curator; D. K. McAlpine, Science Trainee; Nancy B. Adams, Assistant.)

Insects and spiders are so numerous and widespread and of such interest that a greater proportion of the time of this Department than of any other is taken up in dealing with inquiries. The death of Mr. K. C. McKeown, Assistant Curator, in August, 1952, placed a greater burden on the remaining members of the staff in this important section of the work, so that practically the whole of their time was occupied in providing information in reply to inquirers. Amongst visitors who sought information and assistance were officers of many institutions and departments (such as C.S.I.R.O., Waite Agricultural Institute, Department of Agriculture, Department of Wood Technology, New England University College, Queensland Medical Institute, Macleay Museum, National Museum of Victoria, South Australian Museum, and University of Queensland), as well as many private entomologists.

The gallery collections were fumigated and the cabinet collections overhauled. The cabinet collection of Scarabaeidae was revised and rearranged, and the spiders which had accumulated for some time past were catalogued. The cabinet collection of bees (Apoidea) is now being revised and brought up to date.

Collections acquired during the year (especially those made at Kosciusko and Bogan River) have been set and labelled.

Crustacea and Lower Invertebrates. (F. A. McNeill, Curator; Elizabeth C. Pope, M.Sc., Assistant Curator.)

Acquisitions included a comprehensive collection of Queensland Stomatopoda (mantis shrimps); species of Decapoda Crustacea from Port Keats and the Forrest River (collected by the Australian Museum Expedition); species of Decapoda from Cocos Island (collected by Corporal Prosper, R.A.A.F., for gallery display); some rare and interesting echinoderms; and barnacles from normally inaccessible localities in south-western Tasmania (collected by Mr. A. Hewer of Hobart). The original painting from which von Lendenfeld's plate in *Medusae of the Australian Seas* (Australian Museum Catalogue II, 1887) was reproduced, was presented to the Museum by the Linnean Society of New South Wales.

Information prepared in response to a large number of inquiries dealt with prawn fisheries (for the Premier's Department), prawn breeding habits (for Superintendent of State Fisheries), ecology of *Hormosira* in New South Wales, identification of barnacles (for C.S.I.R.O. Fisheries Division and University of Queensland Zoology Department), and identification of specimens for the Clarence River Naturalists' Club, University of Melbourne, University of Queensland, Soil Conservation Laboratory, Gunnedah, and Water Conservation and Irrigation Commission.

Facilities were given to a number of visitors to examine various sections of the collections. Mr. E. F. Riek, of C.S.I.R.O., Canberra, studied freshwater prawns of the family Palaemonidae; Mr. K. E. W. Salter, of the University of Sydney, checked the reef building corals (Madreporaria); Mr. A. O'Farrell, of New England University College, examined

type specimens of *Temnocephala* (Vermes); Professor W. Stephenson, of the University of Queensland, studied the mantis shrimps (Stomatopoda) and crabs of the family Portunidae; and Messrs R. Kenny and R. Endean, of the University of Queensland, examined reference material of Echinodermata.

An epidemic of severe stingings suffered by sea bathers and attributed to so-called "sea lice" occurred in the summer and brought a great volume of inquiry to the Museum from press and public. Investigation as to the cause proved it to be small fragments, and possibly also larvae, of a large species of Jelly-fish (*Cyanea annaskala*) which was discovered in vast numbers a few miles off the coast.

An extensive check was made of the invertebrate collections preserved in spirit, which are in exeellent condition. The collection of barnacles, which has been greatly enlarged recently, was reorganised and moved to a new location.

One section of the proposed new gallery exhibits was completed, and plans made for further sections.

Mr. McNeill visited the Great Barrier Reef at the invitation of Colonel J. K. Howard and obtained collections of marine invertebrates and fish for the Museum.

Research by Mr. McNeill, in collaboration with Professor W. Stephenson, on the Stomatopoda (mantis shrimps) in the Museum collection is approaching completion.

Miss Pope has continued her research on barnacles, concentrating on identification of the material now available from Queensland through the efforts of Professor Stephenson and Mr. Endean; she has also worked on the barnacles from Western Australia.

A paper by Mr. McNeill, "Carcinological Notes, No. 2", is in the press in the "Records," and a joint paper by Miss Pope and Miss I. Bennett, "Intertidal Zonation of Victorian Shores", appeared in the *Australian Journal of Marine and Freshwater Research*.

Shells. (Joyce Allan, Curator; D. F. McMichael, B.Sc., Assistant Curator.)

A considerable number of specimens have been collected or presented during the year.

The number of inquiries regarding shells has increased, and among the specimens submitted for identification there have been some which provided new and interesting records. The interest during the year in the economic use of shells has resulted in a number of inquiries concerning various aspects of the sale of shells, their use as food and their importance as pests and in regard to health.

The work accomplished during the year includes the unpacking, sorting, and listing of the collection of types, the rearrangement of the conchological library, the sorting and rearrangement of duplicate collections and of duplicate literature.

Facilities were provided for Mr. T. Iredale to work on Cuttlefish bones, Mr. C. F. Laseron to work on small bivalves and the Turridae, Mr. S. Hynd on Pearl Oysters, Dr. I. Hiscock on Freshwater Mussels, Dr. N. Ludbrook on the Volutidae, Dr. C. Fleming on the Pectens, and Miss J. H. Macpherson on the Siphonaridae.

Miss Allan commenced work on a revision of the Cowries of the World.

Mr. McMichael continued his research into the systematics and anatomy of the freshwater mussels and the embryology of the freshwater snails. He made several short field trips in connection with these researches, and he also accompanied a party to Mount Kosciusko to investigate the life of the glacial lakes and rivers of that district. With the help of Mr. Whitley, Curator of Fishes, Mr. McMichael prepared a bibliography of the scientific writings of Mr. T. Iredale, and an index of the scientific names, numbering about 2,500, proposed by him.

Miss Allan was on extended leave from 16th March till the end of the year under review.

Minerals and Rocks. (R. O. Chalmers, A.S.T.C., Curator; J. F. Lovering, M.Sc., Assistant Curator; Frida Sachs, Assistant.)

Additions to the collection comprised 466 mineral specimens and 195 rocks. The minerals include a number of interesting specimens from Prospect (obtained from the quarries by Messrs. Chalmers and Lovering), Broken Hill district (collected by Messrs. Chalmers and Lovering while on recreation leave), and Northern Territory (collected by Australian Museum Expedition). The rocks are mainly specimens collected by Mr. Lovering from various stages of the Wianamatta Series, and a number of specimens from a granite-limestone contact at Attunga, collected by Mr. J. M. Hallinan. Two hundred and twenty-five thin sections were prepared and examined during the year. The examination of these slides is a difficult task since they include many made from fine-grained sedimentary rocks.

A further section of the mineral collection was transferred to steel cabinets. A collection of minerals was sent to the Bureau of Mineral Resources at Canberra, a small collection of crystals to the National Physics Laboratory, India, and some small collections of minerals to schools for educational purposes. A collection of ore minerals was made available to Mr. Stanton of the University of Sydney.

An exhibit of gem minerals and ornamental stones was prepared for the Exhibition arranged at the Sydney Town Hall by the Federated Retail Jewellers Association, and an exhibit of minerals from the Prospect quarries was displayed at the Geology Department of the University of Sydney during the A.N.Z.A.A.S. meeting in August.

Messrs. Chalmers and Lovering visited Prospect quarries (on a number of occasions), St. Mary's breccia quarry, and the Warragamba Dam site where an occurrence of pyrite in joint planes in the sandstone was examined.

Mr. Chalmers is proceeding with the examination and identification of minerals from Prospect. A considerable amount of the new material obtained comprises widespread replacements of prehnite and pectolite by clay minerals and occurrences of chalcedony and common opal.

Mr. Lovering completed the work on the Stratigraphy of the Wianamatta Group and submitted it, successfully, for the degree of Master of Science.

One paper by Mr. Lovering, "A Microfossil Assemblage from the Minchinbury Sandstone, Wianamatta Group", was published in the *Australian Journal of Science*, and a joint paper with Dr. G. D. Osborne, "Contributions to a Study of the Marulan Batholith, II", in the *Journal of the Royal Society of New South Wales*. Mr. Lovering spent four days in the Marulan district collecting information for a further paper.

Fossils. (H. O. Fletcher, Curator.)

Accessions totalled 1,027 specimens. The Australian Museum Expedition brought from Port Keats 425 Permian marine fossils which included good series of *Aulosteges, Streptorhynchus, Spirifer, Deltopecten* and other genera from an occurrence not previously recorded. A rare Cambrian trilobite, *Dorypyge*, was also collected by the Expedition near Frewena, Northern Territory.

Permian marine fossils were collected by Mr. Fletcher from the Joint Coal Board's No. 2 and No. 3 bores at Morpeth Hill, near Maitland. A large and representative collection of well preserved Permian and Devonian fossils, from the Western coal field was presented by Mr. W. Nicholls. Other important fossils added to the collection include Permian Echinoderm remains from Ulladulla (presented by Mr. C. F. Laseron), *Annularia ivini* from the Upper Coal Measures at Cessnock (presented by the Joint Coal Board), and a series of Triassic plant remains from near Warialda Creek (presented by Mr. J. Rade).

A number of type fossils were also added to the collection.

The installation of lighting in the new storage racks in the fossil store greatly facilitated work on the collections which were completely rearranged during the year Exchanges were arranged with the Queensland Museum, Dr. Slama of the University of Nebraska, and the American Museum of Natural History. Specimens were lent for study to a number of recognized research workers.

A number of specimens which were on loan to the Bureau of Mineral Resources at Canberra were destroyed or damaged by fire in April, 1953. No official report has yet been received from the Bureau but it appears that the destroyed material included several type specimens of fossils. In order to prevent the possibility of any further lossess by such an unexpected occurrence it was decided that, in future, no type specimens at all should be allowed to leave the Museum premises.

Mr. Fletcher prepared reports for the Joint Coal Board on the fossil evidence of the position of their No. 2 Bore at Morpeth Hill, in relation to the Greta Coal Seam. Following this report, No. 3 Bore was put down and a second report was submitted. He also prepared reports from time to time for the Geological Survey of New South Wales in his capacity of Honorary Palaeontologist to that department.

One paper, "Permian Fossils from the Wairaki District, Southland, New Zealand", was published by the New Zealand Geological Survey.

Research in progress includes a complete revision of all Pelecypods described from the Permian of Australia, and studies of the genera *Stutchburia* and *Schizodus*, the latter not having been recorded previously from rocks in Australia.

In February, Mr. Fletcher visited Cessnock to examine supposed remains of a labyrinthodont, but the occurrence proved to be of inorganic origin.

In March he investigated an occurrence of Pleistocene vertebrate remains at Weetaliba near Binnaway. Bones occurred plentifully but had been redistributed in an alluvial deposit, so any extensive excavation work would not be warranted.

During the year three visits were paid to the Beacon Hill Quarry near Brookvale, and specimens of Triassic fish were obtained from the quarry men.

Anthropology and Numismatics. (F. D. McCarthy, Dip Anthr., Curator; G. C. Heyde, Hon. Numismatist.)

Accessions totalling 1,101 were received in 40 donations. Australian specimens included 261 specimens (spearthrower, sacred boards, death pointer, dolphin-teeth necklet, etc., collected on Groote Eylandt between 1922 and 1935 by the late Rev. H. E. Warren) from Mrs. Warren; a model raft, Kimberley coast, from Rev. E. Worms; a model Tasmanian canoe from the Tasmanian Museum; four incised boomerangs, western-central Queensland, from the Linnean Society of New South Wales; a series of sacred boards, barbed spear-heads and other objects, Port Keats, from Dr. J. Falkenburg and the Australian Museum Expedition; 52 axes, grindstones and percussion stones from various parts of New South Wales, from Mr. H. G. Hammond; 116 knapped implements, west of Lake Torrens, from Dr. T. Campbell; 89 adzes and other implements, New Caledonia and the Solomons, from the Albury Museum through the Museum of Applied Arts and Sciences; 7 implements, including 3 cylindro-conical stones, the first from this area, from the Mary River, Northern Territory, from Mr. W. Harney; 413 knapped, edge-ground and percussion implements, many dug out of rock shelter floors, Mangrove Mountain, from Mr. R. Burns (this collection icludes an edge-ground axe found on a group of rock engravings). Pacific Island material donated included an old shark's-teeth knife, Hawaii, from Mr. R. J. Hardy; a Malangan carving, New Ireland, from Messrs. Stiskin; a shell arm-ring, New Britain, from Mr. F. S. Kellner; a stone-headed club, New Guinea, from Mr. A. E. Roper; a turtle-shell filigree ornament called kapkap, Santa Cruz, from Mrs. J. B. de Faur; a set of 14 bird-of-paradise head ornaments, Wahgi Valley, collected by Rev. J. French, from Miss F. Delaney; 9 specimens, including the largest shell-ring in our collection, Choiseul Island, from Mr. F. G. Ware; 2 hafted axes, Wahgi Valley, from Captain K. I. Bell. Donations of specimens from other areas included a set of 21 bamboo percussion musical instruments called Anklong, used in Java, from Mr. A. G. Dodds; 14 weapons from Japan, Borneo and Australia, and a series of carved paddles from Mangaia Island, from the estate of the late Nellie E. McMurtrie; 7 applique baskets of an unusual kind and a clay pot, Ceram Island, from Mr. G. Robinson.

Other acquisitions included 29 specimens, mostly stone implements, collected; 9 Clactonian blades from early Palaeolithic sites, Reading, by exchange from the Reading Museum; 23 rare bone points and shell fish-hooks from Boat Harbour, North Cronulla, purchased.

In company with Dr. N. W. G. Macintosh, Mr. McCarthy paid a visit to Cohuna, Victoria, to examine the site where an important fossil skull was found many years ago.

In the galleries, improvements in the Eskimo exhibit are projected. Mr. Beeman, Assistant Preparator, has completed a small scale drawing of the first of a series of six murals which will ultimately be exhibited in the Australian gallery. This first mural will illustrate various aspects of the life and culture of the natives of Port Jackson.

A considerable amount of time was spent in the final preparation of the Unesco Travelling Exhibition of Australian Aboriginal Culture.

Discussions with visitors took place on a variety of subjects, including Australian archaeology (with Mr. A. Pilling of the University of California), Pacific ethnography (with Mr. and Mrs. Lane of the University of Washington); a South Pacific Commission project on industrialization in the Pacific Islands (with Dr. C. Belshaw of the Australian National University); many aspects of Australian archaeology (with Professor Birdsell of Harvard University); material culture of New Guinea (with Dr. Paul Wirz, of Basle Museum).

Most of the time available for research was devoted to the completion of a paper on the String Figures of Yirrkalla, Arnhem Land, in which 230 figures, the largest number collected in any one camp of people in the world, are recorded. Two papers on Stone Arrangements on Groote Eylandt are in the press in the "Records" of the Museum. A paper on Aboriginal Rain Makers was published in *Weather*, journal of the Royal Meteorological Institute, London.

Numismatics.—Mr. G. C. Heyde, Honorary Numismatist, continued to render valuable assistance in the identification and valuation of coins, medals and tokens submitted by the public. Twenty-two specimens were added to the collection, including additional medals awarded by scientific societies in Australia.

Department of Preparation.—(J. Kingsley, Officer-in-Charge; H. D. Hughes, A.R.P.S., R. D. Mackay, and F. J. S. Beeman, Assistant Preparators.)

Regular inspections were made of the gallery cases and they were maintained in good condition, having been disinfected and treated whenever any sign of infection was evident.

Work completed during the year was as follows: Preparation of skins (19 mammal, 121 birds); reconditioning and/or remounting of 114 mammal exhibits and 385 birds; mounting of 7 birds; reconditioning and/or preparing 31 skeletons and skulls. Photographic work comprising preparation of 241 negatives and 1,192 prints, mounting 340 prints, preparation of 57 lantern slides, processing of 39 films, and projection of 243 films (mostly for school children). Twenty-two moulds and 27 casts were prepared and 11 casts were coloured. Eight sketches and 609 drawings were prepared, 148 bird exhibits coloured, and 8 paintings completed.

Instruction and advice in methods of preparing botanical accessories was given to Mr. R. Boswell, Preparator, of the National Museum, Melbourne.

The background of the Wombat exhibit was completed. The Preparatorial Staff co-operated in the final preparation of the Unesco exhibit of Aboriginal Culture. They also prepared the exhibit for the Royal Agricultural Show, mounted a series of 25 birds for the Hawkesbury Agricultural College, prepared an Owl exhibit for the Bathurst Teachers' College, disarticulated and repaired a human skeleton for the St. Lukes Hospital Nurses Training School, and made an additional cast of the Forest Vale meteorite for the Broken Hill Technical College.

Education Officer.—(Mrs. B. A. Graham, B.Sc., Dip. Ed., to November, 1952; Miss P. McDonald, from January, 1953.)

The number of children visiting the Museum in classes shows a steady increase. During this year, 5,935 children attended in 157 classes, an increase of 1,858 over the attendance in the previous year.

The screening of natural history films during school vacations is proving very successful and encouraging. In the three vacations of the year 33 screenings were attended by 10,982 children and adults. These screenings have been in the afternoon; a trial screening was held in the morning as well as the afternoon on one day in the May vacation and was so successful that morning screenings will be held in future vacations.

The enlarged photographs of animals have been borrowed by 24 schools, and it is hoped soon to add a further 35 animal photographs and some 60 photographs of Australian aborigines and New Guinea natives to the collection.

School leaflets on "Australian Aborigines", "The Great Barrier Reef", "Queensland Lungfish", "Our Spiders" and "Australian Snakes" have now been printed and a series on Australian Mammals is in course of preparation.

The Education Officer was asked for advice on scripts for films and on film strips for educational use, by the Visual Education Centre at Burwood and by Australian Instructional Films.

A class of girls from "Wenona" Girls' School was taken on an excursion to a coastal rock platform, and films of the Great Barrier Reef were shown to girls at Abbotsleigh School. A lecture was given to a group of Sydney Teachers' College Students on the work of the Education Officer and the place of the Museum in relation to the schools.

The continued expansion of this educational work of the Museum, and the interest shown by the children is very pleasing. It is very evident that there are great opportunities for extending an appreciation of natural history to an ever-increasing number of children—an appreciation which should add to their enjoyment and understanding of their surroundings throughout their life.

Accessions for the year 1952-53 totalled:—

Vertebrata	1,870
Invertebrata	4,368
Geological	1,780
Ethnological, etc.	1,489
Miscellaneous	981
	10,488

Papers and articles published during the year totalled:—

Australian Museum Magazine	24
Other Publications	7

The Common Seal of the Museum was hereunto affixed by Order of the Board, this fifteenth day of September, 1953.

H. B. MATHEWS, President.

A. B. WALKOM, Director.

APPENDIX A.

Trustees of the Australian Museum at 30th June, 1953.

Crown Trustee:—
H. B. Mathews, B.A.

Statutory:—
The Hon. 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:—
Professor A. N. St. G. Burkitt, M.B., B.Sc.
Frank B. Spencer.
O. G. Vickery, B.E., M.I.E. (Aust.).
Wallace C. Wurth, C.M.G., LL.B.
Profesor 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.
F. L. S. Bell, M.A., F.R.A.I.
Frank W. Hill.
G. A. Johnson.
Professor P. D. F. Murray, M.A., D.Sc.

APPENDIX B.

THE AUSTRALIAN MUSEUM.

SUMMARISED STATEMENT OF RECEIPTS AND PAYMENTS FOR THE YEAR ENDED 30TH JUNE, 1953.

RECEIPTS.

	£	s.	d.	£	s.	d.
Appropriation Account—						
To Treasury Appropriations				47,976	16	6
Trustees' Account—						
To Statutory Endowment	1,000	0	0			
„ Sales of Publications	1,111	6	6			
„ Donations	47	13	11			
„ Interest	201	1	0			
„ Postage Receipts	53	2	10			
„ Lighting Receipts	4	15	0			
„ Sale of Ford Utility	80	0	0			
„ Sale of Plymouth Truck	275	0	0			
„ Sale of Projector	10	0	0			
„ Sale of Ford Freighter (N.W. Aust. Scientific Expedition)	700	0	0			
„ Refund of Insurance Premium (N.W. Aust. Scientific Exp.)	15	1	10			
„ Compensation for loss of Specimens	7	0	0			
„ Miscellaneous Receipts	18	1	1			
				3,523	2	2
Balances as at 1st July, 1952—						
Cash at Bank and in hand	777	17	11			
Investments	6,594	3	7			
				7,372	1	6
				£58,872	0	2

PAYMENTS.

	£	s.	d.	£	s.	d.
By Salaries, etc.	42,520	2	9			
„ Superannuation Contributions	3,215	13	9			
„ Workers' Compensation Insurance	149	12	1			
„ Insurance on Departmental Property	345	0	5			
„ Travelling and Subsistence Expenses	60	12	4			
„ Freight, Cartage and Packing	32	5	10			
„ Books, Periodicals and Papers	729	5	5			
„ Fees, Commissions, etc.	46	17	0			
„ Laundry Expenses	45	6	11			
„ Postal and Telegraphic	138	13	2			
„ Stores, Provisions, Minor Plant, etc.	680	18	10			
„ Sundries	12	8	0			
				47,976	16	6
By Printing and Publishing Magazines	885	0	8			
„ Printing and Publishing other Publications	570	5	10			
„ Stores and Services	15	17	4			
„ Repairs to Trucks	44	8	2			
„ North-West Australia Scientific Expedition	835	6	8			
„ Purchase of Specimens	4	0	0			
„ Publication Sales paid to Treasury	27	7	6			
„ Freight and Cartage Receipts paid to Treasury	6	3	11			
„ Postage Receipts paid to Treasury	53	11	1			
„ Lighting Receipts paid to Public Works Dept.	5	0	0			
„ Refund on Refrigerator paid to Treasury	11	0	0			
„ Miscellaneous Expenditure	9	12	6			
				2,467	13	8
Balances as at 30th June, 1953—						
Cash at Bank and in hand	971	0	5			
Investments	7,456	9	7			
				8,427	10	0
				£58,872	0	2

A. B. WALKOM,
Director.