

SERIAL SCIENTIFIC PUBLICATIONS

NATURAL HISTORY, Journal of The American Museum:

Volumes I-XL, 1900-1937. An illustrated magazine, issued monthly, excepting July and August, devoted to records of scientific research, exploration and discovery, of the development of museum exhibitions and of museum influence on education. Contributors include the scientific staff, explorers and Members of the American Museum and other eminent naturalists. Issued to all Members as one of the privileges of membership, or on subscription \$3.00; 50c. per copy.

THE JUNIOR NATURAL HISTORY MAGAZINE:

Volume I, 1936-1937. An illustrated monthly magazine for young readers. \$1.00 per year; 10c. per copy; special rates for schools.

THE SKY: Bulletin of the Hayden Planetarium. Published by The American Museum of Natural History.

Volume I, 1936-1937. An illustrated monthly magazine. \$1.50 per year; 15c. per copy.

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Volumes I-LXXIII, 1881-1937. Scientific records of explorations and collections of the Museum, in Geology, Palaeontology, Mineralogy, Zoology, and, originally, Anthropology. \$4.00-\$10.00 per volume.

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SPECIAL SCIENTIFIC PUBLICATIONS

A REVIEW OF THE PRIMATES:

By Daniel Giraud Elliot, 1913. A monographic treatise in three quarto volumes. Paper, \$35.00; morocco, \$45.00.

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By Bashford Dean, 1916-1923, covering the entire literature of fishes to 1914 and embracing 45,000 titles arranged alphabetically by authors. 3 volumes, \$15.00.

THE BASHFORD DEAN MEMORIAL VOLUME:

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OCEANIC BIRDS OF SOUTH AMERICA:

By Robert Cushman Murphy, 1936. The first comprehensive work in its field. Two quarto volumes, cloth-bound, \$10.50.

PROBOSCIDEA:

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(Publications continued on third page of cover).

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TERTIARY MAMMALS AND PERMIAN VERTEBRATES:

Hitherto unpublished plates. Prepared under the direction of Edward Drinker Cope, with descriptions of plates by William Diller Matthew. 1915. \$4.25.

FOSSIL VERTEBRATES IN THE AMERICAN MUSEUM:

Volumes I-XIII. Collected reprints from the Department of Vertebrate Palaeontology. 1892-1937. \$5.00-\$18.00 each.

ZOOLOGY OF THE CONGO:

The following parts have appeared (1915-1936):

Mammalogy, 17 papers, \$14.20; Ornithology, 12 papers, \$11.15; Ichthyology, 8 papers, \$14.50; Herpetology, 3 papers, \$9.00; Entomology, 29 papers, \$26.10; General Invertebrate Zoology, 12 papers, \$14.60.

Collected papers from the American Museum Bulletin and Novitates: to be completed in 12 volumes.

CENTRAL ASIATIC EXPEDITIONS:

Collected papers from the American Museum Bulletin and Novitates:

Vol. I. "Preliminary Reports," 1918-1925. 8vo. \$10.40.

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"Natural History of Central Asia," 12 quarto volumes:

Vol. I. "The New Conquest of Central Asia," by R. C. Andrews and others, 1932. \$10.00.

Vol. II. "The Geology of Mongolia," by C. P. Berkey and F. K. Morris, 1927. \$10.00.

Vol. III. "Geologic Studies in Mongolia," by C. P. Berkey, F. K. Morris, L. E. Spock, and Père Teilhard de Chardin. (In preparation).

Vol. IV. "The Permian of Mongolia," by A. W. Grabau, 1931. \$10.00.

Vol. V. "The Topography of Mongolia," by C. P. Berkey, L. B. Roberts, W. P. T. Hill, and W. G. Wyman. (In preparation). Route-maps of 1925 (45 in number) ready for this volume. For sale at \$7.50 per set.

Vol. VI. "The Fossil Reptilia of Mongolia," by W. Granger. (In preparation).

Vol. VII. "The Fossil Mammalia of Mongolia," by W. Granger. (In preparation).

Vol. VIII. "The Archaeology of Mongolia," by N. C. Nelson and A. W. Pond. (In preparation).

Vol. IX. "The Fishes of China," by J. T. Nichols. (In manuscript).

Vol. X. "The Reptiles of China," by C. H. Pope, 1935. \$10.00.

Vol. XI. "The Mammals of China and Mongolia," by Glover M. Allen. (Part 1 in press; Part 2 in manuscript).

Vol. XII. "The Botany and Palaeobotany of Mongolia," by R. W. Chaney. (In preparation).

(Publications continued on fourth page of cover).

SPECIAL SCIENTIFIC PUBLICATIONS (Continued)

THE U. S. S. "ALBATROSS" in Lower California Seas. Cruise of 1911. In charge of C. H. Townsend. Collection of reprints from the American Museum Bulletin and Novitates. \$7.25.

JOEL ASAPH ALLEN, 1838-1921:

Autobiographical Notes and a Bibliography of the Scientific Publications. 1916. \$2.00.

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General Guide to the Exhibition Halls: Twenty-first Edition. 163 pages and many illustrations. 1936. 50c.

THE HAYDEN PLANETARIUM. A guidebook. 1937. 73 pages, many illustrations. Price, 50 cents.

SCHOOL SERVICE SERIES:

A pamphlet, dealing with the Museum's first Nature Trails, by Frank E. Lutz, Curator, Department of Insect Life. 1931. Illustrated, 10c.

Eight pamphlets, dealing with the Nature Trails and Trailside Museums at Bear Mountain, by William H. Carr, Assistant Curator, Department of Education. Illustrated. 15c.-25c. each.

Three pamphlets on Projects in Science and Nature Study, 15c.-25c. each.

SPECIAL ADMINISTRATIVE PUBLICATIONS

ANNUAL REPORTS OF THE PRESIDENT:

First Report, January, 1870, by Hon. Joseph H. Choate. Reports distributed to libraries and scientific institutions, also to Members.

HISTORY, PLAN AND SCOPE of The American Museum of Natural History:

Its Origin, Its History, the Growth of Its Departments. Trustees' edition, 50 copies, published February 14, 1910; Curators' edition, 600 copies, published July 1, 1911.

ANNUAL REPORTS OF THE PENSION BOARD: Nos. 1-24, 1913-1936.

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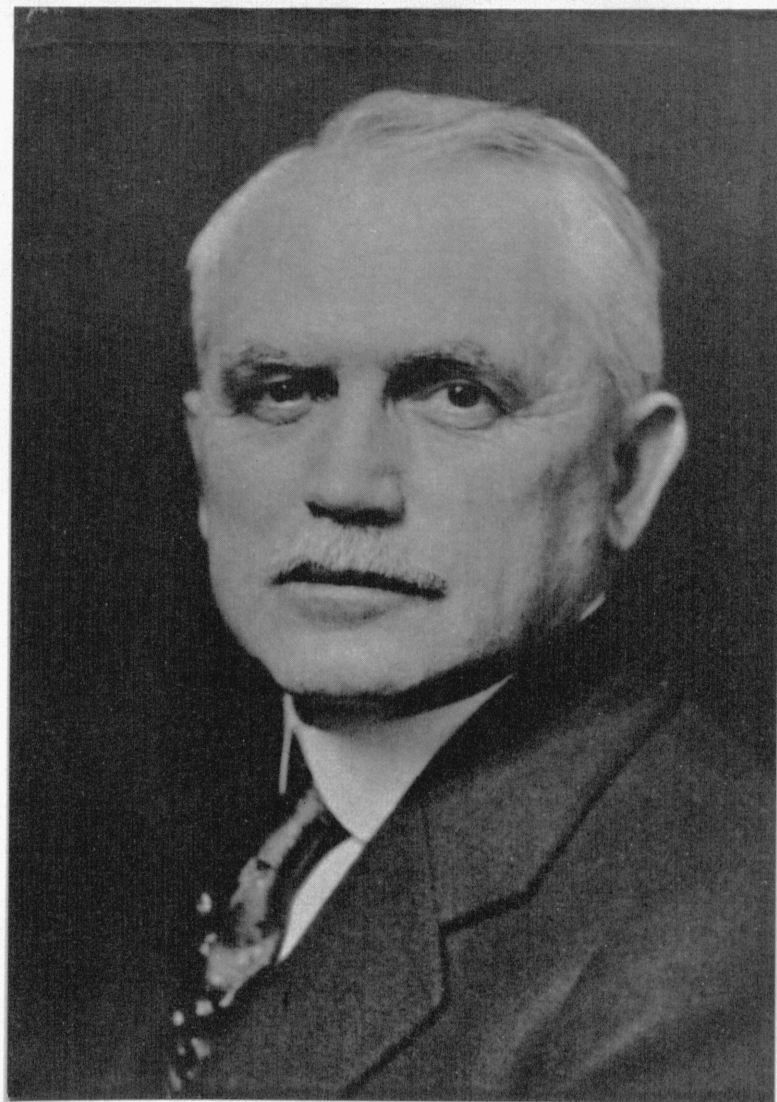
SIXTY-NINTH

Annual Report

FOR THE YEAR 1937

"For the purpose of establishing and maintaining in said city a Museum and Library of Natural History; of encouraging and developing the study of Natural Science; of advancing the general knowledge of kindred subjects, and to that end of furnishing popular instruction."

THE CITY OF NEW YORK
Issued May 1, 1938



Photograph by J. H. McKinley

GEORGE HERBERT SHERWOOD
1876-1937

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Miss Clara Mabel Beale, who has been responsible for the assembling and editing of this report, is retiring from Museum service on April 15, 1938. Miss Beale has been connected with the preparation of the Annual Report almost continuously since 1901 and for the last four years has had practically entire charge of this important publication. During the thirty-seven years of her association with the Museum she has distinguished herself as a most able editorial assistant, not only on the Annual Report, but in connection with outstanding scientific publications. The Administration desires to express to Miss Beale deepest appreciation of the splendid service she has rendered.

SIXTY-NINTH ANNUAL REPORT

*To the Trustees of
The American Museum of Natural History
and to the Municipal Authorities of the City of New York*

BY FREDERICK TRUBEE DAVISON, President

THE President's part of the Annual Report this year is restricted to a broad consideration of Museum finances, because that is the most important problem facing the institution today.

In the Annual Report for the year 1936, the serious financial condition of the Museum was described and a \$10,000,000 Ten Year Development Program announced. During the year 1937, this program was definitely organized and a long-term effort undertaken to enhance the security of the Museum for the future. The response made by hundreds of friends of the Museum in terms of interest, work and support, considering present conditions, was most gratifying. Public reaction indicated an increasing appreciation of the value of the natural sciences in the solution of our present-day problems.

In these times of uncertainty, doubt and discouragement, it is only natural that people should turn to those things that are permanent and enduring. Experience has definitely demonstrated that they can be found in the American Museum of Natural History and similar institutions.

Is it strange that man earnestly yearns to know more about himself? Mr. Raymond B. Fosdick, President of the Rockefeller Foundation, made this significant statement in his Annual Review for 1937:

"As a matter of fact, of all the things that man really knows, he knows least about himself. His knowledge of the stars is probably more complete and more reliable than his knowledge of his own body. Inanimate things like stars and rocks lend themselves more easily to analysis and measurement. When it comes to living matter we are dealing not only with infinitely more complex material, but with more elusive material."

Man seems to rather take it for granted that he is a being apart from the rest of the world of living things. Science has clearly proved that that is not the fact. We, along with all other living creatures, are part of the great design of nature,—in one sense an insignificant part, even though we have been endowed with greater mental and spiritual qualities than any other forms of life. Those things which affect the rest of nature, likewise generally affect us. Those things which are happening to man today or will happen in the future, all find their roots in the past.

It is the Museum's task, and that of other research organizations, to discover these truths and to make them available to man, so that he may more intelligently work out his destiny.

In order that the American Museum of Natural History may perform its functions, it must not stand still. It certainly must not retrogress. It must go forward, and the effort resulting from the Ten Year Development Plan was conceived to accomplish that end.

Funds to meet our budget are derived from three sources: income from endowment, city appropriations, and contributions.

During the year 1937, from all sources, including contributions from friends, membership and the foundations, gifts were received in the amount of \$669,797.73, only a small part of which is available for general operating costs. That is a very substantial sum of money. In normal times it would indicate a very satisfactory step forward.

The fact of the matter is that in spite of this, the Museum is now in a more critical condition than it was a year ago. Our gains have been more than offset by losses beyond our control which have resulted in a net decline.

It is in the general operating funds that the most serious crisis exists. The high point of our total income was reached in the year 1931. Since then, from the operating standpoint, there has been a decrease in these funds of \$311,967.91 estimated for the year 1938. In a budget of \$1,250,000 that is an enormous loss, amounting as it does to approximately 25%.

The reasons for the decline over the past few years are: (1) income from endowment has been reduced because of decreased dividends, lower interest rates and defaults in interest payments, (2) contributions to annual maintenance and to endowment have been greatly reduced, (3) the City of New York, because of the general financial situation, has not been able to make sufficient appropriations to carry out in full

its maintenance contract with the Museum, and (4) the cost of supplies used in the daily running of the Museum has increased materially.

To offset this constantly declining income, the Museum has curtailed many of its most important activities in scientific research, has decreased the publication of the findings of its scientists, and despite the fact that its present salary scale is not on a par with similar educational institutions, has put into effect a general salary cut for all employees for 1938.

Consider this great educational institution with its exhibition area of 23 acres, collections on exhibition and available for study valued at over \$30,000,000, and a force of approximately 451 who are paid in round figures \$1,000,000 a year in salaries to carry on the work (an average salary of \$2,100 per employee). After the payroll, there is a sum of less than \$300,000 to do things with, and when there are deducted from this sum the amounts required for maintenance, heating, lighting, repairs, telephone, and other items, approximately \$70,000 only is left for scientific and educational work. That is — expeditions, purchases of collections, preparation of exhibits, changing old exhibits and developing new ones, publications, research by our scientific staff, departmental allowances and all other work of this nature have to be compressed into this totally inadequate figure.

It is relatively simple to obtain financial help for definite projects which have a special appeal to the individual donor. These projects are important and contribute to the usefulness of the institution. However, they are fruitless unless general operating funds can be maintained to employ an adequately paid scientific and administrative staff on a basis that will permit them to achieve their maximum usefulness. The most carefully prepared exhibits demonstrating the fundamental principles of biology, for example, are of little use unless the building in which they are housed can be kept open.

What is the answer? The American Museum of Natural History has an opportunity unique in all the world, because, by reason of its collections and scientific staff, it is the largest organization of its kind in existence. It can fulfil its responsibilities only if it is given the facilities with which to do so. That will require an ever wider basis of support, supplied by agencies, public and private, and individuals who are imbued with the conviction that man can better guide his future by understanding more completely himself and that multitude of mysterious forces which we call Nature. The realization of the Ten Year Development Program would constitute a real step forward towards that objective.

II. SCIENTIFIC AND EDUCATIONAL PROGRESS

ROY CHAPMAN ANDREWS, Director

As stated elsewhere in this report, we are gratified that it is now possible, through appropriation by the City, to keep all our halls open, and to reopen the south entrance on Seventy-seventh Street. Two large entrances are now available, the newer entrance being that on Central Park West at Seventy-ninth Street, in the New York State Roosevelt Memorial section.

Again we wish to say a word of appreciation of our Park Commissioner, Mr. Robert Moses, for the improvement in the grounds surrounding the Museum. In 1936, the grading, sowing of grass, planting of trees and the placing of stone benches added much to the attractiveness of Manhattan Square. In 1937, an iron fence with stone pillars, ramps to the east and west doorways, and block asphalt sidewalk have further modernized the aspect of the Museum surroundings.

We wish to acknowledge the action of the Mayor, the Commissioner of Parks, the Budget Director and the Board of Estimate and Apportionment in making available an appropriation of \$109,800.00 of the Capital Outlay Budget for 1937-1938 for construction purposes in the Museum. This sum represents the work of reconstructing roofs and skylights, public toilets, and heating and lighting systems in the old building and in exhibition halls.

Of the above \$109,800.00, \$50,000.00 was allowed for the initial work of the three years' program for case construction in the new North American Mammal Hall, the North Asiatic Hall and the Hall of Ocean Life. It is with a great deal of pleasure that we mention that all the work under the 1937-1938 program has been completed, and new requests have been made to the Board of Estimate for more funds in the Capital Outlay Budget for 1938.

We wish also to express our appreciation of the effective work done by the U. S. Works Progress Administration staff, under the supervision of our Curators and administrative officers. This includes assistance in many fields, that could not have been provided for by our budget.

As the reports on the following pages show, progress is being made in New Exhibits, Research and Publication, Expeditions, and in routine departmental work of many kinds. Much of this work has been carried

on through the generosity of friends who have contributed toward expeditions and preparation; and a devoted staff is seeking always to increase the effectiveness of the Museum as an educational center.

The following resolution on the death of Dr. George H. Sherwood was unanimously adopted by the Council of the Scientific Staff on May 3, 1937:

Whereas, the death, on March 18, 1937, of Dr. George H. Sherwood, Honorary Director of the American Museum of Natural History, was the passing of an individual so intimately associated with every Museum activity for so long a period that his loss will be felt throughout the entire institution, and

Whereas, the members of the Scientific Staff have enjoyed with the late Doctor Sherwood the close relationships of understanding Director and personal friend, and

Whereas, the late Dr. Sherwood was an active member of the Council of the Scientific Staff, and always an interested participant in the deliberations of this body,

Now Therefore be it Resolved, that the Council hereby records its sense of deep loss in the death of Dr. George H. Sherwood and its expression of appreciation for the many years of devoted and loyal service he has given to the American Museum.

A TRIBUTE TO A FRIEND*

By ROY CHAPMAN ANDREWS

Director, *American Museum of Natural History*

I cannot write of George Sherwood other than in a very personal way. For many years he has been my closest friend. He was the first person to whom I spoke when, as a boy just out of college, I came to the Museum on a steaming July day in 1906 asking for a job. Doctor H. C. Bumpus was then Director and George Sherwood was his assistant. I shall never forget the warm smile of welcome with which he met me as I walked into his office. That was almost thirty-one years ago and that same wonderful smile has always lighted his fine eyes during these long years of friendship. It was the key to the warm affectionate nature of a man who never failed in sympathy to one in trouble, and in joy for the happiness of his friends.

He died in the Museum surrounded by his friends, where almost literally his life has been lived. As he was walking to the lecture hall to introduce Peter Freuchen his overstrained heart gave way. His last words were, "I can't do it. Tell Doctor Fisher to carry on."

He was a good soldier. For years he knew that the shadow of death hovered always in the background; that it might descend at any moment to take him from those he loved. Yet never have I heard him utter one word of complaint. The keen edge of his delightful humor was never dulled; no one could have guessed what he carried in his heart.

After graduating from Brown University in 1898 he came to New York in 1901 to join the staff of the Museum as Assistant Curator of the Department of Invertebrate Zoology. From that year until his death on the evening of March 18, 1937, most of his waking hours were spent within the walls of this institution.

He passed through various positions in the Museum until upon the retirement of Doctor F. A. Lucas in 1924 he became its Acting-Director, and Director in 1927.

Although Doctor Sherwood had been warned repeatedly by his physician that his health was in a serious condition, he could not be made to spare himself. In March, 1934 the inevitable happened and he had a serious heart attack while sitting at his desk in the Director's office. During the long months of inactivity first in New York and then at his summer place on the beach near Clinton, Connecticut, his cheer-

*From *Natural History*, April, 1937.

fulness never failed; always there was the one thought of how soon he could get back to give more of himself to his beloved Museum.

No one knows better than I what a blow to him it was to learn from his doctors that he could not carry on the strenuous duties of Director. He said to me a dozen times, "I want to go out here—on the job—where I've always worked."

Yet he took the blow standing up; faced it as he faced all things in life—with a smile. He was made Honorary Director on January 7, 1935 and devoted himself energetically to the Department of Public Education of which he had been Curator since 1906.

Of all the varied work in the Museum he was most interested in education. It was under his direction that the department became a living vital force in the visual education of New York City and the nation. At the time of his death, ninety-two per cent of all the schools in the metropolitan district are being served in one way or another by his department. The impressive record of forty million contacts with school children during 1936 tells its own story of the magnitude of his work.

During the years of his Directorship of the Museum there was not a department and hardly an individual who did not have contact with his friendly personality. To the varied problems which are the Director's he brought always the strict honesty, the sense of justice, the humanness and friendly spirit which were his abiding characteristics.

No one hated eulogy more than he. George Sherwood was a simple, genuine, kindly man who preferred to have his record tell its own story of his work. In the truest sense his life was one of unselfish service to the American Museum and his fellow men.

NEW EXHIBITS

Astronomy and the Hayden Planetarium.—The Hayden Planetarium, now in its third year of operation, holds a unique place among educational institutions of our great city, for here the science of astronomy is made a fascinating study to even the youngest visitors. And apart from its educational value it continues to present a form of entertainment that gives to the visitor a never-to-be-forgotten experience of inspiration and beauty.

The attendance figures for the calendar year are as follows: Paid attendance, 498,396; classes (free), 73,310; total, 571,706. An increasing number of people attend regularly and take advantage of the special subscription rates for monthly visitors.

The lecture subjects change monthly. In addition, a series of lectures on "The Constellations" were given on six successive Thursday evenings, beginning April 22, by members of the Planetarium staff. These lectures were held in the Planetarium dome and were illustrated with the Zeiss instrument and motion pictures and lantern slides.

Special performances have been given in the Planetarium for various organizations, including the American Society for Testing Materials, American Institute of Accountants, Girl Scout Leaders, Standard Oil Company of New Jersey, and three performances to the Cadets of the U. S. Naval Academy.

The Hayden Planetarium, in cooperation with New York University, has held two sixteen-week courses in Celestial Navigation on Wednesday evenings from 8 to 10 o'clock, under the direction of Commander P. V. H. Weems of the Weems System of Navigation, Annapolis, Maryland. These courses are planned for navigators and aviators who wish to extend their knowledge of celestial navigation. Some of the lectures in each course are given in the Planetarium dome, by Mr. William H. Barton, Jr., using the Zeiss projection instrument.

During 1937, improvements have been made in the sound equipment in the Planetarium, and additional apparatus devised for use in the display of the Southern Aurora, The End of the World lecture, the Eclipse of the Sun, and the illuminated models which illustrated the Christmas Star story.

The Department of Astronomy and the Hayden Planetarium has been fortunate in receiving from generous friends many items for exhibition, some as gifts and some on loan.

Six beautiful canvases by the late D. Owen Stephens, painted in Peru on the Hayden Planetarium-Grace Peruvian Eclipse Expedition, and generously presented by the Junior Astronomy Club.

A large collection of photographs made by the Eclipse Expedition in Peru. The great eclipse camera used in photographing the solar eclipse. An animated model of the Peruvian eclipse showing the successive phases of the phenomenon.

A model of the Grace Line ship which carried the eclipse party to Peru, lent by the Grace Line.

The David Eugene Smith collection of rare astronomical and mathematical instruments and books, lent by Columbia University.

Three series of astronomical paintings and drawings, lent by the artists: Messrs. James Perry Wilson, Harry Sutton, Jr., and Arthur-Louis Sands.

Temporary exhibits: Portrait in oils of Einstein, painted and lent by Mr. J. J. Muller; "The Holy Family" by Knaus, lent by the Metropolitan Museum of Art; "Galileo in Prison" by Hessel, lent anonymously.

Four pencil renderings, by Mr. Rockwell Kent, illustrating possible ends of the world, lent by *Life* magazine.

An old French celestial sphere, presented by Miss Anna Lord Strauss and Miss Mildred Sawyer.

A 21-inch telescope mirror-blank, the grinding of which was carried on in the Planetarium corridor by members of the Optical Division of the Amateur Astronomers Association. This will eventually be completed as the mirror of a large reflecting telescope.

The Mystery Clock, exhibited years ago by P. T. Barnum, lent to the Planetarium by Dr. Edwin Franko Goldman.

Accelerograph, a specialized type of seismograph, lent by the U. S. Coast and Geodetic Survey.

A large collection of precision instruments for measuring time, speed, etc., in navigation and aviation, lent by the Longines-Wittnauer Co., including many historic chronometers and watches used by famous explorers.

A 12-inch reflecting telescope fully mounted, made and presented by J. W. Fecker.

An armillary sphere for demonstration, made and lent by Mr. Charles Roth of Cooper Union.

A large collection of surveying instruments used by Admiral Richard E. Byrd on his Antarctic expedition and lent by the W. and L. E. Gurley Co.

Original issues of the New York *Sun* for 1835, which ran the famous "Moon Hoax," lent by the New York *Sun*.

A collection of old spectacles, lent anonymously.

A model of a modern observatory, complete with telescopes, made and lent by R. Hutchinson, Inc.

Two rare perpetual almanacs of Zacut, one of the same edition as that used by Columbus, lent by the Jewish Theological Seminary of America.

A series of astronomical photographs taken and lent by William Henry.

Mineralogy.—A large rock crystal sphere has been mounted on a tall pedestal at the entrance of the Morgan Hall. Beneath this, a device, consisting of rotating disks of colored glass, throws a cycle of color combinations through the quartz sphere which acts as a "Cosmic Color Mixer." The effect of the introduction of the "Crystalight" has been to double the attendance in the Morgan Hall.

Among the timely exhibits temporarily placed in the mineral accession case were: (1) Examples of the rare and new species, englishite, lewistonite, lindgrenite, powellite and dakeite. (2) A suite of the rare and recently discovered minerals of the Kola Peninsula, exchanged with Dr. W. J. Kjiranowsky. (3) Two series illustrating the minerals of typical pegmatite localities at Portland, Connecticut, and Varutrask, Sweden, collected by Dr. Frederick H. Pough.

For six months including the summer and fall there was exhibited in the gem accession case an important loan collection showing jewelry settings which predated the present century. This beautiful and valuable series comprising forty-nine pieces was lent through the courtesy of an anonymous friend of the Department.

Vertebrate Palaeontology.—Dr. Edwin H. Colbert continued his supervision of the modification of exhibits in the Osborn Hall of Tertiary Mammals. In this work he was most ably aided by Mr. Robert G. Chaffee of the preparation staff. The south side of the hall, setting forth the evolution of the perissodactyls, is now in fairly good shape. During the year, work was begun on the north side of the hall, with particular regard to the exhibits of carnivores and artiodactyls. These exhibits are in a sense temporary, since the north side of the hall will be rebuilt eventually, but until such time it is quite necessary that the exhibits be brought up to date. Most of the exhibits now being arranged on the north side of the hall can be adapted readily to the cases in their final

form. Progress on this work has been greatly hampered by the lack of funds, especially for labels, charts and diagrams.

The temporary exhibit of Patagonian fossils has been enlarged by the addition of several interesting specimens.

Geology.—Early in 1937, layout sketches of the third floor corridor space to the south and west of the Central Pavilion were prepared by Curator Chester A. Reeds for the installation of cases and exhibits for a Hall of Petrology. So far as possible, cases already in existence were assembled from various parts of the building; some were remodeled and all were repainted. A few new cases and various wooden bases for large specimens were built and painted.

The building stones and their cases were transferred from a first floor corridor to a corresponding position on the third floor. Glass-metal cases containing rock exhibits were also transferred from the first floor to the third floor. Various small case exhibits, including window transparencies and a stope model, were removed from the main geology hall, fourth floor, to the third floor. Relief models, which had been hung in various parts of the building, were assembled and mounted on the stairway wall and in other convenient spaces. Mr. Bert F. Zellner and Dr. H. E. Vokes, and the Building Superintendent's force of men, assisted Curator Reeds in transferring and installing the various exhibits.

In an eight-paneled remodeled case, painted backgrounds of typical volcanoes were projected. When the eight proposed paintings are completed, volcanic specimens will be placed in the case beneath the illustrated backgrounds. Five of these paintings on curved surfaces were done by W.P.A. artists. Mr. Frank Vallone painted views of Vesuvius, Pompeii and Mont Pelé. Mr. Paul Brabazon painted a view of the 1914 eruption of the Japanese volcano Sakurajima. Mr. Andrew R. Janson made a preliminary sketch of the "Lake of Fire" in Halemaumau pit, Kilauea volcano, Hawaii. Mr. A. H. Niles repainted topographic and geologic relief models of the State of New Jersey. Mr. I. C. Conforti repainted and re-lettered the geologic model of New York City and vicinity. Mr. P. Gagliardi, draftsman, prepared drawings of three types of exhibition cases. Since June he has been engaged in the drafting of a contour map of the submarine canyon of the Hudson River, based upon Coast and Geodetic Survey maps and recent sonic depth soundings supplied in map form by Dr. A. C. Veatch. When this map, in four sections, is completed, it will be used in the construction of a relief model of the Hudson Submarine Canyon. A relief model of Bryce Can-

yon National Park prepared by W.P.A. workmen in San Francisco was installed in December as an entrance feature.

When completed these exhibits will contain: (1) Geological models of various regions. (2) An exhibit of typical volcanoes and specimens. (3) Metallic and non-metallic ores. (4) A copper mine stope model. (5) Coal and its derivatives. (6) A rock classification series. (7) Building stones. (8) Memorial stones. (9) Common rocks. (10) Local geology models with rock and fossil specimens.

Living Invertebrates.—The noteworthy set of models of the primitive chordate, *Amphioxus*, for which four models were reported as completed for the year 1936, was amplified in 1937 by the construction of four additional models by Dr. George H. Childs assisted by Mr. Herman O. Mueller under the direction of the Curator, Dr. Roy W. Miner. This completes the series and has proven an important resource for high school and college institutions in connection with the study of the origin of the vertebrates. The exhibits are installed in the Chordate Alcove of the Darwin Hall.

During the year Mr. Herman Mueller has added two new items to the comparative series of rotifer models installed in the Darwin Hall. These represent the species *Brachionus capsuliflorus* and *Euchlanis dilatata*. This series of models now includes twenty-six items and has been regularly utilized by instructors and students of the universities and high schools within access of the Museum.

Mr. Mueller has also added two beautiful models to the series of Radiolaria which have attracted so much attention in the Darwin Hall. These represent the species *Coelographis regina* and *Pleuraspis horrida*. The marvelous skill with which these models are constructed has received wide attention both in this country and abroad and has attracted much publicity in the newspaper world, magazines, and motion pictures.

A synoptic series of the important invertebrates found within the State of New York has been installed in the South Corridor of the Theodore Roosevelt Memorial, first floor. This exhibit comprises mounted specimens, models, and specimens preserved in fluid completely labeled for the use of students.

Entomology.—A noteworthy addition to the exhibits of insects is the display in the Theodore Roosevelt Memorial of all the species of butterflies and of some of the moths known to occur in New York State.

The rearrangement of exhibits in the Hall of Insect Life has been under consideration during the past year. This work has been held in abeyance because of the delay in securing permanent steel fronts for

the insect groups, and the redecorating of the hall. This work is now in progress and as soon as it is completed we hope to include new exhibits in our plans for rearranging the collections.

Ichthyology.—During the past year the following important exhibits were installed in the Hall of Fishes:

A model of a 601-pound Swordfish, the gift of Mr. Michael Lerner, Field Associate.

The skeleton of a 535-pound Swordfish, also given by Mr. Lerner.

A mounted White Marlin, the gift of Mrs. Michael Lerner.

All these fishes were caught on rod and reel by the donors.

A young Swordfish in transition stage to adult, gift of Mr. Edgar Greason, Jr. This specimen supplied valuable evidence bearing on the structure of the sword in the Broadbill.

A mounted Mackerel Shark, caught by Mr. Winston Guest.

A mounted Man-eater Shark, caught by Mr. Francis Low.

A Pointed-tail Ocean Sunfish, collected by Mr. Al Pflueger.

A Barracuda skeleton, gift of Mr. Theodore Schneider.

New case: Giants of the Mackerel Tribe, illustrating trends of specialization in the mackerel family.

New case: Giants of the Bass Tribe, illustrating trends of specialization in the bass family.

A mounted Albino Tarpon, gift of Mrs. John L. Kuser.

Tropical Ocean Group: It was long the plan and desire of the founder of this department, the late Dr. Bashford Dean, to have among the groups in the Hall of Fishes one showing the fishes of a typical stretch of sand-bottom. Such a group has now been made possible through the generosity of Mr. Michael Lerner. The group is under preparation, based largely on data brought back from Bimini, Bahama Islands, in the summer of 1937. The mounted Whale Shark, presented by Mr. Charles T. Wilson, will hover above the level of the small fishes of the sandy bottom and coral banks.

Herpetology.—An exhibit of reptiles and amphibians of the New York City area was installed in the ambulatory of the Theodore Roosevelt Memorial building, first floor. The mounted specimens were supplemented by a series of colored transparencies which show certain interesting features in the life history of the different forms. The exhibit is not yet complete but will be added to as material becomes available.

In the Hall of Reptile Life a new exhibit of snake-bite treatment was installed, and the rattlesnake case brought up to date with maps and new explanatory data. The exhibit of live reptiles at the far end of the

hall has proved a great success and many instructive stories in regard to the adaptation, speciation and life history of reptiles and amphibians were told in the course of the year. For example, we were able to contrast the American and African chameleon, the albinism in snakes, due to mutation, with bleaching produced in a desert habitat, the terrestrial red eft of the local area with local aquatic green adults of the same species and the different modes of life history in the local species of salamander. The story of the economic importance of toads was demonstrated with live specimens; the extraordinary spreading behavior of the local hog-nosed snake was shown and contrasted with that of a cobra. Zoos have made little attempt to bring this story of reptile and amphibian life into their exhibits. It requires a unique combination of living and mounted specimens which the Reptile Hall has been able to supply.

Experimental Biology.—Early in the year the room originally planned as a cafeteria in the Theodore Roosevelt Memorial was made available for an exhibition hall. With very little alteration this hall has been transformed into one of the most interesting exhibits in the Museum. Hardly a day goes by without some visitor to the Museum wanting to know why certain animals behave in particular ways. The mechanisms regulating the behavior of animals and men are fairly well known but no museum has until now attempted to show these various mechanisms in the form of a well-rounded exhibit. The chief reason for this is that behavior is dynamic, requiring exhibits with parts which move when the visitor presses a button.

At the Chicago World's Fair it was clearly shown that this type of exhibit can fascinate the public while telling a serious scientific story. Certain dynamic exhibits shown at the World's Fair were bought by museums, but the Department of Experimental Biology of this Museum, confronted with the problem of telling the story of the animal mind, had to build its own demonstration from the very beginning. Fortunately at this point the Works Progress Administration lent a helping hand and made available a group of artists, sculptors and technicians who have built a series of exhibits which at the moment fill about one-third of the hall. These demonstrations show the world as seen through the eyes of a dog, hen, trout, snapping turtle and house fly, respectively. They bring out that there are physiological, physical and psychical differences between the different groups of animals which make their worlds very different from ours.

Another exhibit shows the mechanism of schooling in fish, and another the chemistry of parental behavior. A microvivarium has been

installed to show the behavior of one-celled and other simple organisms. The largest single exhibit in the hall is intended to show the mechanism of color change in animals. An enlarged figure of a chameleon capable of rapidly changing its color is flanked on one side by a section of the same animal to show how the hormones flow through the body to effect the movements of the pigment cells. On the other side an enlarged section of the skin demonstrates how the pigment cells move to produce the various colors. The hall when complete will show many other aspects of animal behavior. The many resemblances as well as the differences between the behavior of man and animals will be portrayed.

Ornithology.—Several of the groups of Pacific birds in the Whitney Memorial Hall (not yet open to the public) have been completed, or nearly so, and others are well advanced. The Ship Followers Group, started last year, was first to be completed. The Peruvian Coastal Islands Group is finished, except for some alterations in the painting of the background, and the Nukahiva (Marquesas Islands) Group is in the same stage. The groups for the Galapagos Islands and the Tuamotus have their backgrounds painted and the accessories prepared, and are awaiting the mounting of the birds to be placed in them. Work on the background of the Samoan Group is under way by Mr. F. L. Jaques, who is responsible for the backgrounds of the other groups in this hall.

Plans for the exhibits in the Hall of Biology of Birds have gone forward under the direction of Dr. R. C. Murphy with the assistance of Mr. Thomas Gilliard.

Mammalogy.—The completed mammal groups in the Akeley Memorial Hall of African Mammals grew in number during the year; and with the securing of pledges to donate the remaining groups, the close of 1937 saw the hall virtually on the threshold of completion. The African groups that were finished during 1937 were the South African Group and the White Rhinoceros Group, both on the balcony.

The past year brought an active start upon the new Hall of North American Mammals, a project planned some years ago but delayed because case construction in the new hall was suspended when the depression curtailed City appropriations for that wing. Under the active leadership of Mr. Robert E. McConnell, an enlarged Committee made an impressive beginning upon this hall. The cases for nearly one-half of the hall were well toward completion at the close of the year, and pledges had been secured to cover the costs of collecting and mounting eight major groups. Some of the actual collecting of the material was done before the year ended,—in the case of the Rocky Mountain Goat

Group, the Bison Group and the Elk Group. Taking everything into consideration, the response from the sportsmen friends of the Museum, when it was learned that groups of North American mammals are to be built up to the highest possible standard, justifies an optimistic prediction for the early completion of the hall.

Groups Pledged

Bison Group	Mr. Robert E. McConnell
Rocky Mountain Goat Group	Mr. Harold B. Clark
Alaska Moose Group	Mr. Wilton Lloyd-Smith
Osborn Caribou Group	Mr. Wilton Lloyd-Smith
Grant Caribou Group	Mr. Wilton Lloyd-Smith
Virginia Deer Group	Mr. E. Roland Harriman
Elk Group	Mr. W. L. Honnold
Bighorn Sheep Group	Mr. Harry P. Davison

Case construction has begun in the new Hall of North Asiatic Mammals, and the Committee for that hall, Mr. Suydam Cutting, Chairman, is prepared to push the installation of habitat groups as rapidly as available personnel will permit. With habitat groups being built simultaneously in several halls, the availability of preparators is one of the prime limiting factors. The Giant Panda Group, collected by Mr. and Mrs. Dean Sage, Jr., will be an early installation in this hall and most of the group has already been built. Specimens are now in the Museum to serve as the basis for a number of other groups.

Comparative and Human Anatomy.—The exhibit in the Hall of the Age of Man representing the prehistoric human races of the Ice Age received a notable addition in the model of the Peking skull, presented by Professor Franz Weidenreich of the Cenozoic Research Laboratory, Geological Survey of China. The exhibit as a whole was revised and partly rearranged by and under the direction of Dr. George Pinkley and the cases containing the exhibit were regrouped in better positions in the hall. A revised guide leaflet describing the entire exhibit was prepared by Dr. Gregory and Dr. Pinkley (to be issued in 1938).

Anthropology.—For the Hall of the Woodland Indians, two special small-scale diorama groups have been completed, one representing the use of bark fibre in spinning and weaving, the other representing agriculture among the Woodland Indians, showing the cultivation of maize, sunflowers, and tobacco. In addition, three small groups were placed in the regular exhibition cases, representing a rock shelter in Manhattan Island, and the uses of maize.

In the Southwest Indian Hall, important changes in the archaeological section were made by Curator N. C. Nelson.

Considerable progress has been made in labeling the exhibits on the ground floor, and plans have been completed for the reinstallation of the Hall for Asiatic Ethnology on the third floor.

In the Mexican Hall, Dr. George C. Vaillant added new material and made fundamental changes in the position of the cases, giving the hall a more satisfactory open effect.

In the Hall of the Races of Man, two large pictorial charts are practically complete and ready for installation. The section representing endocrine influences is practically complete; the modeled figures of dwarfs, giants, etc., are now in place. The technical assistants in the preparation of these exhibits were provided by the W.P.A.

There have been minor revisions made in the exhibits and in the labeling of certain cases in all the exhibition halls.

RESEARCH AND PUBLICATION

Astronomy and the Hayden Planetarium.—*The Sky*, monthly publication of the Department of Astronomy, has continued to increase in popularity and in circulation. Enthusiastic correspondents constantly proclaim it the best popular magazine of astronomy in print. This magazine serves to present astronomy in a popular or semi-technical form to the lay reader, and to build up and maintain interest in the Planetarium program. During the year 1937, *The Sky* increased its number of subscribers from 2,180 to 4,809.

Decision was reached in December of 1937 to transfer *The Sky* from the Publicity Department, under Mr. Adamson's editorship, to Astronomy and the Hayden Planetarium, under Dr. Clyde Fisher, thus allowing Mr. Adamson more time for the publicity program. The transfer will be effected early in 1938.

Mineralogy.—During the year 1937, Dr. Frederick H. Pough has published the results of mineralogical research in the following papers: "The Morphology of Wardite," in *American Museum Novitates*; "Crystallized Powellite from Tonopah, Nevada," in *American Mineralogist*; "The Morphology of Gordonite," in *American Mineralogist*.

Research work upon material furnished entirely or in part by the Museum's mineral collection was embodied in the following papers by Mr. Clifford Frondel of the Massachusetts Institute of Technology:

"Some Mineral Incrustations Selective upon Crystal Forms," in *Novitates*; also, in collaboration with Mr. George E. Ashby, "Oriented Inclusions of Magnetite and Hematite in Muscovite," in *American Mineralogist*.

In the line of popular articles, the Curator has published: "Chinese Designs" and "The Eight Immortals" in *Natural History*; "Jade, A Popular Study," *The Jeweler's Circular-Keystone*; "Aquamarine and Zircon," "Opal, Turquoise and Lapis Lazuli," and "Some Well Known Kinds of Quartz," in *The News Letter*, Philadelphia.

Vertebrate Palaeontology.—The most important publication to appear this year was "Paleocene Faunas of the San Juan Basin, New Mexico," a posthumous memoir by Dr. W. D. Matthew, published in the *Transactions of the American Philosophical Society*. This paper, perhaps Dr. Matthew's greatest single contribution to Palaeontology, was edited by Dr. Edwin H. Colbert, assisted by Miss Florence S. Milligan.

Two *Bulletin* articles and ten *Novitates* were published by the Department during the year and a number of other papers are in press.

Studies were completed by Dr. Barnum Brown, in collaboration with Dr. Erich Schlaikjer, on the complete skeleton with parts of skull and jaw, of the spiny-frilled ceratopsian *Styracosaurus parksi*. Description of this new species was published in *Novitates*.

A manuscript by Dr. Brown was made ready for publication, on an extinct barren ground caribou from the Pleistocene of Montana. Another manuscript almost completed covers descriptions of a Lower Cretaceous fauna from southern Montana and northern Wyoming. The discovery and description of a new element in ceratopsian jaws is an important contribution to the knowledge of these dinosaurs. This manuscript is ready for publication. Considerable time was spent in the study of skeletal structure and reconstruction of several European pterosaurs. Several articles were published in *Natural History* and elsewhere.

Dr. Walter Granger, in collaboration with Dr. William K. Gregory, completed the studies begun in 1936, on the very extensive collection of Mongolian titanotheres obtained by the Central Asiatic Expeditions.

Volume XI, Part 1, of "Natural History of Central Asia" went to press and considerable time was spent by Dr. Granger on this volume as editor. This is the volume on "The Mammals of China and Mongolia," by Dr. Glover M. Allen, which has been awaiting publication for several years.

Work continued on early South American vertebrates, by Dr. G. G. Simpson, including an extraordinary representative of a new suborder of Crocodilia, another new but less bizarre genus of crocodiles, a new genus of horned turtles, and a new genus of marsupials. A full description of the second of these has been published in *Novitates*, and papers on the last two are in press. A general review of marsupial history in South America was also completed and is in press. Research and publication on the Fort Union mammals of Montana were continued and essentially completed, as far as collections yet made permit. A study of Mongolian literary and colloquial names of mammals was completed and sent to press. A long work on the use of numerical data in zoology and palaeontology was nearly completed. Twenty-three papers by Dr. Simpson were published during the year. Six others were completed and placed in the hands of the editor, and several others were well advanced.

Dr. Colbert completed the study of the fossil mammals from Burma, collected by Dr. Barnum Brown. The manuscript, consisting of some 260 pages and 64 figures, was presented for publication in the *Museum Bulletin*. A preliminary report describing a new and important Upper Eocene primate from Burma was published as a *Novitates* paper.

An extended study of the Carnivora from the Tung Gur formation of Mongolia was completed by Dr. Colbert and awaits publication in the *Museum Bulletin*. In this connection it might be mentioned that a study was made of the anchitheriine horse discovered by the Central Asiatic Expeditions in the Tung Gur formation. This paper is virtually completed.

Studies were continued by Dr. Colbert on the new Siwalik collection made by Dr. Hellmut de Terra and Dr. Teilhard de Chardin. This collection, when fully studied, will be divided among the American Museum, Yale University and the Geological Survey of India. It was necessary to suspend the Siwalik study, however, in order that Dr. Colbert might be able to concentrate on writing the geologic section of Volume II of Professor Osborn's monograph on the fossil Proboscidea. This is a long and tedious task, for it amounts to a discourse on the upper Cenozoic continental stratigraphy of the world. When this has been completed, work will be resumed on the Siwalik collection.

A study of the Pliocene peccaries of the Pacific coast region was completed by Dr. Colbert. This study was based on material lent by the California Institute of Technology. A paper on this subject is being published by the Carnegie Institution of Washington. Another paper

brought to completion during the year was a detailed study of the okapi, wherein it was compared with certain fossil giraffes to which it is closely related. This paper is being published in the *Journal of Mammalogy*. A preliminary notice of a new bunodont artiodactyl from the Upper Eocene of Beaver Divide, Wyoming, was published in the *American Journal of Science*. This notice will be followed by a detailed report, now in the hands of the Carnegie Museum of Pittsburgh. A paper entitled "The Pleistocene Mammals of North America and their Relations to Eurasian Forms" appeared in the volume "Early Man" (J. B. Lippincott)—a result of the Symposium on Early Man held at the Academy of Natural Sciences of Philadelphia in March, 1937.

During 1937 the work on the Crocodilia memoir by Dr. C. C. Mook progressed steadily. Some of the studies that were made in Europe in the summer of 1936 have been incorporated in the manuscript, and studies from the literature have made considerable progress. Dr. Mook has been aided in the work by Mrs. E. M. Schlaikjer, Miss Hortense Block and Miss Elizabeth Mook. More than four hundred photographs have been prepared, mounted and captioned, and substantial progress has been made on the bibliography. The work has received support from the Osborn Research Fund, from a grant from the Geological Society of America and from Federal National Youth Administration funds.

Research in the Department on American Museum specimens by workers not on the American Museum staff included the following:

Professor William B. Scott, of Princeton University, continued his study of our collections, particularly those from the White River Oligocene, in connection with his monographs on the White River faunas.

Dr. Albert E. Wood, Assistant Geologist, United States Army Engineers, Binghamton, New York, collaborated with Professor Scott in this work, and the results of his studies on the White River Rodentia were published in the *Transactions of the American Philosophical Society* in 1937.

Dr. Horace E. Wood of Newark University continued his studies of the Mongolian rhinoceroses in the American Museum collection.

Mr. Robert Denison of Dartmouth College Museum completed his research work on the American Museum creodont collection and his results will be published during 1938.

Mr. F. Gaynor Evans has been engaged in research on the skeletal structure of some of the Permian reptiles.

Mr. J. J. Burke, of Carnegie Museum, is continuing his studies

of some of the Mongolian rodents collected by the Central Asiatic Expeditions.

Mr. Bryan Patterson of Field Museum has been engaged in studying part of the American Museum collection from Patagonia.

Dr. Robert Broom, of Pretoria Museum, South Africa, spent considerable time in studying the American Museum collection of primitive reptiles. One *Novitates* was published on his results.

Dr. Erich M. Schlaikjer, of Brooklyn College, finished his description of several new forms of Tertiary fishes from Alaska, and the paper was published as one of the *Bulletin* series. He also collaborated with Dr. Brown in the study of a new species of *Styracosaurus*, description of which was published by them as co-authors, in *Novitates* form. Dr. Schlaikjer has undertaken, under Dr. Brown's direction, the study of the *Protoceratops* collection from Mongolia.

Dr. Charles T. Berry, of Johns Hopkins University, published as a *Novitates* a more complete description of a chelonian originally described by Cope, from a new specimen found by Dr. Berry and presented to the American Museum.

Dr. Chester Stock, of the California Institute of Technology at Pasadena, made his usual autumn visit to the Department for the purpose of comparing specimens from the various early Tertiary horizons of southern California with specimens of corresponding age in the American Museum collection.

Geology.—The "Catalogue of the Meteorites in the American Museum of Natural History," by Dr. Chester A. Reeds, was issued in July, in the American Museum *Bulletin*.

Curator Reeds prepared two book reviews for *Natural History* and did research on soil erosion problems in the United States.

Dr. H. E. Vokes prepared three *Novitates* articles: "Eocene Mollusca from the Subathu Group (Lutetian) Simla Hills State, India"; "A Large *Tentaculites* from the Shriver Formation (Oriskany) of Pennsylvania," in press; and "Upper Miocene Mollusca from Springvale, Trinidad, British West Indies," in press.

Dr. H. N. Coryell and Miss Suzanne Fields of Columbia University prepared a *Novitates* paper: "A Gatun Ostracode Fauna from Cativa, Panama."

Living Invertebrates.—During the year 1937, Dr. Willard G. Van Name has continued his study on ascidians to provide a thorough revision of the group.

The following articles were published in *Novitates*: "The Physiology, Life Cycles and Phylogeny of the Parasitic Flatworms" by Research Associate Horace W. Stunkard; "Rotifera from the Adirondack Region of New York" by Research Associate Frank J. Myers.

Dr. Roy W. Miner published an article in *Natural History*, entitled "What is a Mollusk Shell?" He published an article in *The National Geographic Magazine*, entitled "Denizens of Our Warm Atlantic Waters." Another article is completed for the same magazine, entitled "The Pearl Lagoon of Tongareva."

The following articles for *Novitates* are in the hands of the editor: "New Species of Rotifera from the Collection of The American Museum of Natural History" by Mr. Frank J. Myers; "Taxonomic Studies on the Hydras of North America, (V) Description of *Hydra cauliculata*, n. sp., with Notes on Other Species, Especially *Hydra littoralis*," by Dr. Libbie H. Hyman; "Studies on the Acoela, Rhabdocoela and Alloecoela of North America, (II) Rediscovery of the Turbellarian, *Hydrolimax grisea* Haldeman," by Dr. Libbie H. Hyman; "Studies on the Acoela, Rhabdocoela and Alloecoela of North America, (III) *Mesostoma arctica*, n. sp., A Turbellarian from Northern Canada," by Dr. Libbie H. Hyman; "New Species of Gastrotricha—*Chaetonotus robustus*, n. sp.," by Mr. Donald B. Davison.

Mr. Myers is preparing additional papers on rotifers, Dr. Stunkard on parasitic worms, and Professor A. L. Treadwell on marine annulates.

Curator Miner continued his research work on corals.

The extensive collections brought back by Dr. Miner in connection with the Templeton Crocker Expedition to Tongareva and Samoa are being worked upon by various specialists who will prepare papers for publication.

Entomology.—Curator Frank E. Lutz, in collaboration with Mr. Albert R. Brand, has continued the making and study of records of insect sounds. This collection of records is unique and, although far from complete, already outlines the field. The progress of their taxonomic work on insects has been very satisfactory, especially in view of the fact that the staff is distinctly too small for the large task on hand. Twenty-five papers on a variety of groups, including the descriptions of 171 new forms, have been published by members of the Department staff.

Ichthyology.—Since the class of fishes stands at or near the base of the tree of life of the vertebrates, the Department of Fishes cooperates actively with other departments and institutions and investigators that

are interested in vertebrate evolution. By such cooperation the following works were either published or brought to completion during 1937:

"The Anatomy of the Frilled Shark (*Chlamydoselachus anguineus* Garman)" by Professor Bertram G. Smith. In this, the sixth paper of the Bashford Dean Memorial Volume, the author's mastery of both comparative and human anatomy has enabled him to produce a most satisfactory account of the anatomy of this relic of vertebrate life and to determine its true place as a highly specialized form that conserves certain very ancient characters.

The memoir by Dr. E. Grace White, in the *Bulletin* of the Museum, on the interrelationships of the elasmobranchs, deals in a compact, graphic and convenient manner with the evolution and classification of the ancient and modern cartilage fishes (sharks and rays).

The studies on the classification and evolution of the Characin fishes (a highly diversified group found in South and Central America and Central Africa), by Dr. William K. Gregory and Mr. G. Miles Conrad, were practically completed by the close of the year. A summary of the principal results was presented at the Washington meeting of the American Society of Ichthyologists and Herpetologists, and the work itself will be published in the *Museum Bulletin*.

Studies by Dr. E. W. Gudger on the natural history and distribution of the ocean sunfishes led to a study of evidence bearing on the origin and evolution of that strange group by Dr. Gregory and Mr. H. C. Raven. The evolution of the ocean sunfishes has been illustrated by a striking series of drawings made by Mrs. Helen Ziska under the direction of Dr. Gregory and Mr. Raven. The structure of the vertebral column in the extinct Crossopterygian fishes (which stand at or near the point of origin of the land-living vertebrates) was investigated by Dr. Gregory, Mr. Gaynor Evans and Miss Helen Rockwell. After the removal of the matrix covering the backbone of *Eusthenopteron* it was found that the ring-like vertebral bony centra alternated with unossified cartilaginous rings, a stage preceding that of the oldest known amphibians.

As a result of the Lerner Cape Breton Expedition of 1936, and the Lerner Bimini Expedition of 1937, the following articles have been published:

"Notes on Swordfish at Cape Breton, Nova Scotia," by Mr. John T. Nichols and Miss Francesca R. LaMonte, published in *Novitates*.

"Notes on the Alimentary Tract of the Swordfish," by Mr. H. C. Raven and Miss LaMonte, in *Novitates*.

"Osteology of the Swordfish and Sailfish," by Dr. W. K. Gregory and Mr. G. Miles Conrad, in *Novitates*.

"Observations on the Body Form of the Blue Marlin," by Mr. Conrad and Miss LaMonte, in the *Bulletin*.

"The Brain of the Swordfish," by Mr. Conrad, in *Novitates*.

"The Nasal Bone and Sword of the Swordfish," by Mr. Conrad, in *Novitates*.

"A Boat in Bimini," by Miss LaMonte, in *Natural History*.

"Note on some Carangin Fishes Collected at Bimini," by Mr. Nichols, in *Copeia*.

"In Quest of Swordfish and Marlin," by Miss LaMonte, *Bulletin New York Zoological Society*.

"Marlin in Bimini," by Miss LaMonte, *Nassau*.

"Estrogenic Hormones in the Ovaries of Swordfish," by Dr. A. I. Weisman, Dr. D. I. Mishkind and Dr. I. S. Kleiner of New York Medical College and Flower Hospital, and Mr. C. W. Coates of the New York Aquarium, was published in *Endocrinology*.

Studies on the comparative ontogeny of Carangin fishes by Mr. Nichols were continued with material furnished by the Morden and other expeditions, and were published in *Novitates* and *Copeia*.

Mr. Nichols has also published four book reviews in *Natural History*.

Two new species, a Goby from New Guinea and a Pipefish from the West Indies, were described by Mr. Nichols in *Novitates*.

The completed memoir on Chinese fresh-water fishes by Mr. Nichols still awaits publication in the "Natural History of Central Asia" series, through lack of funds. It has been brought up to date by the addition of an appendix dealing with material described in recent literature.

A small collection of fresh-water fishes from Africa is being studied by Mr. Nichols and Miss LaMonte.

Manuscript for a popular field book of American fresh-water fishes, left by the late Raymond Schrenkeisen, was revised by Mr. Nichols and Miss LaMonte.

The extensive Key to the Order Galea, for the *Bulletin* by Dr. White on "The Interrelationships of the Elasmobranchs," was rearranged and revised by Mr. Nichols, with the assistance of Miss Helen Wilmann.

Papers on abnormal teeth in sharks and abnormal coloration in flatfishes and tarpon were published by Dr. Gudger in the Museum *Bulle-*

tin and *Novitates*. The strange case of a herring with an attached hydroid growth was described in *Novitates*. An attack by a shark on a bather; the capture of an albino tarpon; methods of fishing; a giant stingaree; and fishes wearing rubber rings, have been dealt with in *Natural History*, the *Australian Museum Magazine*, and the *Scientific Monthly*, while extensive articles on attacks on boats by swordfish and spearfishes are in progress. The distribution of the Whale Shark and of the Pointed-tailed Ocean Sunfish, illustrated with maps showing the probable effects of ocean currents on the distribution of these pelagic fishes, was the theme of a number of articles published by Dr. Gudger in the *Proceedings of the Zoological Society of London*, the *Annals and Magazine of Natural History*, *Nature*, *Science* and *Copeia*.

The World Record Gamefish Charts compiled by Miss LaMonte and Mr. Van Campen Heilner appeared as usual in the *World Almanac*.

At Bimini, West Indies, the color phases of the living *Pomacentrus* were studied by Miss LaMonte and specimens were collected for investigation of the sexual and other variations in its color and body form.

The imbedded filaments on the chin of the South American Gymnotid eels are being studied, by means of microscopic sections, by Miss LaMonte and by Mr. C. W. Coates of the New York Aquarium. Courteous aid is being given these investigators by Dr. George M. Smith of the Yale School of Medicine in the fine sectioning necessary for this work.

Studies on marlin and swordfish are being continued by Mr. Conrad, Miss La Monte and others.

Additions to the Brazilian Checklist have been negligible this year, due to pressure of other work. Identification of the large British Guiana collection which is added to every year by its donor, Mr. A. S. Pinkus of Georgetown, is being continued.

The eggs of New York skates were described and illustrated in *Copeia* by Mr. Nichols and by Mr. C. M. Breder, Jr., Research Associate.

Herpetology.—In the Department of Herpetology, Dr. Harvey Bassler has continued work on his monograph of the snakes of South America. He has also been tracing the evolution of the large aquatic turtles of South America while drawing up a description of an extraordinary new form.

Mr. C. M. Bogert, who joined the staff at the beginning of 1937, has been writing a report on the 1,600 reptiles received in recent years from

Africa. The report will embrace an analysis of the material secured by sixteen different expeditions.

Dr. G. Kingsley Noble continued his studies on the anatomy and phylogeny of the Amphibia. He sent to press the description of a new species of frog secured by the International High Altitude Expedition to Chile. He has also in hand the descriptions of several interesting fossil lizards and frogs.

Research in the Department of Herpetology has been greatly aided by assistance of the Works Progress Administration.

Experimental Biology.—In the Department of Experimental Biology, the research work of the year was concerned chiefly with the role of sense organs, brain and hormones in regulating the social behavior of vertebrate animals. Dr. Noble published in the *Bulletin* a study on "The Sense Organs Involved in the Courtship of *Storeria*, *Thamnophis* and other Snakes." He published with Mr. Arthur Schmidt a paper on "The Structure and Function of the Facial and Labial Pits of Snakes." The latter paper cleared up the old mystery of the function of the two pits which mark the face of all our poisonous snakes, except the coral snake. They turn out to be mechanisms for detecting the body temperature of their prey. Dr. Noble published in the *Anatomical Record* a report on the centers of the brain which regulate the parental behavior of fish. He published with Miss Katharine F. Kumpf an account of sex reversal in the fighting fish. This study, which is of considerable theoretical interest, gives an account of the only case of sex reversal in fish by surgical procedures.

Dr. H. J. Clausen published with Miss Ethel Poris a paper on "The Effect of Light upon Sexual Activity in the Lizard *Anolis carolinensis*, with Especial Reference to the Pineal Body." He published with Dr. F. Duran-Reynals of the Rockefeller Institute two papers on a new species of bacterium capable of inducing tumors in cold-blooded vertebrates. Two papers in press by Dr. Noble and his associates deal with the social behavior of the night heron and the migration of young turtles. Part of the work of the laboratory on the relation of hormones and brain structure to social behavior of vertebrates was supported by a grant from the National Research Council, Committee on Problems of Sex, and part by the very generous assistance of the Josiah Macy, Jr. Foundation.

Although most of the work of the laboratory deals with the biology of vertebrate animals, the microvivarium in the Hall of Animal Behavior has required a continuous supply of simple organisms. Dr. Libbie H. Hyman has been responsible for the rearing of these cultures. During

the year she has published two papers on turbellarians and one on the cave planarians of the United States. She also has published a note on *Grantia* in *Science*.

The Department of Experimental Biology, in developing its research program, has received throughout the year generous help from the Works Progress Administration.

Ornithology.—Dr. Frank M. Chapman, at the beginning of the year, was on Barro Colorado Island, Canal Zone, continuing his work on the natural history of that region. He returned to the island at the close of the year for similar study. The intervening period at the Museum was spent in administrative and literary work and in continued studies of the grackles, for which much additional material was secured during the year. Dr. Chapman published several popular articles and reviews of various books in *Natural History*. He also prepared a revised edition of the "Alphabetical Guide to the Bird Exhibits," *Guide Leaflet* No. 90. Two notes on birds appeared in *The Auk*: "*Simoxenops* proposed for *Anachilus*" and "Swifts at Sea." An article on the birds of Barro Colorado was published in *Bird Lore*.

Mr. John T. Zimmer continued his revisionary work on South American birds, with special emphasis on Peru. During the year he published, in the American Museum *Novitates*, four papers in his series of "Studies of Peruvian Birds," Nos. XXV-XXVIII, and submitted for publication No. XXIX. Work on No. XXX is in progress. He also published an index to the first twenty-five papers in this series, covering 535 pages exclusive of the index itself. He wrote numerous reviews of books for *Natural History*, and of other literature for *Bird Lore*. He also made certain studies on the migration of South American birds which were embodied in a paper read before the annual meeting of the American Ornithologists' Union at Charleston, South Carolina.

Dr. Robert C. Murphy completed work on a revision of the antarctic species of terns, publication of which is temporarily delayed pending the appearance of an important report from other sources which will have a bearing on the subject. A systematic revision of the petrels and albatrosses is also in progress. Two articles by Dr. Murphy, on otter-hunting and on insect swarms, were published in *Natural History*; articles on oceanography, conservation, and natural history in the *Geographical Review*, *Bulletin of the Garden Club of America*, and *Scientific Monthly*, and a chapter on ocean birds in the National Geographic Society's "The Book of Birds." Reviews appeared in *Bird Lore*, *Science*,

and the *Geographical Review*. Two editorials appeared in the *New York Herald Tribune*.

Dr. James P. Chapin began the year at the Congo Museum in Tervueren, Belgium, studying the collections and revising the manuscript of a part of his second volume on the "Bird Life of the Belgian Congo," now in the hands of the printer. An account of his expedition to the Belgian Congo, noted under Expeditions, appeared in *Natural History*. He also made a study of the pipits of the genus *Anthus* in the Belgian Congo, preparing a paper which was published in the *Revue de Zoologie et de Botanique Africaines*. In the same journal he published descriptions of two new African birds, and, in the *Bulletin of the Staten Island Zoological Society*, a note on his new African Peacock, which was mentioned in last year's annual report. After his return to America, he continued his work on African birds.

Dr. Ernst Mayr has continued work on the birds of the Whitney South Sea Expeditions, the Vernay-Hopwood Chindwin Expedition, the South Borneo collection and, in cooperation with Mr. Hugh Birckhead, the Sage West China Expedition. Work was also continued on a check-list of the birds of New Guinea. Five papers on the Whitney South Sea birds appeared in the *Novitates* series, including one on the genus *Sericornis*, one on birds of Tanna, New Hebrides, and three on New Guinea birds. Reviews by Dr. Mayr have appeared in *Natural History*, *Bird-Banding*, and *The Auk*. A paper on the birds of Erremango Island is in press and one on New Guinea birds is in preparation. Two other papers also are in course of preparation. The accounts of the South Bornean and the Vernay-Hopwood Chindwin birds have been accepted for publication in the *Bulletin of the Raffles Museum* and in *Ibis*, respectively. Dr. Mayr also has published one article in *Bird Lore*. Assistance also was given to Miss Cardine Bogert in the preparation of papers published by her.

Mrs. Elsie M. B. Naumburg continued her studies of east-Brazilian and Paraguayan birds in the Kaempfer collection and published a paper on certain results of these studies in the *Bulletin* series.

Dr. A. L. Rand, in conjunction with Dr. Mayr, published an extended paper in the *Bulletin* on "Results of the Archbold Expeditions, No. 14: Birds of the 1933-34 Papuan Expedition." He also published a paper on the development of young Blue Jays in the *Proceedings of the Linnaean Society of New York*, and completed four papers on birds to be published in the *Novitates* series. Papers on mammals were also prepared by him.

Mr. Hugh Birkhead published a paper on "Birds of the Sage West China Expedition" in the *Novitates* series.

Miss Cardine Bogert, a volunteer student, published a paper on "The Distribution and Migration of the Long-tailed Cuckoo," in the *Novitates* series. She has begun a study of the birds of Micronesia, about half of which are covered to date.

Mammalogy.—Marked progress on several important research projects has been made by members of the department. Study on the mammals of Angola, based principally on the collections made by Mr. Arthur S. Vernay and Messrs. John H. Phipps and Lee S. Bradley, was continued by Assistant Curators Carter and Hill. Dr. Hill spent several months in Europe studying the types of African mammals for the report which will be published in the *Museum Bulletin*.

Assistant Curator Goodwin applied himself, so far as routine duties permitted, to a report on a collection of 2,500 mammals from Honduras and Costa Rica. He has also compiled data bearing on the vanishing of big game in eastern North America.

Assistant Curator Tate, on his way home from the New Guinea Expedition, visited various European museums for the purpose of studying types of mammals to aid in his report on the Richard Archbold New Guinea collection.

"The Facts about Shiva," by Dr. H. E. Anthony, was published in *Natural History*.

Contributions by Mr. George G. Goodwin were: "The Snyder Mountains," *Natural History*; excerpts from "Buffalo Hunt" in *Natural History*, published in *The Illustrated London News*; "Two New Harvest Mice from Honduras," *Novitates*, and "A New Genus of Bat from Costa Rica," *Novitates*—in press. "America's Domestic Animals" was published in *Science Digest*.

Mr. T. Donald Carter and Dr. J. E. Hill published "New Insectivores: *Elephantulus* and *Crocidura* from Angola," in *Novitates*, and "Ten New Rodents from Angola," in *Novitates*.

Dr. J. E. Hill published "Two New Bats from Angola," in *Novitates*.

Mr. G. H. H. Tate and Mr. Richard Archbold published a *Bulletin*, "Results of the Archbold Expeditions, No. 16: Some Marsupials of New Guinea and Celebes."

Contributions by Dr. A. L. Rand were: "Richard Archbold and A. L. Rand with Plane and Radio in Stone Age New Guinea," in *Natural History*, and "Some Original Observations on the Habits of *Dactylopsila trivirgata* Gray," in *Novitates*.

Comparative and Human Anatomy.—The fragmentary fossil jaws and teeth of extinct species of anthropoid apes which were collected in the Siwalik Hills of India by the Yale-Cambridge India Expedition of 1935 have been minutely studied and described by Dr. W. K. Gregory, Dr. Milo Hellman and Dr. G. Edward Lewis, whose report will be published by the Carnegie Institution of Washington.

The origin and evolution of the human dentition were discussed in a paper by Dr. Gregory and Dr. Hellman, read before the International Symposium on Early Man, held by the Academy of Natural Sciences of Philadelphia. The article appears in the book on "Early Man" (J. B. Lippincott).

"The Anatomy of the Gorilla" by Mr. H. C. Raven is making good progress; many excellent illustrations are being made for the text.

The *Guide Leaflet* "Introduction to Human Anatomy" by William K. Gregory and Marcelle Roigneau was revised and brought up to date by Dr. Gregory and Mr. Raven and a new edition was published.

The osteology of two species of Beaked Whales was described by Mr. Raven in *Novitates*.

The family of carnivorous mammals, which includes the civets, mongooses and allied genera, is represented in the Departments of Mammalogy and Comparative Anatomy by a wide range of forms from Asia and Africa, which are being studied by Dr. Gregory and Dr. Hellman with special reference to the comparative anatomy and evolution of the skulls and dentitions. A paper on the divergent evolution of the cheek teeth of this family was presented before the New York Academy of Sciences, by Dr. Gregory and Dr. Hellman. The final report in the *Museum Bulletin* will contain many illustrations.

A memorial of Professor Henry Fairfield Osborn was prepared for the National Academy of Sciences by Dr. Gregory. As the late President of the American Museum was the author of more than nine hundred published articles, it required several months of study and correspondence to prepare even a brief review and summary of his life work.

A cast of the skull top, a brain cast and casts of the cheek teeth of the remarkably man-like fossil ape *Australopithecus transvaalensis* were brought to this department for comparative studies by their describer, Dr. Robert Broom, the eminent South African palaeontologist, who was the guest of the Department during his stay of several months in this country.

The study of skeletons of various representatives of the Equidæ (horses, zebras, asses) was continued by Mr. S. H. Chubb, who made

many notes on inheritance in Arab horses, on the occurrence of supernumerary digits in horses, on the variations of the equine fibula, and on the diverse skull proportions in zebras, asses and horses. Researches on "horned" horses were continued and an article on that subject appeared in *Natural History*.

The evolution of man's erect posture was the subject of a symposium held by the New York Academy of Sciences, in which Professor Dudley J. Morton, Professor William K. Gregory and Dr. Herbert Elftman took part.

The evolution of the backbone from fish to man was investigated by Dr. Gregory, Mr. Gaynor Evans, Miss Helen Rockwell and Mr. Homer C. Pheasant; an illustrated paper was completed and will be published in 1938.

A number of studies dealing with the comparative anatomy and evolution of fishes were carried on by Dr. Gregory, Mr. Raven and Mr. G. Miles Conrad in cooperation with the Department of Ichthyology.

Anthropology.—Research in the department consists mainly of working up collections from studies in the field. Dr. W. C. Bennett completed a manuscript report on his previous work in Peru. This manuscript is now ready for the printer. Dr. George C. Vaillant has made progress with his report upon excavations in the Valley of Mexico. Dr. Harry L. Shapiro has completed a study of the effect of environment on the physical type of the Japanese in Hawaii. This is the first of a series of investigations undertaken in cooperation with the University of Hawaii. W.P.A. assistants were of great service in the preparation of the manuscript.

Mr. N. C. Nelson has been engaged in the review of archaeologic progress of the last fifty years, a study of importance in laying the foundations of future field work. Mr. Junius B. Bird returned during the year from his expedition to southern South America, and spent the remainder of the year upon his report. A preliminary article has been prepared for publication and progress has been made with the final manuscript.

These are the main research activities, though a number of small problems are under way by members of the staff and the Associates.

The Curator of the Department, Dr. Clark Wissler, has continued his study of changes in primitive population and the part these changes play in the culture of the respective peoples.

Finally, mention should be made of a manuscript on archaeological researches in Alaska by Dr. Froelich Rainey, who operates under a joint arrangement with the University of Alaska. This manuscript contains new contributions to Arctic archaeology.

All the above anthropological projects were supported by the Voss Fund.

GENERAL DEPARTMENTAL ACTIVITIES

Astronomy and the Hayden Planetarium.—The members of the staff have met as many requests as possible to speak on the subject of the Planetarium or astronomy in general to outside groups such as Rotary Clubs, church organizations, Young Women's Christian Associations, Young Men's Christian Associations, camp organizations and adult education groups.

The country-wide interest in meteorites has resulted in the receipt of many specimens with inquiries as to their composition. Reports on these specimens, furnished by Dr. Frederick Pough of the Department of Mineralogy, have been sent to the finders.

The Book Corner at the Hayden Planetarium has done much to develop interest in astronomy by filling requests for information, either verbally or in print. The Book Corner has grown steadily to meet new needs as the public has come to expect more of it. At the close of 1937, there were on sale seventy-five different books on astronomy and related subjects, and more than twenty-five other items—*The Sky*, guide books, guide leaflets, pamphlets, charts, magazines, puzzles, meteorites and post-cards.

During 1937, more than 24,200 single-copy sales of *The Sky* were made at the Book Corner. Among other popular inexpensive articles were sold about 11,000 copies of "Seeing Stars" and about 8,000 copies of the "Star Explorer."

Mrs. Helen Spence Federer has charge of the Book Corner.

Astronomy Department and Planetarium material has been used to create interest in exhibits set up in schools, department stores and hotels in and near New York City.

The twelve workers assigned to the Department of Astronomy by the U. S. Works Progress Administration have been of valuable assistance in carrying out the following items in the Department of Astronomy program:

Astronomical models of the moon and Meteor Crater; research and

correlation of material (photographs, books and periodicals) in different branches of astronomy; translation of astronomical material from various languages; lettering of new labels for meteorite collection and other exhibits; cataloguing of the library of departmental cuts; filing and stenographic service; assistance in the work of the two astronomical societies sponsored by the Department of Astronomy (Amateur Astronomers Association and Junior Astronomy Club), which includes stenographic and clerical assistance and the maintenance of the astronomical library. Many of the above projects could not have been attempted, because of lack of sufficient personnel, had it not been for the valuable assistance of the Works Progress Administration.

The Amateur Astronomers Association continued its various activities for the benefit of its members and others interested in astronomy, as follows:

The number of classes in astronomy and other subjects conducted by members of the Association was increased considerably. In 1937, these classes were made free of charge to Annual Members of the American Museum, and a number of Museum members have attended.

On Memorial Day, seventy-five members and friends of the Association took part in a field trip to the two stations of Harvard College Observatory, at Cambridge and Oak Ridge, Massachusetts. Dr. Harlow Shapley, Director of Harvard College Observatory, demonstrated the new 61-inch reflecting telescope, the largest that most of the members had ever seen. Other field trips were made to points near New York City for constellation study, and in August one to Peekskill, New York, to study the Perseid meteor shower. In December, in spite of cold weather, twenty-five members took part in observing the Geminid meteor shower from Hewlett, Long Island, and Tenaflly, New Jersey, on successive nights. Field trips to the Flower Observatory in Philadelphia and to Princeton Observatory also were made.

Radio talks by members were given over Station WHN in the first half of the year and over Station WINS in the last two months of the year.

The Optical Division now numbers over thirty members, each of whom has completed or is working on a mirror, six inches or larger. Several 10-inch and 12-inch mirrors are being made, and a 21-inch disc is being ground in the corridor of the Planetarium, where evening visitors may watch its progress. The Optical Division is making arrangements with Pennsylvania State College, whereby kits for amateurs who wish to make their telescopes at home will be made available at cost.

The telescope-making class, conducted by Mr. Ramiro Quesada in cooperation with New York University, was attended by a number of persons, each of whom successfully completed his telescope mirror.

The members of the Association receive *The Sky* each month.

The Junior Astronomy Club continued its activities as follows:

The Club participated in the Museum's program of exploration for 1937 by supplying funds to send two members of the Hayden Planetarium-Grace Eclipse Expedition to Peru: Mr. D. Owen Stephens, Artist, and Mr. Dana K. Bailey, Astronomer.

Six paintings by Mr. Stephens, depicting the eclipse and southern skies, were presented by the Club to the American Museum of Natural History for permanent exhibition in the Hayden Planetarium.

Publication of the results obtained by the Junior Astronomy Club members appeared in the *Astrophysical Journal*, *Popular Astronomy*, and *The Sky*. Other publication activities of the Club include the "Handbook of the Heavens," the "Star Explorer," and the *Junior Astronomy News*, the ten-page mimeographed journal written, edited and assembled by the Club. Membership in the Club includes a subscription to this journal. Members of the Club contributed articles to *The Sky* in the calendar year 1937, and to "This Month in the Sky" (a monthly feature in *The Sky* magazine which has been syndicated as a Museum release). Mr. Hugh S. Rice, as usual, has generously offered to check the accuracy of all Club publications in his capacity as scientific associate. Meetings of the Club, at which lectures on various phases of astronomy are given, and which are open to the public, are sponsored by the Museum as part of its educational program. Membership in the society included 129 active members and 157 associate members in June of 1937.

Mineralogy.—The spring series of Saturday afternoon informal talks on "The Appreciation of Gems" by the Curator was given in April to an average attendance of 80. The fall series addressed to a group of the same composition had an average attendance of 91, showing a material gain in popularity for these talks.

Dr. Frederick H. Pough has addressed groups of Hunter College, The New York Miniature Camera Club, The New York Mineralogical Club, and the New England Intercollegiate Geological Congress, on various subjects connected with Mineralogy.

The Department has been very active in the coöperative field of research, having lent specimens for research work by other investigators to the University of Pittsburgh, the University of Minnesota and Har-

vard University. Dr. Pough revised the manuscript of the Boy Scout Rocks and Minerals Merit Badge handbook. The department has handled all the meteorite identifications for the Hayden Planetarium.

As Secretary of the New York Mineralogical Club, Dr. Pough has kept in touch with the collectors of the city and has been responsible for the Club's having one of its most successful years.

The department has coöperated with Carl Zeiss, Inc., in the making of colored photomicrographs of mineral crystals, microchemical tests and similar subjects with considerable success, and the work will be continued further.

The most important single gem specimen that has come to the Department of Minerals and Gems during the last thirty-five years was received in 1937 as a gift from Mrs. George Bowen de Long. This is a star ruby of exceptional size and quality which has been pronounced the largest star ruby of any that even remotely approach it in quality and brilliance. For the display of this ruby, a special exhibit was designed by Mr. William Bayard Okie, which adequately emphasizes the six-pointed star that characterizes this stone.

Mrs. de Long has also donated to the Department during the year a rock crystal seal, engraved with the signet of Abd-ul Medjid, the thirty-first Sultan for the last Turkish dynasty.

From the collection of Miss Elisabeth Varian Cockcroft, the Department of Minerals and Gems has received as gifts, a suite of twelve pieces of carved Chinese jade, an amethyst necklace of Egyptian origin, a Manchu headdress pendant embodying pearls and native cut sapphires, jade, emeralds, rubellites, a Chinese carved rock crystal vase, two oriental pearls from the Persian Gulf, and two fresh-water pearls of corresponding size from the middle western States.

Vertebrate Palaeontology.—Beginning with the first of the year, Dr. Edwin H. Colbert assumed his new duties as Associate Curator of Geology and Palaeontology at the Academy of Natural Sciences of Philadelphia. The Museum very gladly allowed Dr. Colbert a month's leave of absence, distributed through the year, during which time he was in charge of the revitalized work in Vertebrate Palaeontology at the Philadelphia Museum. This cooperative arrangement is being continued through 1938. Early in the fall Dr. Colbert began work on a comprehensive catalogue of all the types of fossil vertebrates in the Academy collections. In this work he was ably assisted by Mrs. Mary Ayer of the Academy staff. This work, when published, should be of unusual value to all workers in Vertebrate Palaeontology.

Moving of the storage collections from the sixth and seventh floors to the basement storerooms provided a year ago, was completed during 1937. This included moving the entire storage collection of Permian material from the seventh floor to a special Permian room next to the dinosaur storeroom in the basement. Other material inadequately stored on the fifth floor, and in the laboratory, has been rearranged in the basement, or laid out for study in the new Jurassic Hall.

Preparation and mounting of the skull and skeleton of the horned dinosaur *Styracosaurus*, from the Belly River beds of Canada, were completed, and the specimen is now ready for the base and case.

A free mount of a cast skeleton of the small shell-eating aquatic reptile *Placodus*, from the Triassic of Europe, was completed.

One complete and one partial skeleton of a new camptosaurid dinosaur were prepared and mounted, the complete specimen as a free mount, the other to be placed in a wall case in the new Jurassic Hall.

A fine skull of *Machaeropsopus*, a phytosaur, from the Lower Triassic of Arizona, was prepared and mounted.

Preparation, restoration and mounting of a large gaur skeleton from the Pleistocene of China is almost finished. This was probably the largest of the ox-like animals.

A delicate typothere skeleton, from the Deseado beds of Argentina, was restored, prepared and mounted.

Preparation work was continued on the Patagonian, Samos and Siwalik collections, as well as on Tertiary and Cretaceous collections from western United States.

A temporary exhibition was prepared of two enormous dinosaur tracks showing a fifteen-foot stride, collected from a coal mine in Cedaredge, Colorado, by Dr. Barnum Brown and his field party during their 1937 expedition. They will be made ready for permanent exhibition as soon as possible.

The following have been received through exchange: From Upsala Universitet, Palaeontologiska Institut, original specimens and casts of fossil artiodactyls; from Cincinnati Museum of Natural History, back of a skull with horn-cores of *Bison latifrons*, a historic specimen described by Leidy; from the Geologisch-Palaeontologisches Institut der Universität Tübingen, casts of *Prestosuchus chiniquensis* skeleton, *Stahleckeria potens* skull, *Shansitherium tafeli* skull, and *Parelasmootherium shansiense* teeth and limb-bones; from Amherst College, several slabs of rock with dinosaur tracks; from the Carnegie Museum, a *Teleodus* skull; from the Cenozoic Laboratory, Peiping, casts of *Sinanthropus pekinensis*

skulls and teeth; from the Field Museum, cast of *Barylambda faberi* lower jaw, and specimens of fossil cones and wood from Patagonia; from Naturhistorisches Museum, Basel, casts of *Ancylotherium* forelimb, and casts of fossil deer material; from Bayerische Staatssammlung für Paläontologie und Historische Geologie, München, cast of type skull of *Libypithecus markgrafi*, and brain cast.

A collection of Permian fossil reptiles and fishes was purchased in 1937 from Dr. Robert Broom.

During the year the Department has had the continuous services of four W.P.A. workers. These assistants were two Russian interpreters, one typist, and one craftsman who completed the rearrangement of the Department's collection of photographs.

Among the more important gifts received by the Department during 1937 are the following, from: Dr. Harvey Bassler, *Podocnemis* skull from Peru; Père Teilhard de Chardin, casts of *Postschizotherium* sp. jaws, and fossil deer antler; Dartmouth College, slabs of rock with dinosaur footprints; Dr. J. R. Nahon, Pleistocene bones from Morocco.

Geology.—Curator Chester A. Reeds, Mr. B. Zellner, and in the latter half of the year, Dr. H. E. Vokes, spent considerable time in selecting and arranging petrologic material for the limited exhibition space provided by the corridor rooms about the Central Pavilion on the third floor of the north central wing. In the Hall of Ocean Life, about one-half of the accessory material accompanying the Lindbergh plane "Tingmissartog" was removed from exhibition and placed in storage.

Following the retirement of Mr. P. B. Hill, the seismograph was attended by Mr. Zellner and kept running throughout the year.

The accession entries during the year were 78 in number. They were distributed as follows: Gifts 69, transfers 7, field expeditions 2. Of material submitted for examination, more than 200 identifications were made. Inquiries were numerous and the correspondence was heavy. While the greater number of inquiries and letters originated locally, many of them came from different parts of the world.

On June 21, Dr. H. E. Vokes began his services as scientific assistant to the Curator.

The transfer of the meteorite specimens and records from the Department of Geology to the Department of Astronomy having been completed and the meteorite catalogue having been published, Dr. Chester A. Reeds tendered his resignation on October 18, as Research Associate in Meteorites.

Specimens lent for research were sent to the following individuals: Dr. L. W. Stephenson, U. S. Geological Survey, Washington, D. C.; Professor Frank M. Swartz, Pennsylvania State College, State College, Pennsylvania; Dr. J. Brookes Knight, Princeton University, Princeton, New Jersey; and Dr. Sharat K. Roy, Field Museum of Natural History, Chicago, Illinois.

Living Invertebrates.—The new Pearl Divers Group in the Hall of Ocean Life has occupied the time of several members of the Modeling Room staff and a substantial part of that of Curator Miner. Mr. C. E. Olsen constructed the preliminary miniature models and is working on the surface modeling of the group itself, assisted by Mr. Bruce Brunner. A special iron-worker, Mr. William Bjorklund, has been assigned to the group. A huge sheet of plate glass has been installed as a part of the background effect which, when colored, will give an illusion of undersea distances in combination with an opaque painted background in the rear. The scene is laid in a rocky gorge twenty-five feet below the surface of the ocean in the lagoon of Tongareva in the South Pacific. Life-size figures of pearl divers will be shown plunging down to the seabottom in the act of gathering the pearl shell which grows here in profusion. The precipitous sides of the coral cliffs hemming in the gorge are covered with marvelous growths of coral in many soft colors. To the right they overhang a cavern from which an octopus is emerging, while a rising series of coral terraces to the left is occupied by numerous *Tridacna* whose scalloped shells are open to show the gorgeously colored mantles.

The figures of the divers have been completed by Mr. John W. Hope, and the corals, of which ten and one-half tons were collected by the Museum's expedition, are being cleaned, mended and restored to represent their original living appearance. As mentioned in last year's report, the expedition was made possible by Mr. Templeton Crocker and a number of other friends of the Museum, while Mrs. George B. de Long made a generous contribution toward the building of the group.

As stated above, a fine collection of South Pacific corals was obtained for the Pearl Divers Group. Among these are many fine specimens that will be added to the general exhibition series as well as to the study collection. The most striking example is a huge spiral coral five feet in diameter weighing nine hundred pounds, which was secured in the lagoon of Tongareva. It will be exhibited in a special case to be built for it.

The work on the series of wax casts of West Indian fishes, started last year, is practically completed. These are specimens made from the same models that were used for the Coral Reef Group and will be utilized for the future Sponge Fisheries Group and for a series to be presented to Yale University.

The Lindbergh plane for some years past has been suspended directly in front of the Coral Reef Group. It has now been raised to a position immediately under the ceiling, thus considerably improving its appearance and that of the Hall of Ocean Life in general.

The lighting system for the entire hall is in process of revision. New panel boards and cables have been introduced and conduits have been distributed throughout the hall to provide intra-case lighting for the shell collections, murals in the gallery, and for the various new exhibits which will be installed shortly.

In the Darwin Hall, a series of additional models for the Chordate Alcove will illustrate the anatomy of the organism *Dolichoglossus*. It will form another link in the integrating types between the invertebrates and the chordates leading up to the condition in *Amphioxus*, the models of which have already been mentioned. Dr. George H. Childs has completed the preliminary work for this series and is ready to begin the preparation of the models themselves.

In this hall two more pavilion cases have been provided with the new method of lighting installed in several of the alcoves and which is gradually being followed throughout the hall. This method provides a back illumination for the delicate glass models and displays them more efficiently and attractively than previously.

In the laboratories two rooms were added to the space assigned for the rapidly increasing study collections. These will be particularly devoted to corals and research in connection with them. The collections from the Bahamas and part of those from the South Seas have been partially moved into place but completion of this work awaits the acquisition of new fire-proof storage cases which are particularly needed.

Cataloguing of the collections as a whole has proceeded as usual. During the past year 492 lots have been added to the general collections and 125 lots to the mollusk collections. In the general series, 217 species were catalogued, of which 85 were new to our collections and were distributed among 18 new genera. These accessions added 14 types, 7 cotypes and 5 paratypes to our series. The general invertebrate collection now includes more than 60,000 specimens, comprising 1,814 species, while the type material totals 927 items. The mollusk collection

comprises about 70,000 catalogued lots, containing more than 700,000 specimens.

An artist, Miss Janet Smedley, furnished by the W.P.A., has done good work in lettering and in making diagrammatic and other labels and scientific drawings. A W.P.A. worker assisted in the offices and laboratory of the Department.

Some noteworthy accessions received in the Department of Living Invertebrates during 1937 are as follows:

A large collection of corals and other invertebrates secured by the Templeton Crocker Expedition to Tongareva and Samoa. Collected by Mr. Templeton Crocker, Dr. Roy W. Miner, Mr. Wyllis Rosseter Betts, Jr., and Mr. C. E. Olsen.

330 lots of identified land and fresh-water shells presented by Mr. William S. McNeill. Collected from various localities and identified by his father.

A collection of shrimp and myriopods from Guadeloupe. Collected by Mr. Orlando F. Weber.

A collection of 329 identified annelids and deep sea nemerteans, including 11 types and 7 cotypes, from Bermuda. Donated by the New York Zoological Society.

71 slides of mounted and identified rotifers, including 4 cotypes and 4 paratypes, from various localities, also 3 slide cabinets. Presented by Mr. Frank J. Myers.

22 specimens of identified annulates, including 1 cotype and approximately 9 species, from Hawaii, Florida and Lower California. Presented by Professor A. L. Treadwell. Collected by Dr. William Beebe and Mr. C. H. Edmondson.

25 specimens of identified crabs including 8 species, from Australia. Collected by Mr. Melbourne Ward.

9 slides of mounted and identified *Hydra* and *Mesostoma* including 2 types, from Canada and New Jersey. Donated by Dr. Libbie H. Hyman.

20 specimens of fresh-water medusae of the species *Craspedacusta sowerbyi* from Staten Island. Collected by Mr. Warren Condit.

6 slides of mounted and identified *Gastrotricha* from New Jersey, and Westchester County, New York, including 1 type from New Jersey. Collected by Mr. Donald B. Davison.

Entomology.—It has long been a definite policy of the department of insects to facilitate, so far as accommodations permit, the study of

the collections by outside entomologists, both amateur and professional. With the growth in importance of our collections there has been an increase in the number of visiting entomologists and the lengths of their stays. This is a very valuable service that is being rendered but because of limited table-space it is difficult to meet the increased demand.

When a taxonomist describes a new species, a particular specimen is selected to be the "type" of that species. The types of the described species of North American butterflies are scattered among many museums and, unfortunately, private collections both here and abroad. Mr. Cyril F. dos Passos has undertaken the important task of obtaining for us photographs of all of these types. In furtherance of this project he spent considerable time in Europe last summer photographing the types deposited in institutions there.

The lamented death of Professor William M. Wheeler ended his long and exceedingly helpful connection with our entomological activities, first as Curator of Invertebrate Zoology and later as Research Associate in Social Insects.

It is a pleasure to welcome to our official family Professor T. D. A. Cockerell as Research Associate of Fossil Insects and Professor Alfred E. Emerson as Research Associate in Termites.

We have had from the W.P.A. the part-time services of Mr. Vergnaud Pierre-Noel, making drawings of insects to illustrate technical reports, and of Miss Mary Easton, making colored drawings of insects for exhibition purposes.

Messrs. E. L. Bell and E. I. Huntington have each practically completed the transfer of their important collections of Lepidoptera to the Museum and have incorporated them with ours. Through the generosity of a number of friends, the Museum was able to purchase the Gunder collection of butterflies, chiefly from western United States and containing several hundred type specimens of named forms or aberrations. Other outstanding gifts of Lepidoptera have been received from Messrs. Frank Johnson and F. E. Church.

Professor T. D. A. Cockerell has kindly continued his most welcome donations, including many type specimens of bees from various countries.

Mr. Wolfgang von Hagen donated a large collection of South American termites, containing numerous queens and also termitophiles.

Ichthyology.—Sixty skeletons of fishes have been prepared for our study collection by Mr. S. S. Chetyrkin, a W.P.A. worker.

Work on the card catalogue of the *Bibliography of Fishes* has gone forward but slowly this year owing to other departmental duties. There is a constant demand by research workers and other visitors for the references in this catalogue, and for those in the catalogues of Color Plates of fishes, and Vernacular Names of fishes, which are also being carried on by the Department. There is also much consultation of the uncompleted Brazilian Checklist.

Continued publication of the World Record Gamefish Charts has greatly increased our contacts with game and commercial fishermen in many parts of the world, as have also the two recent department expeditions to the swordfish and marlin grounds. In this connection we have received invaluable aid and coöperation from the editors of the sportsman's columns of the New York newspapers; from Toronto, Yarmouth, Halifax and Sydney newspapers; from Mr. Dan Holland and Mr. Kip Farrington of *Field and Stream*; Mr. Thomas Aitken of *Outdoor Life*; Mr. Erl Roman of the *Miami Herald*; and Colonel Hugh Wise. Valuable information has also been received through the kindness of the Consulate-General of the U. S. S. R. in New York, and Mr. Frederick P. Latimer, Jr., American Vice-Consul in Istanbul.

In the course of the day's routine, members of the Department are called upon by visitors, telephone, and letters to answer many questions relating to ichthyology. Small collections and single specimens both recent and fossil are being brought in almost daily for identification, and our laboratory assistant, Mr. Fred Kessler, is kept busy getting these specimens out and putting them away again in the storerooms, in addition to constant care in keeping them in good condition. Exchanges are always in progress with universities and museums throughout the world, and this year we have had an unusual number of visiting ichthyologists from other parts of this country, from South America, Europe and Australia.

The researches on swordfish, marlin and their relatives are necessitating a large amount of translation of ancient and recent European literature. During the past three months Miss Francesca R. LaMonte has translated the entire section on these fishes in Cuvier and Valenciennes' "*Histoire Naturelle des Poissons*"; a monograph by Mazzullo on the Swordfish fishery off Messina; a long paper by Enrico Trois on the structure of the gills of the Swordfish, and several articles by Rosenthal on gill and skeletal structures in this family.

Mr. C. M. Breder, Jr., Research Associate, has been appointed Acting Director of the New York Aquarium, succeeding another of our

Research Associates, Dr. C. H. Townsend, who retired from the post of Director of the Aquarium in November.

Mr. Van Campen Heilner, Field Representative, was decorated with the Cuban order of Carlos Manuel de Cespedes. This is the highest decoration given by the Cuban government and was conferred upon Mr. Heilner in recognition of his long friendship for Cuba and his activities in bringing that country to the foreground of attention for scientists and sportsmen.

Mr. Michael Lerner, Field Associate, has been elected an Associate Founder of this Museum.

Herpetology.—The entire amphibian study collection has been moved from its old quarters to the basement of the African wing. At the same time the laboratories of the Department were moved to the fifth floor of the same wing. The lizard collections have been rearranged and the collections of larger reptiles stored in crocks have been relabeled and checked. The skeleton and the turtle collections have also been rearranged to facilitate their handling. In brief, several major changes were made in the study collections of reptiles and amphibians this year. The catalogued collections now include 105,900 entries. In addition there are several uncatalogued collections recently received which will bring the total number of reptiles and amphibians in the Museum to over 107,000 specimens. Recently, through the assistance given to the Department by the Works Progress Administration the entire collection has been catalogued and cross-referenced as to species and geographic area. It is now possible to determine quickly all the reptiles and amphibians in the Museum from any particular locality.

During the year, specimens were lent to or exchanged with investigators at the Field Museum, the Chicago Academy of Sciences, Cornell University, Haverford College, the San Diego Society of Natural History, the Philadelphia Zoological Society, the University of California at Los Angeles, Southwestern University, Baylor University and the Museum of Zoology at the University of Michigan. Notable collections from the Bahamas, India and South America were received as gifts; others were secured by Museum expeditions in Africa, Colombia and Arizona. The largest collection was obtained by the Archbold New Guinea Expedition.

At the annual meeting of the American Society of Ichthyologists and Herpetologists, Dr. G. Kingsley Noble gave an illustrated account of the life history of the teiid lizard *Cnemidophorus sexlineatus*. Although this is a common species in eastern United States, little was

known previously of its life history. Mr. C. M. Bogert read two papers based on his work with snakes in southwestern United States and Mexico. One paper was concerned with a type of intergradation in species previously unrecognized, and the other dealt with a rare opisthophly from Mexico.

Experimental Biology.—The Department of Experimental Biology maintains a collection of microscopic slides which are consulted each year by students and investigators. Thanks to assistance given by the Works Progress Administration, it also maintains an extensive file of abstracts dealing with biological subjects. These are consulted by local students and copies of the more extensive papers have been sent to workers in other laboratories.

Early in the fall, Dr. H. J. Clausen resigned his position as Assistant Curator of Experimental Biology to accept a position in the Department of Anatomy, University of Colorado.

Ornithology.—During the year there has been considerable activity in the matter of arrangement and cataloguing of the enormous collections now in the care of this department. The cataloguing of the Rothschild collection has progressed up to anticipated schedule. The remainder of the 22,785 water birds of the world were completed and 84,879 Old World land birds also, leaving a balance of some 53,000 Old World land birds of only sixteen families yet to be done. This enormous task is thus nearing completion. In addition, some 9,200 specimens from other sources have been catalogued. Dr. Ernst Mayr has supervised the cataloguing of the Old World birds; Mr. Charles E. O'Brien, the New World collections.

Mr. O'Brien has made some progress on the arrangement of certain of the New World birds assembled from various collections, but consolidation in this series is still largely incomplete owing to press of other work. With the aid of two volunteer workers, Messrs. Irwin Alperin and Howard Kraslow, Dr. Leonard C. Sanford's collection of North American birds was completely rearranged and labeled. Mr. Charles L. Gilly, volunteer, arranged a considerable part of the collection of American Wood Warblers, under Mr. O'Brien's supervision. Mr. Henry Jeneras, volunteer, has assisted in the arrangement of the collection of bird skeletons. Mr. O'Brien also arranged the Kaempfer collection, working after hours, and made some progress on the distribution and care of the material preserved in spirits.

Current files of bibliographic references to all newly described birds have been kept up to date. The card file of references to new species of

the New World has been amplified and carried back to Sharpe's "Hand-List," dating about 1900, and is nearly complete from that work on. The file of copies of the original descriptions of Australian and Malayan species has progressed during the year.

The appointment of Mr. P. B. Philipp has given the Department for the first time a staff member to take particular charge of the birds' eggs and nests. Mr. Philipp brought with him his splendid collection of eggs with which the Museum's collection is now being combined. Rooms on the second floor of the Whitney Wing have been set aside for this section of the Department, where Mr. Dean Amadon, Mr. Philipp's assistant, has made considerable progress in the arrangement of the collection. Mr. O'Brien has devoted considerable time to assistance in getting this work started.

As usual, a great deal of curatorial time has been devoted to administrative matters. One hundred and forty-six requests for the loan of specimens have entailed the handling of some 1,423 specimens to be recorded, packed, and sent away, and unpacked, checked, and put away on return. In addition, numerous visitors to the Department have required attention, including scientists, artists, sculptors, photographers, technicians, and inquirers. Routine correspondence also has been heavy.

During the year, Dr. Frank M. Chapman was elected Honorary President of the National Association of Audubon Societies, an organization with which he has been associated from its inception. Dr. Robert C. Murphy was elected President of the same society; he also was elected a Director of the Laboratory of the Long Island Biological Society, and a Corresponding Fellow of the German Ornithological Union.

Three members of the Department, Mr. John T. Zimmer, Dr. R. C. Murphy, and Dr. James P. Chapin, presented papers at the annual convention of the American Ornithologists' Union in Charleston. At this meeting, Dr. Chapin was elected First Vice-President of the organization; Dr. Murphy was made a member of the Council; Mr. Zimmer retired as a member of the Council; Dr. Mayr was elected a Fellow. Dr. Murphy also was awarded the Brewster Medal for his "Oceanic Birds of South America," publication of which was noted in last year's report.

Dr. Chapman has remained Contributing Editor of *Bird Lore*; Dr. Mayr, Editor of the *Proceedings of the Linnaean Society of New York*.

Dr. Murphy also attended a meeting of the American Geophysical Union in Washington, and delivered addresses before the Geographical

Society of Philadelphia, the Marine Biological Laboratory at Woods Hole, and the Garden Club of America in New York.

Dr. Chapin addressed meetings of various societies in Europe during his stay in that part of the world.

Dr. Mayr lectured before the Biological Colloquium at Columbia University and at several meetings of the Linnaean Society of New York.

Volunteer workers whose services have materially aided the department during the year are: Miss Cardine Bogert, Mr. Henry Jeneras, Mr. Irwin Alperin, Mr. Charles L. Gilly, and Mr. Howard Kraslow.

The assistance of workers supplied to the Department by the Works Progress Administration also has been greatly appreciated.

Facilities have been provided to Mr. Orlando Weber, Jr., and Mrs. Gladys Gordon Fry for the storage and study of a collection of birds which they secured in Venezuela and which they are at present classifying.

Temporary use of certain cage-rooms on the sixth floor of the Whitney Wing was lent to the Department of Experimental Biology in connection with certain experiments now being carried on by that department.

Exchanges with various institutions have been made during the year, resulting in the acquisition of 79 specimens of particularly desirable species needed for the collections. The chief institutions concerned are the Zoological Museum of Berlin, Academy of Natural Sciences of Philadelphia, Museum of Comparative Zoology, and the Museum für Tierkunde, Dresden.

Staff changes in the Department of Birds during 1937 have been as follows: Mr. Philip B. Philipp, appointed Research Associate in Oölogy; Dr. Austin L. Rand, appointed Research Associate.

The most important gift during the year was made by Mr. Philip B. Philipp, who presented us with his magnificent collection of birds' eggs. This collection consists of some 15,000 sets (about 60,000 specimens) representing some 1,400 species and subspecies of North American birds with very few omissions from the recorded list. It includes many great rarities: eggs of the Great Auk, California Condor, Passenger Pigeon, and Carolina Paroquet, with representative series of the more common forms. As already stated, this collection is being incorporated with the old departmental collection, and the whole will form a splendid representation of the eggs of birds not only of this country but of other parts of the world.

Among the 3,626 other ornithological specimens received as gifts, certain outstanding items may be mentioned:

From Mr. J. Sterling Rockefeller, 1,962 bird skins from the Dutch East Indies.

From Dr. L. C. Sanford and the Whitney South Sea Fund, 572 birds from Borneo and Pagi Island. Also from Dr. Sanford, 24 skins of Old World birds.

From Mr. Childs Frick, 374 specimens obtained by the Childs Frick African Expedition.

From Mr. E. A. McIlhenny, 269 skins of North American grackles.

From Mr. Herbert L. Satterlee, funds for the purchase of South American birds.

There also should be mentioned the generous donation of funds for the publication of Dr. Chapin's forthcoming volume on Congo birds. This gift by Mr. Charles W. Boise has made the publication of this work possible during the coming year.

The sources of funds for the various expeditions have been noted under the expeditions.

Mammalogy.—Rearrangement and transfer of study collections from the Southeast Wing to the space acquired when the Department of Ornithology moved out of the North Wing necessitated considerable activity by the department staff. Bringing the collections together permits better arrangement and care. The collection of mammals numbers approximately 118,000 specimens and much routine work will be necessary before it can be brought to the present improved standards.

The administration of the department has required more of the time of the Curator than in former years because of the absence in the field of so many of the staff. In addition, Curator H. E. Anthony, as Secretary of the Pension Board, as Secretary of the Council of the Scientific Staff, and as the department representative in charge of new mammal exhibition halls, has devoted an increasingly larger proportion of his attention to activities other than the detailed study of specimens. The very large exhibition program connected with the new halls of North American mammals, of North Asiatic mammals and the remaining mammal groups to be installed in the Hall of Ocean Life is a commitment of such importance to the Department that it has first call upon the time and energies of the staff.

With the assistance of workers assigned to the Department by the Works Progress Administration, progress has been made on the following important projects: compilation of statistics on the North American

collection under states and provinces; work on the bibliography of North American mammals; gazetteer: 15,000 South American localities representing areas of importance to research on the department collection were recorded and filed; numbering of the osteological collection; about 10,000 specimens entered and filed in the card catalogue; secretarial and general clerical work; translations from Russian into English of "Mammals of Eastern Europe and Northern Asia" by Ognev—the second volume was completed (256 pages) and work started on the third volume (100 pages); the translation from Russian into English of "Arctic Animals" by Vinogradov, Smirnov and Flerov was completed (320 pages).

Comparative and Human Anatomy.—Two office rooms and two storerooms formerly occupied by the Department of Herpetology were ceded to this department in 1937 and this event gave the long-hoped-for opportunity to relieve the severe crowding which had hampered the entire department. The consequent rearrangements and adjustments, while requiring a great deal of care and labor, have enlarged the space for the departmental library, improved the facilities for the care of the study collections and for the filing of lantern slides, illustrations and correspondence, and given better working quarters for everyone in the department. Dr. Frederick Tilney, Research Associate, and Dr. George Pinkley, Associate in Palaeoneurology, and their two assistants, are located in one of the newly acquired rooms. They are making excellent progress in their field, which involves the study of the evolution of the brain and its functions among recent and fossil vertebrates.

Dr. William K. Gregory served on various committees of the National Academy of Sciences, the New York Academy of Sciences, the Academy of Natural Sciences of Philadelphia, the American Society of Naturalists, the New York World's Fair and others. He was again elected President of the American Society of Ichthyologists and Herpetologists.

Fifty-six lectures were delivered by Dr. Gregory in the Columbia University-American Museum courses on the evolution of the vertebrates, which have so long served as a training school for both Museum curators and other graduate students in palaeontology and comparative anatomy. Most of the departmental investigations and publications have originated in these courses of lectures. A series of eight evening lectures was given by Dr. Gregory, in the *Know Your Museum* series. Under the title "Evolution, the Masterkey," the course made it plain that the

study of evolution as the sequence of events in the worlds of both nature and man has high value for the understanding of the meaning and value of all life.

In connection with the Trustees' Ten Year Development Program, Dr. Gregory and Dr. Pinkley took part in two round-table discussions, dealing with the significance of the Peking and other early races in the evolution of the human brain and human behavior.

Numerous exchanges with other museums considerably enriched our teaching and exhibition material. From Princeton Museum we received some valuable fossil pre-fishes (Ostracoderms) in exchange for our models illustrating the evolution of the cranial bones from fish to man and the series of half-skulls from *Seymouria* to man. From the Peabody Museum of Yale University we received excellent casts of a series of twenty-five fossil teeth or fragments of jaws of Siwalik anthropoids. To the University of Tübingen were sent a set of models of the skeletons of *Seymouria* and *Diplovertebron* in exchange for fossil vertebrates already received. The Museum of Pietermaritzburg, South Africa, arranged for the purchase of a copy of the "Family Tree of Man," while several sets of our "*Seymouria* to Man" series were supplied by Damon and Company of London to European universities and museums. Copies of the palatal arch and mandible of *Dryopithecus cautleyi*, made by Dr. Milo Hellman, were sent to thirteen institutions and individuals who had assisted our studies on fossil primates by the loan or exchange of their specimens or in other important ways.

Casts of the incomplete cranium and upper cheek teeth of *Australopithecus transvaalensis* were presented by Dr. Robert Broom, who has also sent some valuable serial sections of the skull of one of the extinct mammal-like reptiles of South Africa in exchange for a series of models of skulls and skeletons of extinct vertebrates.

The coloring of the casts in the Department has been done for several years with great skill and success by an artist furnished by the Works Progress Administration.

Anthropology.—It was found necessary to give special treatment to the totem poles and other large wooden objects in the North Pacific Hall. Dry-rot had set in, making it necessary to remove some of this decayed wood, replacing it with special filling material. There is reason to believe that this treatment will preserve these important specimens. The work is about half completed.

The cataloguing of new specimens is always a large part of department work. The most important gains were made under the direction

of Mr. N. C. Nelson in the accumulated materials from Egypt and other parts of the Old World. The Department also revised and reorganized the storage collections, in the hope of reducing space to make way for new material. We have gone through this condensation several times and it is doubtful if any more space can be gained, so that provision must be made for future accessions.

In the way of restoration, a large number of pottery vessels, stone figures, etc., resulting from recent field expeditions, have been worked over. It is a pleasure to acknowledge the services of Miss Viola Paucek. She has shown excellent skill in this difficult job and for a part of the year gave her services.

Every year the Department makes up a large number of loan collections for circulation by the Museum Department of Education. These go to schools and libraries, and in some instances rise to the level of branch Museum Exhibits.

The archives of the Department, such as duplicate catalogues, field notes, tabulations, etc., are being revised by W.P.A. assistants.

The research funds of the Department were augmented by gifts from Miss Amelia White, Mr. Edward S. Harkness, and an anonymous donor.

Among the collections given to the Department, were the following: from Miss Amelia White, a large collection of pottery, textiles, etc., from the Indians of the Southwest; from Mr. Clarence L. Hay, an archaeological collection from Vera Cruz; from the estate of Elihu Root, a collection of pottery from Central America, including an unusual Nicoya vase; from Mrs. Ruth Bryan Rohde, a large collection from the Eskimo of Greenland; from Mrs. Bryce Turner, a native made model of an African village.

The only change in the staff of the Department was the appointment of Mrs. Antoinette K. Gordon, as Associate in Asiatic Ethnology.

EXPEDITIONS

NORTH AMERICA

Vertebrate Palaeontology.—Dr. Barnum Brown was leader of the 1937 American Museum-Sinclair Dinosaur Expedition which spent five months in Wyoming and Colorado. The dinosaur work was financed by the Sinclair Refining Company. A shorter period of time spent on Tertiary work was financed by the Vertebrate Palaeontology Field

Fund. The party, in addition to Dr. and Mrs. Barnum Brown, included the following: Messrs. Roland T. Bird, Robert Chaffee and Gil Stucker from the American Museum, Dr. Erich M. Schlaikjer of Brooklyn College, Dr. G. Edward Lewis of Yale University, Mr. G. D. Guadagni of Boston, and Mr. James Ryan of the University of Tennessee.

Dr. Brown received generous coöperation from the Union Pacific Railroad which gave free transportation for the personnel and collections over its railroad system, opened its coal mines and other land-holdings to the expedition, and placed heavy excavating equipment at Dr. Brown's disposal. This machinery enabled the expedition to collect in a few months material which would otherwise have taken several years to obtain.

During five months of stubborn search and strenuous digging in the egg-shaped "dinosaur bowl," that stretches some thirty miles on both sides of the Union Pacific tracks from Point of Rocks to Rock Springs in Wyoming, and in the coal mines at Cedaredge, Colorado, Dr. Brown and his associates excavated a carload of dinosaur bones and fossil plants, plus a strip of dinosaur tracks which weighs some 16,000 pounds.

Briefly summarized, the expedition produced the following results:

1. The discovery of previously unknown dinosaurs in the Mesaverde Cretaceous period of 80,000,000 years ago, which up to now has never yielded a dinosaur skeleton.

2. The unearthing of fossil footprints of the gigantic but elusive "mystery dinosaur" which reached a height of thirty-five feet, took fifteen feet in a single stride and left a footprint thirty-four inches wide and thirty-four inches long.

3. After many years of unsuccessful quest, the finding of a partially destroyed armbone of the "mystery dinosaur." This slender clue definitely links the lost giant with the iguanodonts.

4. Locating, on a steep hillside and at the very base of a transcontinental airways beacon, the skeleton of a dinosaur of huge size.

5. Collecting the partially complete skeleton of a "duck-billed" dinosaur which in size may eclipse the record of *Tyrannosaurus rex* which towers to a height of eighteen feet.

6. Bringing to light a petrified jungle consisting of palms, figs, poplars, willows, dozens of different plants, all found perfectly preserved in coal mines. Seventy-seven species have been identified from this collection, although only twenty-five species have been known before from the Mesaverde Cretaceous formation.

7. Collecting one mountable skeleton of a small duck-billed dinosaur, two skulls of horned dinosaurs and the incomplete bones of a large flesh-eating dinosaur.

8. Studying the stratigraphy of Wasatch and Bridger beds in southwest Wyoming and making small but interesting collections of primitive mammals from them.

All the dinosaur skeletons collected come from the Mesaverde Cretaceous period and fill a gap in dinosaur history.

Mr. Albert Thomson, supported by the Vertebrate Palaeontology Field Fund, spent about three months in the Big Badlands of South Dakota. Working from Scenic, as a base, Mr. Thomson secured a small but choice collection of Oligocene mammals from this classic locality. The collection is particularly rich in sabre-toothed cats and rodents.

Dr. Walter Granger spent a month visiting museums and fossil fields of the mid-west, including a visit to Mr. Thomson's camp in South Dakota. Financed by Department of Vertebrate Palaeontology Field Fund and by Dr. Granger.

Geology.—Curator Chester A. Reeds attended the Denver meetings of the American Association for the Advancement of Science, June 19-26, and made soil erosion studies en route, particularly in the Ohio River watershed and in the "Dust Bowl" area of the southwest. Numerous field notes, photographs and samples of surface material were taken in the course of a 9,000-mile trip through parts of twenty-one states. Dr. Reeds returned to the Museum August 1, 1937. Financed by Curator Reeds and Museum funds.

Dr. H. E. Vokes was leader of one field party during the New England Geological Congress, October 8-10, in New York. He also accompanied Dr. Robert Balk's party on October 10 from Poughkeepsie eastward across a progressive series of metamorphic rocks in Dutchess County.

Entomology.—Through the kindness of Mr. Albert R. Brand, Curator Frank E. Lutz spent eight weeks in Florida, with special reference to the habits of the varied cricket fauna of that region.

Ichthyology.—Associate Curator Francesca R. LaMonte, Assistant Curator G. Miles Conrad of the Department of Comparative and Human Anatomy, and Mr. Ludwig Ferraglio of the Department of Preparation, joined Field Associate Michael Lerner this summer on the island of Bimini, West Indies, to study the anatomy and habits of the marlin. They secured a fine series of body form measurements; visceral,

brain, and skeletal material; a large collection of local fauna, and data and material for a new group in the Hall of Fishes. The expedition was given by Mr. Lerner. The group is under construction.

Experimental Biology.—During the summer, Dr. and Mrs. G. Kingsley Noble made a short trip to western Cuba to study the rare aquatic chameleon *Deiropyx*. The mountains of western Cuba represent a relic of one of the old land masses in the Greater Antilles. The chameleons found in that area have undergone an extraordinary adaptation to arboreal, terrestrial and aquatic habitats. The study was part of a program to trace out the evolution of social habits among the different groups of lizards. Financed by Department of Experimental Biology Funds and by Dr. and Mrs. Noble.

Ornithology.—In April, Dr. Robert C. Murphy made an expedition in President Davison's schooner along the axis of the Gulf Stream from Miami to the latitude of Charleston in search of the black-capped petrel. Two examples were seen but could not be obtained. Other interesting birds were secured, together with considerable data for use in Dr. Murphy's book (in preparation) on petrels and albatrosses.

Mammalogy.—One of the major objectives of the Department, during the past three years, has been the building up of a collection representing all the known forms of North American mammals and series of specimens illustrating the geographical distribution of species. Financial support generously contributed by individuals interested in this extensive program and the personal services of volunteers in the field brought more than 3,000 specimens of North American mammals to the department during the year 1937. As part of the North American plan were two outstanding Canadian expeditions, one of which covered the uncharted region north of the 60th parallel and east of the Yukon, and the other north central British Columbia; another expedition visited southwestern Alaska, and in the United States an expedition to the isolated islands of the Grand Canyon of the Colorado, Arizona, was the first of its kind ever attempted. Four expeditions for habitat group material visited Alaska, Montana, Wyoming and New York respectively, and are reported more in detail under the North American Expeditions of Arts, Preparation and Installation.

A fund for the purchase of North American mammals generously supported by Mr. Childs Frick has made possible the acquisition of some very desirable collections, including 147 specimens collected in Colorado by Mr. W. S. Long; 109 specimens collected in Washington by

Mr. Storrs H. Lyman; and 222 specimens collected in New Mexico by Mr. E. O. Mellinger.

The spacious trailer, with a station wagon to pull it, generously donated by Mr. William H. Harkness to the Department, has been converted into a traveling laboratory and is now ready for operation in the field.

The Frick Alaska Expedition: Mr. David G. Nichols brought back a collection of 300 small mammals from southeastern Alaska. Financed by Mr. Childs Frick.

The American Museum Grand Canyon Expedition: This exploration was unique in that it was the first of its kind to scale the islands in the Grand Canyon of the Colorado River, Arizona, and study the fauna of those isolated plateaus—Dr. H. E. Anthony brought back 75 specimens from Shiva Temple. Financed by Mr. Morehead Patterson.

The Snyder Mountain Expedition to Canada: Mr. George G. Goodwin, Museum representative, accompanied Mr. Harry Snyder to the unexplored region of the upper Nahanni River and brought back a collection of 356 specimens, including caribou, Dall sheep, mountain goat, grizzly, black bear, and small mammals. This collection is of special interest as it represents an area that had not been previously visited by scientific collectors. Financed by Mr. Harry Snyder.

The Krech-Solbert British Columbia Expedition: Mr. James A. Dillon, Museum collector, assisted by Messrs. Shepard Krech, Jr., and Peter Solbert, brought back 135 mammals, including Stone sheep, goat, bear, moose, and small mammals. Financed by Dr. and Mrs. Shepard Krech and Col. Oscar N. Solbert.

Anthropology.—Mr. C. E. Schaeffer continued his work among the Kutenai of British Columbia. These studies have given us for the first time satisfactory information concerning this small but interesting tribe. Financed by the Voss Fund.

Dr. Froelich Rainey, of the University of Alaska, spent the summer in archaeological work on St. Lawrence Island and later in excavations of sites in Eastern Alaska. Financed by the Voss Fund.

Mr. G. F. Ekholm, under the direction of Dr. George C. Vaillant, began archaeological explorations in Mexico late in the year and will continue through 1938. This is a project for work in new territory, practically nothing being known concerning the archaeology of the region. Financed by Mr. Edward S. Harkness.

Arts, Preparation and Installation.—Mr. James A. Dillon, attached to the Krech-Solbert British Columbia Expedition, was in the field from

July 3 to September 26, collecting miscellaneous small mammals and assisting in the collecting of grizzly bear, moose, sheep, goat and beaver specimens. Financed by Dr. and Mrs. Shepard Krech and Col. Oscar N. Solbert.

Mr. Gardell D. Christensen, attached to the Clark-Kissel Alaska Expedition, was in the field from July 31 to September 23, assisting in the collecting of specimens for the Mountain Goat Group for the Hall of North American Mammals. Mr. Joseph N. Guerry, on the same expedition, made twenty-two field paintings of goat and bear country to serve as background studies for later groups and collected accessories for the Goat Group. Financed by Mr. and Mrs. Harold B. Clark and Miss Abbey Thorn Kissel.

Dr. James L. Clark spent several weeks in the West, from August 20 to October 16, making a survey of the old Roosevelt Ranch region, of the Jackson Hole and Grand Teton territory and of the Bison and Elk Ranges, collecting data for the Ranch Group in the Theodore Roosevelt Memorial building and for the Bison and Elk Groups in the North American Hall. On the latter half of the expedition, he was joined by Mr. Robert E. McConnell, and they collected specimens for the groups in question jointly. Mr. Hanson Puthuff, on the same expedition, painted background studies for the Ranch Group, and made three alternative studies for the Bison Group and two for the Elk Group, the latter showing the Three Tetons both under snow and in open weather. Mr. George E. Petersen, also attached to the same expedition, collected accessories and made numerous photographs for the above groups. The collecting for the Ranch Group was financed by the State of New York. The collecting for the Bison Group was financed by Mr. Robert E. McConnell. The collecting for the Elk Group was financed by Mr. W. L. Honnold.

Dr. James L. Clark, accompanied by Messrs. G. F. Mason and Hanson Puthuff, made two trips to the Webb estate at Nehasane, New York, during the late fall to collect specimens, accessories and field studies for the Conservation Group in the Roosevelt Memorial. Financed by the State of New York.

Mr. Robert H. Rockwell spent two weeks in December on the Bison Range at Dixon, Montana, securing six specimens for the proposed Bison Group, which is to be donated by Mr. Robert E. McConnell. The expedition was financed by Mr. McConnell.

Dr. James L. Clark and Mr. Albert E. Butler, accompanying Dr. Frank M. Chapman, made a field trip to Oyster Bay and selected the

site for the proposed Bird Sanctuary Group in the Theodore Roosevelt Memorial. Mr. James Perry Wilson painted studies of the blossoming dogwood and the scene surrounding the Roosevelt grave for the background of the group. Financed by the State of New York.

Mr. Ludwig Ferraglio, attached to the Lerner Bimini Expedition from June 29 to August 3, collected accessories for the Deep Sea Group, did rough skeletonizing and dissecting of specimens of marlin, painted color sketches and took photographic notes and casts of other fishes collected. Financed by Mr. Michael Lerner.

CENTRAL AMERICA

Mammalogy.—Mr. C. F. Underwood collected 1,083 small mammals in Honduras from regions hitherto not represented in our mammal collections. The fund provided by Mr. Childs Frick made possible the purchase of this very desirable collection.

SOUTH AMERICA

Astronomy and the Hayden Planetarium.—The Hayden Planetarium-Grace Eclipse Expedition went to Peru to observe the total solar eclipse of June 8, 1937.

The personnel was as follows: Dr. John A. Miller, Director Emeritus of the Sproul Observatory, Technical Director, who did not accompany the group; Dr. Clyde Fisher, Curator of Astronomy and Head of the Hayden Planetarium, Leader; Mr. William H. Barton, Jr., Associate Curator of the Hayden Planetarium, Executive Officer; Dr. Serge A. Korff, of the Carnegie Institution, Associate Astronomer; Mr. Dana K. Bailey, of the Steward Observatory, University of Arizona, Associate Astronomer; Mrs. Isabel M. Lewis, Computer of Eclipses at the United States Naval Observatory, Associate Astronomer; Miss Dorothy A. Bennett, Assistant Curator of the Hayden Planetarium, Observer; Mr. Charles H. Coles, Chief Photographer of the American Museum of Natural History, Official Photographer; Major Albert W. Stevens, of the United States Army Air Corps, Aërial Photographer; Mr. D. Owen Stephens, of Moylan, Pennsylvania, Artist; Mr. Hans Christian Adamson, Public and Press Information, American Museum of Natural History, Publicity; Mr. Raymond W. Newby, Columbia Broadcasting System, Radio Engineer; Mr. William Perry, Columbia Broadcasting System, Radio Announcer; Miss Sally Pyle, Secretary.

The following persons accompanied the group, assisting in various capacities: Señors W. O. Runcie and Alberto Barrios, Jr., of Lima; Messrs. James Deadman, Everett H. Graff, George McQueen, Edmund J. Zegarra, and Roy C. Philpott, of Cerro de Pasco; Mrs. William H. Barton, Jr., Mrs. Serge A. Korff, Te Ata (Mrs. Clyde Fisher); Mrs. Hans Christian Adamson, Mrs. Raymond W. Newby and daughter. Miss Agnes Denn Johnson of Lima accompanied the Huanchaco group as Artist.

The party was divided into five groups, to secure the best possible weather coverage. The groups at all five stations had perfect visibility and opportunity to follow the program as planned: to photograph the eclipse with telescopic cameras and still cameras, to paint it on canvas, to observe it, to describe it to radio listeners and later to visitors at the Planetarium and to readers of *The Sky*.

An excellent series of coronal photographs was made by Mr. William H. Barton, Jr., Dr. Serge A. Korff and Mr. Dana K. Bailey, and an unusually important aërial photograph was made by Major Albert W. Stevens at an altitude of 25,000 feet—the source of the so-called “globular corona” which has attracted the attention of many astronomers.

Four canvases of great beauty, which faithfully reproduced the eclipse, and two of the southern sky, were painted by Mr. D. Owen Stephens.

In addition to these tangible results, the publicity gained from these activities has been deemed more than satisfactory.

For transportation, housing and communication, the expedition was indebted to the Grace Line, Pan American Airways, the Cerro de Pasco Copper Corporation, the Cajabamba Mining and Milling Company, the Columbia Broadcasting System, Inc., and the Peruvian Telephone Company. All the facilities at their command were graciously extended by the Peruvian Government and the University of San Marco. Swarthmore College generously provided much necessary equipment and the Eastman Kodak Company supplied special photographic materials.

Funds toward the expenses of the expedition were contributed by Mr. Van S. Merle-Smith, the Junior Astronomy Club and the American Museum.

Ichthyology.—Under the joint auspices of the Simon Baruch Foundation, the New York Aquarium, New York University and the Amer-

ican Museum of Natural History, Dr. Richard T. Cox, Mrs. Cox, and Mr. Robert S. Mathews studied the habits of the electric eel in Pará (Belem), Brazil. The Museum received preserved and skeletal material of Brazilian fishes, particularly of the families Characidae and Gymnotidae, upon which the Department has been doing special work for some time.

Herpetology.—Toward the end of August the Terry-Holden Expedition started for the interior of British Guiana with a view to making extensive collections of natural history objects from some of the most out-of-the-way parts of this area. Mr. Robert Snedigar of the Department of Herpetology accompanied the expedition as zoologist. He is planning to make a special study of the life histories of reptiles and amphibians.

Adequate equipment was taken along to prepare specimens for histological and embryological study. A representative from the New York Botanical Garden; a motion picture photographer (formerly a member of the Museum staff), and a representative of the National Broadcasting Company accompanied the expedition. During the past few months the expedition has broadcast various daily happenings from the interior of British Guiana. This has aroused a great deal of interest in the scientific work being accomplished by the party.

Dr. William Hall Holden is planning to make a study of the diseases found among native tribes in that region.

Financed by Mrs. Lillian E. Terry.

Ornithology.—Toward the close of the year, Mr. William H. Phelps of Caracas, Venezuela, furnished funds for the exploration of Mt. Auyan-tepui in Venezuela, a towering plateau zoologically unexplored, in a particularly interesting region. The Phelps Venezuelan Expedition was organized and put into the field with Mr. G. H. H. Tate in charge, and with Mr. William F. Coultas and Mr. E. Thomas Gilliard as representatives of the Department of Birds. Mr. James A. Dillon of the Department of Preparation also accompanied the party, which was joined in Venezuela by Mr. Phelps, Sr., and his son, William Phelps, Jr. The expedition went by boat from Caracas to Ciudad Bolívar, on the Orinoco, and thence flew by plane to the foot of the mountain. Ascent was made on foot, and on December 10, Mr. Tate, Mr. Gilliard, and Mr. Phelps, Jr., established a camp on the summit, while Mr. Phelps, Sr., Mr. Coultas, and Mr. Dillon were at work at the 1,100-meter level before the close of the year.

Between August 27 and October 12, Dr. Robert C. Murphy was engaged in an expedition to the Pacific coast of Colombia, a brief report of which is given in *Natural History* for December. Due to the breakdown of the boat originally scheduled for the voyage, the trip along 1,065 miles of coast, from Panama to Guayaquil, was made in a 38-foot launch, a precarious undertaking. Results of geographical and zoölogical value were obtained. The vessel was supplied by Mr. E. Hope Norton; Mr. Jesse Metcalf furnished funds for equipment and incidental traveler's expenses; oceanographic instruments were lent by the U. S. Coast and Geodetic Survey and Woods Hole Oceanographic Institution, and photostats of maps and other data by the American Geographical Society.

Anthropology.—Early in the year, Mr. Junius B. Bird returned from a two-years' survey of Southern Chile. The results of this expedition have been announced in print and elsewhere, some of the contributions made being of unusual importance. Financed by the Voss Fund.

Arts, Preparation and Installation.—Mr. James A. Dillon joined the Phelps Venezuela Expedition, to serve as field preparator during the collecting of mammal specimens, leaving in November, 1937. Financed by Mr. William H. Phelps.

EUROPE

Mineralogy.—The notable departmental expedition of last summer was to Scandinavia by Dr. Frederick H. Pough, who visited pegmatite deposits in Norway, the Kongsberg silver mine, the Swedish iron mines at Kiruna and Gellivare, the Boliden gold mine and other places of mineralogical interest. A considerable collection of specimens was amassed for the department and contacts established with other institutions for future exchanges. Berlin and Paris were also visited and the museums and collections studied and exchanges arranged.

ASIA

Anthropology.—In India, Dr. David G. Mandelbaum is collecting among the Hill Tribes, groups of people not represented in our collections. Financed by the Voss Fund.

AFRICA

Ornithology.—Through the generosity of Mr. Charles W. Boise, Mr. D. Heineman, and Mr. W. Hallam Tuck, funds were provided

to send Dr. James P. Chapin to western Africa in search of the striking new peacock-like bird which he discovered and described last year. Dr. Chapin left Brussels on June 19 by plane for Stanleyville, thence going by automobile to Ayena, Angumu, Lake Albert, Albert National Park, and Uganda, and by return plane from Port Bell to Marseilles, returning to Brussels on September 7. Two native skinners, Musoba, lent by the Albert National Park, and Nkotiba, lent by Lukolela Plantations, assisted Dr. Chapin in the field. The trip was quite successful, and a great deal was learned concerning the habits and distribution of the bird. Seven skins of it were brought back to the Museum, together with numerous other birds and a few mammals. An account of the journey was published by Dr. Chapin in *Natural History* for December.

Arts, Preparation and Installation.—Mr. Richard C. Raddatz, accompanying Mr. Philip M. Plant to East Africa, collected specimens and accessories for the Ostrich and Warthog Group for the Akeley Memorial Hall of African Mammals. Financed by Mr. Plant.

Mr. Robert W. Kane, accompanying Mr. W. D. Campbell to East Africa, made background studies for the Nile River and the Black Rhinoceros Groups and also collected and prepared accessories for both groups, remaining in the field from January 19 to May 12, 1937. Financed by Mr. William D. Campbell.

SOUTH SEAS AND PACIFIC ISLANDS

Living Invertebrates.—Early in September, Associate Curator Willard G. Van Name left for an expedition to the Philippines and Java. He visited the Island of Davao off the southeast coast of Mindanao to investigate the marine invertebrate fauna of its shallow waters, and the importance of the locality as a center for future study of Philippine invertebrates.

Dr. Van Name reached Manila on October 8, where, through the courtesy of Mr. and Mrs. P. A. C. Ellis, he made his headquarters at their house. Through their interest in his work, Dr. Van Name made contacts with the officials of the Philippine Bureau of Science and of the University of the Philippines which gave him an insight into the work of the Government Biological Station at Puerto Galera on the Island of Mindoro. Here he was impressed by the luxuriance and variety of the life on the reefs, far exceeding that of the West Indies, especially in variety of coloration and beauty. Dr. Van Name collected consider-

able material in this locality. He found the officials of these institutions extremely obliging and anxious for closer cooperation with the scientific organizations of the United States.

From Manila Dr. Van Name went to Davao, arriving there early in November. He was cordially received by Mr. Ernest H. Oesch, who, with his son Godfred, has made many collections for the Museum during the past few years. It was the scientific value of these accessions that attracted the interest of this Department to the Mindanao region. Mr. Oesch is the overseer of a large coconut plantation and through his courtesy Dr. Van Name was able to make it his headquarters. Through Mr. Oesch's assistance many collecting expeditions and biological observations were made in the neighborhood. On December 3, Dr. Van Name went to the island of Java, to make a biological reconnaissance and to do photographic work.

Financed by the Carnegie Corporation of New York Committee to administer Grants-in-Aid for Foreign Travel and Study for Museum Workers.

Ichthyology.—Mr. William J. Morden, Field Associate in the Department of Mammals, obtained research material of Carangin fishes in Hawaii. Financed by the Morden Caranx Fund.

Ornithology.—At the beginning of the year, the Templeton Crocker Expedition was still in the field with the work completed, awaiting transportation, as noted in last year's report. Mr. William F. Coultas, the representative of the Department, sailed from Honolulu January 1. The highly successful results of this expedition comprise specimens (including 95 birdskins and 21 eggs), accessories, photographs and colored sketches (by Mr. Toshio Asaeda) and field notes suitable for the preparation of three of the forthcoming habitat groups of birds in Whitney Hall, to exhibit the birds of Samoa, Hawaii, and Laysan Island, respectively. The generosity of Mr. Templeton Crocker made this expedition possible.

The Archbold-Rand New Guinea Expedition had Dr. Austin L. Rand, as ornithologist, still in New Guinea at the beginning of 1937. Dr. Rand returned in the early part of the year but left again late in the year in preparation for continued work in the same country, again under the auspices of Mr. Richard Archbold. There were received 2,704 bird skins, some spirit specimens and a number of nests and eggs. Financed by the Biological Explorations Fund.

The Whitney South Sea Expedition continues to maintain Mr. L.

Macmillan in the New Hebrides and Loyalty Islands; the Islands of Erremango and Aneiteum were explored and work commenced on Maré Island in the Loyalty group. Specimens sent in during the year comprised 245 skins, several jars of spirit specimens, and a number of nests and eggs. Financed by Mrs. Gertrude Vanderbilt Whitney.

Mammalogy.—The 1936 Archbold-Rand New Guinea Expedition, Mr. Richard Archbold, leader, Mr. G. H. H. Tate and Dr. A. L. Rand, Museum collectors, terminated activities in the field during the fall of 1936. The collection of 1,341 mammals secured on the expedition arrived during 1937. Financed by Mr. Archbold.

Anthropology.—Dr. Margaret Mead will continue her study in Bali and New Guinea until the end of 1938. This expedition has returned large collections and the most complete moving-picture record of native child life so far known. Financed by the South Pacific Exploration Fund.

EDUCATION

In the sudden death of its beloved Curator, Dr. George Herbert Sherwood, on March 18, 1937, the Department of Education suffered a tragic loss. For thirty-one years Dr. Sherwood had guided the policies of the Department and promoted the development of its activities from 1906, until more than forty millions of contacts were made through its varied activities thirty years later. An understanding, sympathetic teacher, Dr. Sherwood delighted in furthering the educational work which touched the lives of so many thousands of children and adults. The employees in the Department have felt a personal grief in the loss of an unselfish counsellor and friend.

Adult Education.—Each year greater emphasis is placed upon the Museum's program of adult education. The regular spring and autumn series of Members' Lectures have been successfully conducted under the immediate direction of Mrs. Hazel L. Muller. In the "Know Your Museum" series under the direction of Mrs. Agnes K. Saunders, six lectures were given in the spring by Mr. N. C. Nelson on "Pre-historic Man" and another series of eight lectures in the autumn by Dr. William K. Gregory on "Evolution, the Masterkey." Spring and autumn programs of films and lectures were also planned by Mrs. Saunders for the Evening Elementary School Students' Association on Friday evenings and for the Adult Students on Saturday afternoons.

Continued enthusiasm marked the Museum Tours conducted by Dr. William L. Smith for the public on Wednesday, Friday, and Satur-

day. An increased number of adults received docent service in the museum halls; 42,418 adults and children were thus guided.

The Saturday afternoon Film Showings for the public arranged by Mr. John R. Saunders were attended by 29,333 persons, chiefly adults.

Two lectures for the Adult Blind were given in the autumn. Fortunately the attendance was small at each lecture, thus enabling each person to handle the specimens illustrating the talk.

An activity for an adult group with specialized interests is that of the film showings and guided hall instruction given to Nurses in Training from the hospitals in the metropolitan area. This work, as carried on by Dr. Smith, has received the enthusiastic approval of the supervisors of instruction in these hospitals, who have requested several visits for each of their groups. During the past year 30 groups with a total of 701 student nurses have received instruction in the Museum halls.

College courses for Students and Teachers in Service have been conducted in cooperation with New York University, Hunter College, and the College of the City of New York. They have been: "Methods of Teaching Geography in an Activity Program," "The Museum in Elementary Social Studies," "Nature Study for City Teachers," "Astronomy for Teachers," and "Astronomy" (general). Another course of five double sessions on "Craft Techniques for Teachers" has been given to five different groups during the year.

The intensive four weeks' course in techniques of museum teaching for Student Teachers from City College has been given to six different groups of five students each by Mrs. Grace Fisher Ramsey and Miss Georgine Mastin.

A considerable number of contacts have been made with various colleges and universities during the past year. Among these might be mentioned: Rutgers, University of Vermont, New York University, Columbia, Hunter, City College, Brooklyn College, and others. A total of 36 college groups were given docent service.

Miss Mastin, at the desk of Education Bureau, has assisted many museum visitors.

Adolescent Groups.—Two series of Biology Lectures with a total attendance of 10,137 students were given; many groups with a total of 5,548 students received Hall Instruction, and more than 7,825 students used the mimeographed Indoor Museum Trips in the Darwin Hall, Dinosaur, Mammal, Bird, Reptile, Insect, and Age of Man Halls.

In coöperation with the American Institute, Mr. John C. Orth has conducted two Craft Courses for members of the Junior Science Clubs in which techniques of constructing museum groups have been taught.

The Planetarium demonstrations continued to be popular with high school and junior high school groups from the public and parochial schools in New York City. A total of 73,310 students took advantage of this educational offering during 1937.

At the ninth annual Children's Science Fair of the American Institute held in Education Hall during May with an attendance of 21,554, there were many excellent exhibits in Biology, Chemistry, and Physics.

The Science Congress of the American Institute Junior Science Clubs was held on December 18 with an attendance of 400 high school students who gave demonstrations of interesting features in their work in Physics, Chemistry and Biology. On December 30 the annual Christmas lecture to these clubs was attended by 610 high school students.

Elementary Groups.—The spring and autumn series of Lectures for Members' Children were very well received and showed the result of Mrs. Muller's careful selection of subjects suited to children's interests.

The Friday Auditorium Lectures have been well attended with a total of 33,648 pupils at 21 lectures, 16 of which were repeated to accommodate those wishing to reserve seats.

There has been a decided increase in the numbers coming to the museum for the Exhibition Hall Classes, as many as twenty-four different classes often being given individual instruction in the museum classrooms during a single day. During the past year, 1,551 classes have been instructed, with an attendance of 56,414 children.

To assist the museum instructors in adapting the class work to the specialized interests of each visiting group, a new system was inaugurated during the autumn of having preparatory lessons given in the school classrooms by W.P.A. instructors on the same topics as were to be taken up at the museum when the pupils arrived the following day. In addition to this, double postal cards were sent to each teacher a week in advance of the visit, requesting information regarding the general intelligence of the pupils, how far advanced they were in the topic to be considered at the museum, and any special questions which the teacher or the pupils desired to have answered at the museum. The

results of these aids seemingly proved very satisfactory and increased the effectiveness of the museum visit.

The attendance of Sight Conservation and Blind Classes at the museum has also increased, with a total of 183 talks to 3,197 children.

In the autumn there was inaugurated, with the approval of Miss Margaret McCooley, Associate Superintendent in charge of work for the handicapped of the New York City schools, regular monthly visits of Classes of Crippled Children. On the third Thursday of each month a school bus brought the children to the Museum for a day's visit. The program included a visit to the Akeley African Hall and other halls of special interest or those containing exhibits which correlate closely with the school work. This was followed by a lunch in the School Service cafeteria. Then films were shown, after which the children were conducted to the Hayden Planetarium for a special lecture in the Copernican room and the demonstration chamber.

The increase in the number of classes following an Activity Program in the city schools has resulted in larger numbers visiting the museum than ever before. For the most part, these classes have come with a definite purpose. The department has been assisted in the guidance in the museum halls by several W.P.A. instructors who were given a course of training at the museum during June and September. A total of 729 classes with an attendance of 30,041 pupils has been given the opportunity of observing under careful guidance museum exhibits which put into concrete form many abstract principles.

EXTENSION WORK

A. *Circulating Collections.*—An increasing number of requests was received for all types of museum loan materials. Reprints were made of the two pamphlets, "Visual Aids in Geography" and "Visual Aids in Nature Study," prepared by Mrs. Ramsey. The branch libraries of the city have petitioned for many special collections to correlate with the subject matter of new books. Special collections have also been lent to other institutions. This work, under the immediate direction of Mr. Herman A. Sievers, has brought many commendatory letters and requests for more materials. The distribution of the circulating biology, nature, geography, and history collections has also increased during the past year, showing a total of 107,932 objects in 10,336 collections lent to 705 schools and studied by 9,901,486 pupils.

Interesting new collections added during the year were: Three-

dimensional groups illustrating Coal: Its Formation and Method of Mining; Deep Sea Fishing Along the Atlantic Coast; Indians of the Eastern Woodlands; Rocks Found in Geological Areas of New York City, and Rayon and its Manufacture.

B. *Lantern Slides*.—Several sets of slides were revised, to include the most up-to-date material possible. The circulation which had previously reached the saturation point, continued about the same, although lack of sufficient duplicate material necessitated a larger number of requests than ever having to be refused. A total of 1,402,562 slides was circulated to 692 borrowers, making 54,195 loans, and 17,518,433 contacts in this way.

C. *Motion Pictures*.—The demand for films has been greater than ever. Although additional prints have been deposited with the Museum by many companies, more than fifty per cent of the requests received daily from all over the United States have to be refused. Requests for sound films have also shown a steady increase, even though the Museum does not include sound films in its circulating library. During 1937, a total of 33,923 reels of 16mm. films and 2,225 reels of 35mm. films were lent to 1,714 borrowers located in New York City and in 45 States. These films were projected in 82,941 showings before 13,401,512 people. Of this total, 24,217 films were lent to 521 public schools of New York City and shown to 9,699,871 pupils.

A most interesting film showing life in Peru was photographed for the department by Mr. Charles Coles, Chief Photographer of the Museum, who accompanied the Hayden Planetarium-Grace Peruvian Eclipse Expedition in May and June. This film and several others acquired through purchase have been used extensively in the instruction of classes visiting the Museum.

D. *Lectures*.—The lecture center in Washington Irving High School has been maintained as usual for pupils from the surrounding schools. Lectures have been given by Mrs. Ramsey at New York University and Teachers College, also one at the University of California, Berkeley. Mr. John R. Saunders lectured at Bryant High School and to the Bronx Girl Scouts, and Miss Mastin to the Biology Club of Hunter College.

During the spring, Miss Farida A. Wiley directed the Nature Study section for Camp Counsellors at the Camp Leadership Course held for seven weeks at Columbia University, being assisted by several members of the Department.

E. *Radio Programs.*—During the year the Department gave several radio programs. The regular weekly program given over Station WNYC was continued with a total of 48 talks by Mr. Saunders and Mr. Coles. A second program was given weekly by Mr. Saunders and Mr. Coles over Station WHN which totaled 52 talks. Additional miscellaneous broadcasts were made by Mr. Saunders over Stations WNYC, WMCA, and WBBC.

In November a new series of Question and Answer natural history programs entitled "This Wonderful World" was inaugurated over Station WOR. This was broadcast from Memorial Hall at the Museum, giving visitors an opportunity to participate by answering questions drawn from a drum. If correct answers were not given, Mrs. Agnes Saunders supplemented with the accurate information.

F. *Photographic Work.*—The Photographic Division has supplied the following material: 1,809 negatives, 13,123 contact prints, 4,855 enlargements, 4,585 lantern slides, and 68 transparencies. The cataloging of 2,167 negatives has been completed. With the addition of these, the reference files now number 14,167 negatives and 14,695 prints.

G. *Bear Mountain Trailside Museums.*—Although the direct financial responsibility for carrying on the nature trails and the museum work at the Trailside Museums at Bear Mountain was assumed by New York State in July, 1935, the Museum continued to sponsor the work under the direction of Mr. William H Carr, Assistant Curator (Outdoor Education), and financed the publication of a new pamphlet, "Ten Years of Nature Trailing," written by Mr. Carr to record the work he accomplished at Bear Mountain during the eight years the project had been supported by the Museum and the last two years in which the State had made an appropriation for its maintenance. These trails and museums have been visited by 342,000 persons during the year.

Research Work.—Mrs. Ramsey, who has served as acting curator of the Department following the death of Doctor Sherwood, has continued her special study of the development of the educational work of the museums of the entire country, including the methods and trends followed. During the past two years she has visited one hundred thirty museums in the United States and has studied the special methods used by each in carrying on an educational program.

An experimental study of the behavior of museum visitors initiated in the summer of 1936 by Dr. Arthur W. Melton under the

supervision of the late Professor Edward S. Robinson was continued throughout the winter under the immediate direction of Dr. A. J. Arnheim, with the assistance of W.P.A. observers. The data collected were forwarded to Dr. Melton, at the University of Missouri, who is making a study of the findings.

During the autumn an attempt was made to check the number of visitors in the Museum during each hour of the day, to find the point of peak activity and average time spent by visitors in the museum, also to ascertain the interest of the public in the various halls.

Conferences Attended.—The Department was represented at several important meetings and conferences during the year. Mrs. Saunders attended the annual meeting of the American Association of Adult Education held at Skytop, Pennsylvania, in May and addressed a special conference on "Fields of Work for Women" at Cornell University in June. Mrs. Ramsey and Mrs. Saunders attended several special luncheon meetings of the New York Association of Adult Education.

Mrs. Ramsey served as a member of a panel at the annual fall meeting of the United Parents Association. She was also a panel member at the Ninth Elementary Conference held in December at Teachers College. Mrs. Ramsey has been an active member of the special committee appointed by the Board of Education on Objective Materials in Science Teaching, a member of the Junior Activities Committee with Mr. Paul B. Mann, Chairman, directing the policies of the Junior Science Clubs and Children's Science Fair in cooperation with the American Institute, a member of the advisory board of the Arts in Childhood Education, the advisory board of the Metropolitan Motion Picture Council, the executive committee of the Metropolitan Branch of the Department of Visual Instruction of the National Education Association, the educational film committee of the Department of Secondary Education of the National Education Association, the advisory board of the National Board of Review of Motion Pictures, and the American Nature Study Association. During the summer she served under Dr. Mark May on a special committee to evaluate science films for the Motion Picture Producers and Distributors of America.

The Department of Education received considerable assistance from the workers assigned by the W.P.A. Practically all of the 36,148 reels of motion picture films circulated by the Museum were inspected by W.P.A. workers. The mimeographing required by the Department was done by a W.P.A. technician. Lantern slides were repaired by

another. Others checked a large proportion of the 1,402,562 slides lent to the New York City public schools during the year. An artist constructed four small dioramas for school use in the social studies. A second artist painted the outlines of birds for circulating collections. In addition to the above, valuable aid was given in a number of offices in the Department, through the assignment of stenographers, typists and clerical assistants.

The Department was most grateful to receive on loan an excellent oil portrait of Dr. George H. Sherwood. This was painted by Mr. Charles A. Rose, a W.P.A. artist, and is on exhibition in the first floor corridor leading from the Northwest Coast Hall to the School Service section.

NUMBERS REACHED BY THE MUSEUM AND ITS EXTENSION
EDUCATIONAL SYSTEM IN 1936 AND 1937

	1936	1937
Lectures to School Children, Classes and Guiding	188,453	234,034
Meetings of Scientific Societies and Other Meetings and Lectures.....	17,523	23,860
Concerts	53,157	40,560
Exhibition Halls	1,520,694	1,483,243
Planetarium (Paid)	574,106	498,396
Planetarium—Classes (Free)	137,649	73,310
		<hr/>
Total Attendance for All Purposes.....	2,491,582	2,353,403
		<hr/>
Lectures to Pupils in the Schools.....	12,358	11,085
Reached by Motion Picture Service.....	11,554,364	13,401,512
Reached by Lantern Slide Service.....	18,151,098	17,518,433
Reached by Circulating Collections.....	9,931,341	10,041,952
Bear Mountain Nature Trails.....	420,000	342,000
		<hr/>
Grand Total	42,560,743	43,668,385

LIBRARY

In the Library the year has been marked by steady growth, by necessary routine activity and the carrying forward of projects already in progress.

The outstanding gift for this period is a collection of about two hundred volumes from Mr. Arthur S. Vernay. This splendid library of sporting and travel books added new titles and new editions to the

General Library, while materially increasing the proposed Sportsman's Library by the addition of titles indispensable to such a collection.

The year 1937 brought to a climax the accumulating interest in the work of John James Audubon. Various publishers responded to this interest by reissuing the famous bird portraits. The Museum, through the Library, coöperated in one venture by permitting the Folio Edition to be used in reproducing certain plates. The general interest was also felt by an increased demand from the public to inspect these famous volumes.

Work on the task of making available for use the Henry Edwards collection of entomological correspondence was brought near completion. This collection of 2,541 items, covering the period from 1853 to 1889, includes, among others, letters from W. H. Edwards, Henry Walter Bates, Arthur Gardiner Butler, John Henry Comstock, Frederick DuCane Godman, Hermann August Hagen, W. F. Kirby, Dr. J. L. LeConte, Professor Hermann Loew and Count de Castelman. The Library is indebted to Mrs. Ada Sterling, of the W.P.A., for her intelligent handling of this mass of manuscript.

In the interest of efficiency, the work of the assistants was reorganized and the physical arrangements of three offices readjusted.

Much valuable material is received through exchange of publications with nine hundred and twenty-eight organizations.

During the latter half of the year, the W.P.A. office provided a worker assigned to the Bindery to help in the routine tasks. The Bindery did ninety-one hours' work for various departments, and bound eight hundred and sixty-six books for the Library. Considering the fact that more than fifteen hundred periodical publications are received yearly, it is evident that the present equipment is inadequate for the proper care of the library collections.

ARTS, PREPARATION AND INSTALLATION

The thirty members of the staff, working under the direction of Dr. James L. Clark, accomplished an extensive program in exhibition and in preservation of material.

In the Akeley Memorial Hall of African Mammals, the South African Group (gift of Mr. Arthur S. Vernay) was brought to completion, with five animal mounts by Mr. Robert H. Rockwell, background by Mr. Francis Lee Jaques and flora and foreground by Messrs. George E. Petersen and Fred Scherer under the direction of Mr. Albert

E. Butler. Also on the mezzanine floor of the African Hall, the White Rhinoceros Group, occupying the large northwest corner space, was installed, with background by Mr. James Perry Wilson, groundwork by Mr. Butler and Mr. G. Frederick Mason, and mammal mounts previously executed by Dr. Clark. For the Black Rhinoceros Group (gift of Mr. W. D. Campbell) in the opposite corner, Mr. Robert W. Kane painted the background, and Mr. Rockwell, assisted by Mr. Charles Bender and Mr. Thomas Hull, mounted the rhinos, two adult and one young, thus bringing the group to an advanced stage.

On the main floor of the Akeley Hall, the Nile River and the Okapi Groups (both gifts of Mr. W. D. Campbell) have progressed materially.

In the Whitney Hall, three Bird Groups were completely installed:

Ship Followers Group—Gift of Dr. Leonard C. Sanford

Nukahiva Group—Gift of Mr. A. G. C. Sage

Peru Group—Gift of Mr. Henry W. Sage

All bird mounts were made by Mr. Raymond B. Potter, and all backgrounds by Mr. Francis Lee Jaques, assisted by Mr. Joseph N. Guerry and Mr. Fred Scherer, with the carefully reproduced ship rail in the first-named group by Mr. Carlton E. McKinley and the elaborate South Sea flora and accessories by Messrs. Butler and Petersen and Mr. Ralph Mendez. Work on the Galapagos and Tuamotu Groups (both gifts of Mrs. Harry Payne Whitney) is well under way.

In the Roosevelt Memorial building, the four pictorial groups representing the life and interests of Theodore Roosevelt have been designed in detail and are being rapidly executed. Working on the special funds supplied by the Roosevelt Memorial Committee, Mr. John W. Hope completed the modeling of two Indian figures and that of Peter Stuyvesant for the Dutch-Indian Group, and Mr. Hanson Puthuff painted the backgrounds for this and the Roosevelt Ranch Group.

For the Hall of Fishes, Mr. Ludwig Ferraglio made two excellent mounts of shark specimens presented by Messrs. Winston Guest and Francis Low, as well as several lesser mounts and many repairs. He also constructed an exact and carefully finished scale model of the Tropical Ocean Group, which is to be donated during the coming year by Mr. Michael M. Lerner.

For the Hall of the Woodland Indians, Mr. Ushinosuke Nara-hara completed miniature models showing the agriculture of the Eastern

Woodland Indians and the basswood industry among the Fox Indians and a replica of the Inwood Rock Shelter.

For the proposed new Hall of North American Mammals, Dr. Clark and several assistants spent considerable time in re-planning the case arrangements and in re-assembling the scale models of the twenty-nine habitat groups, as approved by the new Committee under the chairmanship of Mr. Robert E. McConnell.

The Department achieved an excellent record in the line of current preparation of specimens for the study collections, with some 7,000 skulls and 300 skeletons cleaned or mounted by Messrs. Andrew Johnstone, Alfred Maumary and Henry Ruof, 150 skins tanned (in addition to the large mammal skins prepared for mounting) by Mr. Oskar Granstedt, 287 study skins and 275 small mammal and bird mounts by Messrs. Raymond B. Potter and James A. Dillon and 310 casts by Mr. James Bell. Mr. Potter made many additions to the Local Bird Collection, and Mr. Rockwell executed an admirable mount of the West African gorilla collected by Mr. E. W. Hoyt.

A number of improvements in technique were evolved, making for greater efficiency and economy, and in the Division of Osteology a new degreasing tank was installed, which has fully eliminated any health hazard arising from the constant exposure to chemical fumes.

Many inquiries were received on methods and materials used in museum preparation, and an unprecedented number of professional and lay visitors applied for advice on technical problems. During this year the Department studios were opened more frequently than ever before to school and social groups of interested spectators from Manhattan and the vicinity, in response to an ever-growing realization on the part of the public of the manifold arts and crafts involved in the creation of museum exhibits.

Thirteen members of the staff engaged in expedition work, as against five during the previous year. With the exceptionally broad field work, interrupting the routine attendance of so many of the staff, Dr. Clark feels that his associates and assistants deserve special credit for having accomplished so conspicuously extensive a program in their intramural activities.

Two members of the W.P.A. staff have assisted in the Department during the year. Mr. Vladimir Toumanoff has been assigned on general work, and Mr. William Burns has helped in the cleaning of skeletal material.

MUSEUM PUBLICITY

The functions of the Department of Public and Press Information fall into six divisions: The dissemination of printed and pictorial publicity; the preparation and presentation of radio broadcasts; the editing of *The Sky*, published by the Hayden Planetarium; promotional activities on behalf of the Hayden Planetarium; the staging of contests for the Planetarium; and cooperation in the planning of the Museum's Ten Year Development Program.

The Department is under the direction of Mr. Hans Christian Adamson, with the able assistance of Mrs. Anna H. Schafer, secretary to the Department; Miss Jean E. Wiedemer, supervising publicity; Mr. E. A. Berg, supervising Planetarium guest relations, and Miss Sally Pyle, supervising radio programs and mail. That the Department was able to extend its activities during the year was in a large measure due to the initiative and industry of employees assigned by the W. P. A. Museum Project.

Following is a summary of the Department's activities for 1937:

The Department issued 150 releases dealing with Museum activities, such as research, expeditions, education, scientific events, new acquisitions, and temporary and permanent exhibits. A large number of releases covered Hayden Planetarium presentations and activities.

Arrangements were made for interviews for individual representatives of newspapers, magazines or groups of newspaper reporters. During the year, 1,167 photographs were issued for newspaper use. The Department also inaugurated a feature service for trade papers, house organs and fraternal magazines.

A conservative estimate of 30,000 items indicates that the Museum received at least 3,500,000 lines of publicity in 1937.

As experience has proved that popular interest in the natural sciences can be stimulated by radio presentations that are entertaining as well as informative, the Department continued its policy to obtain the cooperation of the Departments of Talks and Special Events of the Columbia Broadcasting System, the National Broadcasting Company, and the Mutual Broadcasting System, as well as local stations such as WQXR, WMCA, WINS, WBBC, and WHN.

The Department's radio efforts fall into two categories: presentations in series of thirteen broadcasts, and special "spot" broadcasts when radio time and opportunity permit.

In 1937, the Department sent out more than 110,000 mimeographed or printed digests of radio presentations to listeners who followed Museum programs. The radio mail showed that every State in the Union was represented in the listening audience.

The Columbia Network, through its Department of Talks, gave the Museum 43 periods of fifteen minutes each in 1937, for the presentation of three series: "The Drama of the Skies" and "Exploring Space," dealing with astronomy, and "New Horizons," dealing with exploration and research. In addition, Columbia participated in the Hayden Planetarium-Grace Peruvian Eclipse Expedition by making ten fifteen-minute broadcast periods available. Of these, eight were broadcasted from Peru.

The National Broadcasting Company: Starting in the fall, the Department established a contact with the N.B.C. Radio Corporation of America to cooperate with television engineers in preparing and presenting Museum programs on television broadcasts.

The Mutual Broadcasting System, beginning October 1, provided time for a coast-to-coast program known as "This Wonderful World."

The Interstate Broadcasting System gave fifteen minutes a week to a musical talk program known as the "Music of the Spheres."

The New York State Broadcasting System, through WINS and associated stations in upstate New York, gave time for a weekly program of questions and answers over a period of 18 weeks last summer. Beginning in the fall, it also established a period of fifteen minutes a week for an astronomical talk program entitled "Romance of the Stars."

It is impossible in the brief space available in this report, to give complete credit to those connected with the broadcasting companies and with the Museum, who have given generously of their time and thought in connection with Museum radio presentations.

With the generous aid of members of the Planetarium Staff, particularly Miss Helene Booth who spent much time in innumerable details, this Department edited *The Sky*, the monthly Bulletin of the Hayden Planetarium. Thanks are also extended to Mr. Charles Powers, assigned to this Department by the W.P.A., for the splendid results in lay-out which were the fruits of his long experience in the advertising and publication field. Subscribers to *The Sky*, through the diligence of Mr. Charles J. O'Connor as circulation manager, rose from 2,180 annual subscribers to 4,809.

This Department, in handling Guest Relations for the Hayden Planetarium, staged numerous efforts to arouse further public interest in the Planetarium and to increase attendance. In March, 1937, Mr. E. A. Berg joined the Department, and responsibility for the solicitation for group business was placed under Mr. Adamson's supervision. Under the new policy, 961 group reservations for 40,411 visitors were made from March to December.

In September, through the kindness of Mr. Barron Collier, Sr., the Hayden Planetarium received free space for 10,500 car cards in various surface, subway and bus lines in New York City, and on railroad trains and surface lines covering the Metropolitan area, all of Long Island, and for posters on the Eighth Avenue Subway. Planetarium folders were distributed throughout New York, New England, the Atlantic States as far south as Washington, D. C., and as far west as Chicago.

Two visitors' contests were conducted by this Department, which gratefully acknowledges donations by the Carl Zeiss Company, the Royal Typewriter Company, the Longines-Wittnauer Company, the Hotel Governor Clinton, and the Hotel Wellington.

The Department has issued releases on Ten Year Development activities, and the Museum's two network presentations over CBS and Mutual have been announced as given under the auspices of the Ten Year Development Program.

The Department depends heavily for its speedy and efficient dissemination of news upon every other Department in the Museum. Particular appreciation is due Miss Janet Henderson, Mr. Charles H. Coles, and Miss Dorothy Van Vliet, of the Photographic Division. Mr. Edward A. Burns, head of the Print Shop, has been of invaluable aid in expediting departmental printing. Mr. Charles J. O'Connor, Membership Secretary, helped generously in expediting large quantities of press releases and radio mail.

PRINTING

This department, under the management of Miss Margaret M. Fish, is responsible for all Museum printing except the scientific publications, *Natural History* magazine, and *The Sky* magazine, these being edited by their own respective staffs, and printed by outside printers.

Most of the printing for the Museum's twenty-eight departments and the Hayden Planetarium was done by the Museum Print Shop, with a staff comprising its foreman, Mr. Edward A. Burns, one combination monotype operator, one compositor, and one pressman. The regular force was augmented for part of the year by one compositor and one pressman, on a temporary basis, and by four W.P.A. printers who have given valuable assistance.

During the year, over eleven hundred jobs, consisting of books, booklets, menus, pamphlets, posters, circulars, tickets, and all stationery and form work, were handled by the Print Shop. This represented 3,132,273 printed pieces, and required 3,757,298 impressions. Also, 326 labels were completed and a total of 885 printed pages. The latter included 40,000 copies of the Monthly Bulletin of The School Nature League, 118,000 copies of *Junior Natural History*, 3,000 copies of reprints of *Natural History* magazine articles, and an 80-page Guide Book for the Hayden Planetarium.

The outstanding achievement of the year was the completion of Article VI of the Bashford Dean Memorial Volume, consisting of 196 pages and cover, 7 plates, and 128 text figures.

Composition of Volume 2, of the Proboscidea memoir, is under way, about seventy galleys having been set.

In addition to printing done in the Print Shop of the Museum, the following publications were printed by other New York printers: "Visual Aids in Geography," 1,500 copies; "Visual Aids in Nature Study," 1,500 copies; "Ten Years of Nature Trailing," 1,500 copies; "Star Legends Among the American Indians," 6,000 copies (two printings); "Price List of Popular Publications," 10,000 copies; *Twenty-fourth Annual Report of the Pension Board*, 500 copies; *Sixty-eighth Annual Report of The American Museum of Natural History*, 7,100 copies; *Guide Leaflet No. 86*, "Introduction to Human Anatomy," 3,000 copies.

SCIENTIFIC PUBLICATIONS

(*Novitates, Bulletin, Anthropological Papers*)

The Chairman of the Committee on Scientific Publications reports that ninety-one separate scientific papers were completed during 1937, comprising 2,096 pages. There are in type two papers which will appear in 1938, approximating 928 pages. Accordingly the total output will be approximately 3,024 pages. As usual, Mrs. Ethel J.

Timonier had charge of the preparation of these manuscripts for the printer, their transmission, correction of proof, and other details connected with them.

NATURAL HISTORY Magazine

The increase in membership in the Museum during 1937 reflects a growing interest in *Natural History* magazine as a bond linking the public with the institution and its activities. The circulation of the magazine rose from 19,520 to 24,509 in the year, with the volume of advertising increasing 63%.

Mr. Sherman P. Voorhees, in charge of advertising, had a Museum assistant after March, 1937. Throughout the year he had the secretarial assistance of one W.P.A. worker, and of another for approximately the first six months.

The greater attention that *Natural History* has attracted is due largely to new interest that has been shown by contributing authors. Not only has a much greater quantity of material been submitted for publication but the quality of articles has shown a distinct rise. This is reflected in the general response of readers and in a marked increase in the number of requests from other magazines to reprint articles from *Natural History*, both in this country and abroad. Thus during one of the most intensely competitive years in magazine publishing, *Natural History* has shown gains in circulation, advertising, content and popularity. The magazine is edited by Edward Moffat Weyer, Jr., Ph.D.

THE JUNIOR NATURAL HISTORY MAGAZINE

Junior Natural History, one of the more recent of the American Museum publications, acquired 3,307 juvenile readers from literally the four corners of the earth during the year 1937. Children, from as far north as Iceland, as far east as Japan and China, and as distantly south as Australia, are receiving this interesting publication monthly. American school children and their teachers, however, have been the chief supporters of "Junior." Two hundred and twenty-nine schools from practically every State along the Atlantic seaboard and as far west as Minnesota have received this magazine in bulk lots, amounting to over 100,000 copies during the past twelve months. This expansion and service have been accomplished with a minimum of expense. The magazine is edited by Miss Dorothy L. Edwards.

III. ADMINISTRATION, OPERATION, BUILDING

ROY CHAPMAN ANDREWS, Director

WAYNE M. FAUNCE, Vice-Director

The most gratifying event of the year 1937 was the ability of the Museum to reopen all its exhibition halls to the public. Beginning in 1933, a number of halls, in alternating groups, were closed each day, because of lack of funds to employ guards. This year, however, the City was able once more to make the necessary appropriation, and the reopening of the halls has been very welcome to the Museum and to the public. In addition, the City appropriation made possible the reopening of the South or Seventy-seventh Street entrance, thus removing a source of great inconvenience to many of our visitors, and restoring to the Museum a familiar means of entrance and exit.

The Museum Book Shop, on the second floor of the Roosevelt Memorial building, was moved from the room in the southeast corner to rooms in the northeast corner of the same floor. This, and the Sales Booth in the south pavilion of the Museum, which is used for the sale of publications and other educational items for children, are under the charge of Mrs. Margaret H. Mack. The Book Shop and Sales Booth have been functioning pleasantly as points of personal contact between the Museum and its visitors.

A much appreciated feature of the educational facilities offered to the public was the continuation of the orchestral concerts held in our auditorium each week, excepting during the summer months. These concerts were provided by the U. S. Works Progress Administration, the Museum furnishing the auditorium and guards and printing programs.

A great number and variety of activities are connected with the administration of the Museum, and many details are necessarily omitted, but the following résumé will suggest the industry and responsibility of the staff.

The report of the General Superintendent, Mr. Rex P. Johnson, includes a report on the work in the Superintendent's office; a report of the Mechanical Superintendent on repairs and installation (Mr. Charles C. Groff); that of the Power Plant Engineer on heating and lighting (Mr. Wilson L. Todd); and that of the Custodian (Mr. J. B. Foulke).

Work in the Superintendent's office included the making of many drawings, studies and experiments for improvements in heating, ventilating and lighting, supervision of alterations, repairs, case construction, etc.

In the section of repairs and installation, the usual routine work has been carried on to maintain the buildings and equipment, set up special exhibits, carry out the recommendations of the Safety Committee, etc. Alterations, renovating and painting, making cases and equipment and carrying out an extensive program with special funds provided by the City of New York have been carried on.

Work in the Whitney Wing included the erection of steel case fronts on the second floor; completion of group cases and the second floor dome; installation of marble trim on two entrances; alterations in two vestibule ceilings; installing window shades; making visitors' benches; laboratory tables; wall cases for instruments and glassware; metal-lined tanks; shelving, etc.

In the section of heating and lighting, steam production was increased and an improvement in boiler efficiency was made. The sharp increase in the demand for electrical energy, which has been typical for several years past, continued throughout 1937 and resulted in an all-time record for power developed. Maintenance was carried on for boilers, engines, generators, pumps, elevators, refrigerating equipment, electrical, heating and ventilating and plumbing equipment, etc. Alterations were made to improve the heating and ventilating of the auditorium. Elevator inspections were made regularly and all electrical work for special exhibits was carried out.

In the Custodian's section, an increase of twenty-seven men in the personnel through City appropriation, made it possible to reopen all exhibition halls. The total attendance at lectures, meetings of organizations, and exhibits was 1,781,697 (excepting the Planetarium), requiring much work and attention on the part of the Custodian's force.

GIFTS

The American Museum takes pleasure in mentioning the following, among the many gifts received during the year 1937:

Harvey Bassler, a *Podocnemis* (fossil) skull from Peru.

E. L. Bell, an important collection of Lepidoptera.

Robert Broom, casts of the incomplete cranium and upper cheek teeth of *Australopithecus transvaalensis*.

F. E. Church, an important collection of Lepidoptera.

Elisabeth Varian Cockcroft memorial, a suite of twelve pieces of carved Chinese jade, an amethyst necklace of Egyptian origin, a Manchu headdress pendant embodying pearls and native cut sapphires, jade, emeralds, rubellites, a Chinese carved rock crystal vase, two oriental pearls from the Persian Gulf, and fresh-water pearls of corresponding size from the middle western States.

T. D. A. Cockerell, insects, including many type specimens of bees from various countries.

Warren Condit, 20 specimens of fresh-water medusae of the species *Craspedacusta sowerbyi* from Staten Island, collected by Mr. Condit.

Dartmouth College, slabs of rock with dinosaur footprints.

Donald B. Davison, six slides of mounted and identified *Gastrotricha*, from New Jersey, and Westchester County, New York, including one type from New Jersey, collected by Mr. Davison.

Mrs. George Bowen de Long, a star ruby of exceptional size and quality; also a rock crystal seal, engraved with the signet of Abd-ul Medjid, the thirty-first Sultan for the last Turkish dynasty.

J. W. Fecker, a 12-inch reflecting telescope fully mounted, made by Mr. Fecker.

Childs Frick, 374 bird specimens obtained by the Childs Frick African Expedition.

Edgar Greason, Jr., a young swordfish in transition stage to adult.

Clarence L. Hay, an archaeological collection from Vera Cruz.

E. I. Huntington, an important collection of Lepidoptera.

Libbie H. Hyman, nine slides of mounted and identified *Hydra* and *Mesostoma*, including two types, from Canada and New Jersey.

Frank Johnson, an important collection of Lepidoptera.

Junior Astronomy Club, six canvases painted in Peru by D. Owen Stephens, on the Hayden Planetarium-Grace Peruvian Eclipse Expedition.

Mrs. Michael Lerner, a mounted White Marlin, caught by Mrs. Lerner.

E. A. McIlhenny, 269 skins of North American grackles.

William S. McNeill, 330 lots of identified land and fresh-water shells, collected from various localities and identified by his father.

Museo Nacional, Mexico, model of Tomb 7, Monte Alban, Oaxaca.

Frank J. Myers, 71 slides of mounted and identified rotifers, including 4 cotypes and 4 paratypes, from various localities, also three slide cabinets.

Dr. J. R. Nahon, Pleistocene bones from Morocco.

New York Zoological Society, collection of 329 identified annelids and deep-sea nemerteans, including 11 types and 7 cotypes, from Bermuda.

Philip B. Philipp, collection of birds' eggs—some 15,000 sets (about 60,000 specimens), representing some 1,400 species and subspecies of North American birds with very few omissions from the recorded list. It includes many rarities—Great Auk, California Condor, Passenger Pigeon, and Carolina Paroquet, with representative series of the more common forms.

J. Sterling Rockefeller, 1,962 bird skins from the Dutch East Indies.

Mrs. Ruth Bryan Rohde, a large collection from the Eskimo of Greenland.

Estate of Elihu Root, a collection of pottery from Central America, including an unusual Nicoya vase.

L. C. Sanford, 24 skins of Old World birds.

L. C. Sanford and the Whitney South Sea Fund, 572 birds from Borneo and Pagi Island.

Theodore Schneider, a Barracuda skeleton.

Anna Lord Strauss and Mildred Sawyer, an old French celestial sphere.

Mrs. Arthur H. Sulzberger, a Chilkat blanket from Alaska.

Père Teilhard de Chardin, casts of *Postschizotherium* sp. jaws, and fossil deer antler.

Professor A. L. Treadwell, 22 specimens of identified annulates, including one cotype and approximately 9 species, from Hawaii, Florida and Lower California, collected by William Beebe and C. H. Edmondson.

Mrs. Bryce Turner, a native made model of an African village.

Wolfgang von Hagen, a large collection of South American termites, containing numerous queens and also termitophiles.

Melbourne Ward, 25 specimens of identified crabs, including 8 species, from Australia, collected by Mr. Ward.

Harry M. Warner, sound film, "The Story of Louis Pasteur."

Orlando F. Weber, a collection of shrimp and myriopods from Guadeloupe, collected by Mr. Weber.

Professor Franz Weidenreich, of the Cenozoic Research Laboratory, Geological Survey of China, Peiping, model of the Peking skull.

Amelia White, a large collection including pottery, textiles, etc., from the Indians of the Southwest.

ASSISTANCE RECEIVED FROM U. S. WORKS PROGRESS ADMINISTRATION

For another year the American Museum has had the assistance of workers, provided by the U. S. Works Progress Administration for the City of New York, in supplementing and enlarging the scope of the many educational, library, exhibition and research services to millions of visitors and students, and to thousands of institutions of learning, educators, scientists and artists. Expeditions bring back natural history specimens, which are classified, studied and reconstructed; curators bring to light hitherto unknown facts of the earth and its inhabitants, living and extinct; exhibits are prepared, and natural science literature, English and foreign (translated), is made available. The WPA personnel assists the Museum staff in the execution of its many and diverse functions.

The office of the Works Progress Administration projects at the Museum has been in charge of Mr. William A. Rowan, Managing Project Supervisor.

The W.P.A. assistants in 1937 included: Accountants, Artists, Attendants, Biologists, Cleaners, Clerks, Craftsmen, Docents, Draftsmen, Gardener, Matron, Messengers, Printers, Registrars, Research Workers, Sculptors, Statisticians, Stenographers, Technicians, Translators, and Typists.

The Presidential approval for the American Museum of Natural History project was \$467,237.00. Of this we were allowed \$17,800.00 for Materials and Supplies, \$4,500.00 for Miscellaneous Office Equipment and Machines, and \$5,200.00 for other direct costs, making a total of \$27,500.00 other than payroll. Our quota called for 325 workers, but at no time did we exceed 252, the total W.P.A. expenditure being correspondingly lower.

Some of the activities were as follows, performed wholly or partly by the W.P.A. force.

Making abstracts and excerpts from English, analysis of statistical data, arranging data, collections brought back by expeditions; and exhibit cases, arranging manuscripts for archive files, arranging field notes, material for binding, and specimens for study; assembling specimens of bone structures; assistance given in the bindery and in the Bursar's office; care of animals and plants; cataloguing books, collections, specimens, and information; checking estimates of coal deliveries, and other assistance in the General Superintendent's office; checking notes, data, lantern slides, and other records; classifying valuable manuscripts for

the New York Academy of Sciences, of interest to the Museum; classifying results of experiments, and collections; cleaning specimens, bone structures, skulls and skeletons; cleaning storerooms; collecting astronomical data; collecting trays of insects; coloring casts and maps; making color drawings of highly magnified microscopic animals and other color drawings; coloring photographic plates; compiling data; compiling card indices; compiling a Mongolian dictionary, to be used in connection with references of fossil remains found in that territory, somewhat in the nature of a grammar for students and research workers; correcting manuscripts and bibliographies; constructing armatures for models of fossil brains; artificial rocks; base for lunar model; constructing exhibits, habitat groups, wall map, wall chart; labels, layout of hall, miniature habitat groups; models, plaque; racks; schedule board with removable names and dates; supports for display of exhibit material; delivering nature study collections, films and slides to public schools; designing and executing large dynamic exhibits; designing groups; designing wall, ceiling, furniture and floor colors for a hall; detail drawings of a submarine canyon; drawings, to serve as illustrations in scientific treatises; diagrammatic labels; dioramas; drawings of plains and elevations for Geology Hall; dismounting photographs; dispensation of chemicals, extracts, glassware and apparatus; duplicating flora; making educational charts; assistance in electrical work; emergency treatment in First Aid Room; experimental psychological studies of the behavior of Museum visitors, directed by Professor E. S. Robinson (later deceased) of Yale, and Professor A. W. Melton of Missouri; filing electrotypes, index cards, instruction cards, papers of descriptions and general information; gathering data; guiding groups and classes; making graphs and perspective illustrations; hand-binding scientific books; hand-painting labels for individual exhibits; historical letters made ready for reference; hanging astronomical paintings; identifying and listing descriptively collection of astronomical instruments and books; identifying specimens; illustrating labels, indexing; giving information at Education Bureau; inspecting electrotypes, slides and films; installing groups; keeping records; keeping up to date a file and index of ornithological literature; labeling specimens and exhibits; labeling photographs; lettering labels and lecture announcements; assistance in libraries; scientific letters translated, evaluated, abstracted and arranged for reference and a bibliographical index made of the correspondence; microscope work; mimeographing; mounting of maps, specimens and photographs; num-

bering skulls; outlines of animals; outline work on relief map; paintings of birds and bird outlines; painting casts, volcanoes, painting landscape backgrounds, educational panel, labels and signs; painting tanks and stands; a fine portrait of Dr. Sherwood; portraits of Indians; posters; preparation of books for binding, casts, chemical solutions, circular letters; assistance in preparing for use extensive collection of bird skins; preparing film lists and messenger cards; lectures and broadcasts; preparing manuscripts for printer; microscopic slides; pamphlets for binding; poison bags for trays; preparing skeletons; assistance in printshop and proofreading; assistance in preparation of publicity material; preparation of Encyclopedia of African Tribes; rebinding scientific texts; recarving animal brain cases; reconditioning old paintings; recording renamed specimens; redesigning table holding display machinery of an accelerograph; refilling collections with preserving fluids; registering classes; remounting photographs; repairing skeletons; research; restoration of paintings and frames, drawings and photographs; revising lists and references; restoration of brain of fossil ostracoderm; rewriting archive records at the Medical Center for use at Museum; regrouping material; sectioning slides; selecting slides to fill teachers' orders; shel-lacking specimens, casts, and skeletons; shipping films; skeletonizing fishes and mammals; making sketches; sorting instruction cards, labels, manuscripts; staining slides; storing material in order and making records; tabulating results of experiments; translating from French, German, Latin, Italian, Mongolian, Spanish and Russian; typing bibliographies, also cards for study collections, cards for catalogue and abstract file, departmental data, extracts from magazines, index cards, labels, lantern slide schedules, letters, manuscripts, radio talks, results of experiments, reference cards, translations; unpacking specimens; verification of specimens; making water color drawings, white pastel drawings for a motion picture.

IV. FINANCIAL ADMINISTRATION

E. ROLAND HARRIMAN, Treasurer

FREDERICK H. SMYTH, Bursar

BUDGETARY FUNDS OF 1937

The Budget for 1937 (City Maintenance, General and Morris K. Jesup Fund Accounts), as approved by the Trustees on January 11, 1937, was as follows:

Disbursements	\$1,231,602.00
Receipts	1,176,557.40

Estimated Deficit \$55,044.60

The actual receipts and disbursements are as follows:

Disbursements	\$1,258,745.68
Receipts	1,243,361.08

Actual deficit December 31, 1937. \$15,384.60

The deficit is charged against the Bank Loan.

City Budget Appropriations:

In 1933, when the City of New York reduced the salary amount of the Museum Budget by \$102,731.16, the Museum was obliged to dismiss a number of attendants and cleaners, and closed alternately each day ten exhibition halls. In July, 1937, the Board of Estimate and Apportionment appropriated \$23,040.00, sufficient for six months' re-employment of attendants and cleaners. All halls have been open since that date.

The Board of Estimate and Apportionment also voted \$35,000.00 as a refund of the amount expended by the Trustees for maintenance items in 1936. This refund helped in a large measure to reduce the 1937 deficit.

The deficit was further reduced by contributions of Trustees and friends of the Museum.

Special Funds:

During 1937, friends of the Museum contributed \$360,623.97 for seventy-eight specially designated projects, embracing: field expeditions; preparation of groups; purchase of unusual specimens; publication of scientific papers, and for the educational work in connection with the public schools. All of the above are non-recurring and do not contribute to the general income of the Museum.

SUMMARY OF ALL ACCOUNTS

As in former years, we have brought together all receipts and disbursements of the operating accounts. The receipts of the Budgetary Accounts are \$1,243,361.08, and the disbursements \$1,258,745.68. The Special Funds receipts are \$511,758.25, and the disbursements are \$356,888.51.

SUMMARY OF RECEIPTS AND DISBURSEMENTS
FOR ALL PURPOSES, 1937

Receipts

City of New York for Maintenance.....	\$508,453.80
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Trustees' Funds:

Balance, January 1, 1937.....	\$122,696.31	
Income from Endowment Fund	\$670,195.61	
Contributions of Trustees	23,743.26	
Contributions of Members and Friends...	269,493.34	
Contributions of Foundations	96,403.91	
Membership Dues ...	42,135.00	
Sale of Publications and Exchanges	21,998.10	1,123,969.22
		\$1,246,665.53

Loan Account, Deficiency of 1937	15,384.60
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Total Income, Trustees' Funds.....	\$1,262,050.13
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Total Income, all Sources.....	\$1,770,503.93
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Disbursements (Operating Costs)

Scientific and Research:

Astronomy	\$3,467.42
Geology and Invertebrate Palaeontology	12,782.05
Mineralogy	38,222.08
Mammalogy	114,616.14
Central Asiatic Exploration and Research	3,511.26
Ornithology	63,824.64
Vertebrate Palaeontology	88,204.02
Professor Osborn's Science Fund ...	3,000.00
Comparative Anatomy	21,859.93
Anthropology	53,704.29
Ichthyology	35,602.54
Herpetology	10,070.96
Experimental Biology	20,322.40
Living Invertebrates	47,048.61
Entomology	27,608.23
Library	32,702.75
	\$576,547.32

Printing, Books and Publications:

Printing and Publishing	\$48,556.35
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Preparation and Exhibition:

Preparation and Exhibition	\$88,694.99
Vertebrate Palaeontology	16,387.54
Living Invertebrates	20,873.21
	\$125,955.74

Educational—Public School Work:

Public Education \$71,281.49

Administration and Operation:

Administration \$305,851.82
 General Supplies and Expenses 51,367.22
 Heating and Lighting 139,964.31
 Repairs and Installation 67,486.88
 Special Repairs 6,875.00
 Legal Services 2,423.54
 Pension Fund 38,881.27
 Retirement Annuity Fund 3,854.93
 Group Life Insurance 10,520.39
 Natural History Magazine Cost 28,733.39
 Interest on Bank Loan 2,268.22
 Architects' Services 1,558.22
 Financial Administration 84,879.97

\$744,665.16

New York State Roosevelt Memorial
 Building

\$48,628.13

Total, All Costs..... \$1,615,634.19

Balance, December 31, 1937 \$154,869.74

PERMANENT ENDOWMENT FUND, 1937

The Treasurer, who is also Chairman of the Finance Committee, reports the following additions to the Endowment Fund:

Contributions to the Ten Year Development Program Fund:

Anonymous \$10,000.00
 Anonymous 1,000.00
 Anonymous 250.00
 Anonymous 25,368.75 (Securities)
 William R. Coe 24,637.50 (Securities)
 Granthale Foundation 200.00
 Olga H. Guggenheim 5,000.00
 Simon Guggenheim 5,000.00
 William Hale Harkness 10,733.11 (Securities)
 Clarence L. Hay 1,000.00
 Henry Ittleson 1,000.00
 Charles A. Lindbergh 1,000.00
 John J. McCloy 100.00
 Mrs. Paul Moore 3,000.00
 Frank Phillips Foundation 100.00
 Mrs. John T. Pratt 10,000.00 \$98,389.36

Other Gifts and Bequests:

Beatrice, Countess of Granard, Gladys
 Phipps and the late Ogden L. Mills.. 104,979.30
 Frances W. Léon 60.00
 Henry Fairfield Osborn 193.56
 James Reuel Smith 28,200.00 133,432.86

Membership Fees 6,200.00 6,200.00

\$238,022.22

Report of the Treasurer

The Finance Committee also reports the following summary of the transactions during the year:

Receipts

Cash on hand, January. 1, 1937	\$462,262.65
Cash received a/c Gifts, Bequests and Membership Fees	127,303.56
Cash transferred from income account for reinvestment	5,380.32
Proceeds from Sales and Redemptions of Securities	1,353,101.36
Amortization Payments a/c Real Estate Mortgages..	27,064.68
Refunds a/c Real Estate Expenses	6,346.48
	<u>\$1,981,459.05</u>

Disbursements

Cost of Securities Purchased	\$1,632,121.45
Real Estate Expenses	5,634.20
Tax on Stock Gift	24.00
	<u>1,637,779.65</u>
Balance, December 31, 1937	<u>\$343,679.40</u>

The Endowment Fund on December 31, 1937, had a book value of \$15,210,551.55, of which amount real estate holdings, carried on our books at cost, total \$1,549,001.75. The balance, amounting to \$13,661,549.80, had a market value as of December 31, 1937, of \$12,410,303.27. The estimated income from our invested funds is \$607,647.81, a yield of 3.96% on book value.

In addition to the above, the Museum has an interest in three trust funds, having a value of \$478,560.

CONTRIBUTIONS TO THE MUSEUM

In order to conserve space in the report, we show here the contributions for general and special purposes, instead of under the General and Special Funds Accounts. These sums were for 1937 only and are non-recurring.

GENERAL PURPOSES, 1937

Anonymous	\$5,000.00	Kate F. Merle-Smith	\$ 100.00
Vincent Astor	500.00	Mrs. Mary E. Nutting	2.00
Henry R. Benjamin	25.00	James H. Perkins	100.00
A. C. Bradley	10.00	Fred S. Pyfer	2.00
A. H. Case50	Miss Leila R. Ramsdell	2.00
Fanny Dwight Clark	23.79	Hubert E. Rogers	750.00
Sara M. Conner	5.00	Edith Rolfe50
Miss Grace L. Cortright	2.00	Theodor Schulze-Berge	4.00
Lewis L. Delafield	100.00	Herbert F. Schwarz	200.00
Mrs. J. L. Flood	2.00	George G. Scott	2.26
Miss Mabel C. Gage	2.00	A. C. Stamm	2.00
Harold T. Gates	2.00	Oliver H. Stansfield	2.00
Mrs. Bernard F. Gimbel	100.00	Henry W. Taft	3.00
E. LeBaron Goeller	1.00	Dr. A. H. Thomasson	7.00
Edward S. Harkness	5,000.00	Mrs. Henry G. Vaughan	2.00
Mary W. Harriman Trust	1,000.00	Mrs. Martin G. Vorhaus	5.00
Mrs. G. S. Holden	5.00	Miss Miriam Dwight Walker	25.00
Mrs. Elton Huntington Hooker	200.00	Frederick H. Warner	10.00
John A. Hughes	2.00	Laurence J. Webster	17.00
Miss M. K. Humphrey	4.00	Langbourne M. Williams, Jr.	25.00
Keramic Society and Design Guild of New York	10.00	Russell J. Wilson, Jr.	2.10
Russell C. Leffingwell	100.00	William Ziegler, Jr.	100.00
Samuel Mason	8.00		
			<u>\$13,465.15</u>

SPECIAL FUNDS ACCOUNT, 1937

ASTRONOMY		Patterson Grand Canyon Expedition Fund:	
Hayden Planetarium-Grace Peruvian Expedition Fund:		Roy C. Andrews	\$ 146.60
Junior Astronomy Club	\$1,602.34	Morehead Patterson	6,916.47
Van S. Merle-Smith	1,770.00	Snyder Canadian Expedition Fund:	
MINERALOGY		Harry Snyder	2,133.71
Mineral Hall Fund:		Vernay Rhodesia Expedition Fund:	
Edith H. de Long	16,400.00	Cary T. Grayson	500.00
The de Long Corporation	5,000.00	Arthur S. Vernay	400.00
MAMMALOGY		Vernay Special Fund:	
Archbold Mammal Fund:		Arthur S. Vernay	446.99
Richard Archbold	25,000.00	Jack Young West China Expedition Fund:	
Biological Explorations Fund:		C. Suydam Cutting	1,200.00
Biological Explorations	27,003.91	Milton S. Dillon	500.00
Carnegie Corporation Grant Travel Fund—Mammalogy:		Arthur S. Vernay	1,000.00
Carnegie Corporation of New York	800.00	ASIATIC EXPLORATION AND RESEARCH	
Clark-Kissel Alaska Expedition Fund:		Kashmir Expedition Fund:	
Harold Benjamin Clark	13,500.00	Mrs. A. W. Erickson	25.00
Frick Alaska Expedition Fund:		David H. McAlpin	200.00
Childs Frick Corporation	1,500.00	Oscar U. Zerk	200.00
Frick Osteology Fund:		ORNITHOLOGY	
Childs Frick Corporation	1,250.00	Barro Colorado Island Fund:	
Harkness Travelling Laboratory Fund:		Mrs. Caril Tucker	300.00
William Hale Harkness	3,262.38	Bird Photographic Fund:	
Krech-Solbert British Columbia Ex- pedition Fund:		Frank M. Chapman	18.00
Mary S. Krech	2,000.00	Colombian Expedition Fund:	
Shepard Krech	1,594.94	Jesse Metcalf	500.00
Oscar N. Solbert	1,500.00	Ornithological Fund:	
Mammal Fund:		L. C. Sanford	207.00
Childs Frick	1,000.00	Phelps Venezuela Expedition Fund:	
Childs Frick Corporation	1,400.00	William H. Phelps	10,000.00
Ottley Equipment Fund:		Philipp Oölogy Fund:	
Gilbert Ottley	500.00	Philip B. Philipp	1,200.00
		Satterlee Bird Fund:	
		Herbert L. Satterlee	225.00

SPECIAL FUNDS ACCOUNT

(Continued)

Harry Payne Whitney Memorial Fund:	
Mrs. Harry Payne Whitney.....	\$12,500.00
Whitney-Rothschild Installation Fund:	
Mrs. Harry Payne Whitney.....	12,200.00
Whitney South Sea Expedition Fund:	
L. C. Sanford.....	50.00

VERTEBRATE PALAEOLOGY

American Museum-Sinclair Dinosaur 1937 Expedition Fund:	
Sinclair Refining Co.....	7,000.00
American Pliocene Fund—Vertebrate Palaeontology:	
Childs Frick Corporation.....	40,500.00

COMPARATIVE ANATOMY

Comparative Anatomy Fund:	
Employees of the Department of Comparative Anatomy.....	95.44
Childs Frick.....	250.00
Childs Frick Corporation.....	1,600.00
H. C. Raven.....	250.00
Mrs. Marion Brown Shelton.....	200.00

ANTHROPOLOGY

Andean Fund:	
Mr. and Mrs. Robert Woods Bliss.....	1,500.00
Indian Arts Project Fund:	
The Rockefeller Foundation....	2,000.00
Middle American Research Fund:	
Clarence L. Hay.....	2,000.00
Northern Mexico Archaeological Fund:	
Edward S. Harkness.....	5,000.00
Phillips Anthropological Fund:	
John C. Phillips.....	100.00
South Pacific Exploration Fund:	
Anonymous.....	1,500.00
University of Hawaii Research Fund:	
University of Hawaii.....	600.00
Amelia Elizabeth White Fund:	
Amelia Elizabeth White.....	150.00

ICHTHYOLOGY

Ichthyology Research Fund:	
Michael Lerner.....	1,000.00
Lerner Bimini Expedition Fund:	
Michael Lerner.....	11,000.00
Lerner Cape Breton Expedition Fund:	
Michael Lerner.....	140.70
Morden Caranx Fund:	
William J. Morden.....	5,000.00
Tarpon Preparation Fund:	
Mrs. John L. Kuser.....	50.00
Whale Shark Fund:	
Charles T. Wilson.....	500.00

EXPERIMENTAL BIOLOGY

Josiah Macy, Jr. Foundation Fund:	
Josiah Macy, Jr. Foundation....	4,000.00
National Research Council Fund:	
National Research Council (National Academy of Sciences)...	2,000.00

LIVING INVERTEBRATES

Carnegie Corporation Grant Travel Fund—Living Invertebrates:	
Carnegie Corporation of New York.....	\$ 600.00
Templeton Crocker South Sea Cruise Fund:	
Templeton Crocker.....	19,147.36
Terry-Holden British Guiana Expedition Fund:	
Lillian E. Terry.....	11,000.00

ENTOMOLOGY

Entomological Fund:	
Albert R. Brand.....	243.23
David Rockefeller.....	50.00
Miss Ida T. I. Schwarz.....	100.00
Herbert F. Schwarz.....	1,623.53
Lepidoptera Fund:	
Ernest L. Bell.....	50.00
Frederick E. Church.....	500.00
Cyril F. dos Passos.....	1,625.00
Frank Johnson.....	500.00
H. Rivington Pyne.....	300.00
L. C. Sanford.....	100.00

PRINTING AND PUBLISHING

Boise Congo Publication Fund:	
Charles Watson Boise.....	4,000.00

PUBLIC EDUCATION

Bear Mountain Trailside Museum Fund:	
Commissioners of Palisades Interstate Park.....	715.21
Victor Martin.....	2.00
Department of Education Fund:	
Mrs. Childs Frick.....	1,000.00
Pupil-Parent Fund:	
Childs Frick Corporation.....	2,000.00
Special Education Fund:	
Public School, Meriden, Conn....	6.00
School Nature League.....	75.00
Frederick M. Warburg.....	1,000.00
Estate of Felix M. Warburg....	5,000.00

PREPARATION AND EXHIBITION

African Hall Group Fund:	
H. W. Sage.....	2,000.00
Alaska Brown Bear Group Fund:	
Childs Frick for A/C Boone and Crockett Club.....	2,500.00
Bison and Pronghorn Group Fund:	
Robert Earl McConnell Foundation.....	1,500.00
Fleischmann-Clark Indo-China Expedition Fund:	
Max C. Fleischmann.....	7,397.35
Nile Group Fund:	
William D. Campbell.....	20,000.00
Ostrich and Wart Hog Group Fund:	
Philip M. Plant.....	10,000.00
Robinson North American Mammal Hall Fund:	
Beverly R. Robinson.....	5,000.00
Sahara Group Fund:	
William D. Campbell.....	10,000.00
Special African Hall Fund:	
Alfred F. Lichtenstein.....	400.00
Vulture Group Fund:	
Mrs. William Hayward.....	5,000.00

SPECIAL FUNDS ACCOUNT

(Continued)

ADMINISTRATION			
Administration Fund:		F. Trubee Davison.....	\$ 476.02
F. Trubee Davison.....	\$ 968.60	Walter S. Gifford.....	154.38
Mrs. H. P. Davison Special Fund:		Clarence L. Hay.....	136.43
Mrs. H. P. Davison.....	809.54	Wadsworth R. Lewis.....	86.96
Publicity Fund:		Wilton Lloyd-Smith.....	221.85
Van S. Merle-Smith.....	500.00	Mrs. John T. Pratt.....	86.95
Ten Year Development Program		L. C. Sanford.....	209.08
Dinner Fund:		Frederick M. Warburg.....	99.14
Mrs. Winthrop W. Aldrich.....	169.97	Frederick M. Warburg Special	
Wyllis R. Betts, Jr.....	169.62	Fund:	
George T. Bowdoin.....	136.07	Frederick M. Warburg.....	500.00
William Sheffield Cowles.....	76.20		
			<u>\$360,623.97</u>

FINANCIAL STATEMENT, 1937

ENDOWMENT AND INVESTMENT ACCOUNT

Receipts and Disbursements, 1937

GENERAL ENDOWMENT FUNDS—(Unrestricted Funds):

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
General Endowment Fund:	\$79,327.43	\$46,799.70	\$116,843.69	\$ 9,283.44
George F. Baker Fund..	35.93	10,500.00	10,489.00	46.93
Louis V. Bell Fund	553.35	19,536.16	1,583.18	18,506.33
Wood Fosdick Fund ...	2,305.90	88,773.63	82,004.44	9,075.09
Anna M. Harkness Fund	3,604.19	77,944.99	28,427.31	53,121.87
Collis P. Huntington Fund	21.24			21.24
Ogden Mills Endowment Fund	320.31	137,348.82	82,639.78	55,029.35
J. P. Morgan Fund	2,982.48	44,520.00	30,200.85	17,301.63
John D. Rockefeller, Jr., Fund	213,658.56	84,845.55	246,095.75	52,408.36
The Sage Fund	7,851.73	139,848.00	144,192.71	3,507.02
Sixtieth Anniversary En- dowment Fund	126,635.39	155,052.62	206,462.75	75,225.26
Ten Year Development Program Fund		37,650.00	11,560.75	26,089.25
Total General Endow- ment	\$437,296.51	\$842,819.47	\$960,500.21	\$319,615.77

SPECIAL ENDOWMENT FUNDS—(Restricted Funds):

Matilda W. Bruce Fund	\$ 2.75			\$ 2.75
Anson W. Hard Library Fund	19.99			19.99
Morris K. Jesup Fund..	24,293.03	\$443,625.04	\$466,698.30	1,219.77
Osborn Palaeontologic Research Fund	21.12	1,385.44	1,265.25	141.31
Physical Anthropology Fund	79.74	60.00		139.74
Margaret Olivia Sage Fund	27.00			27.00
James Reuel Smith Fund		28,200.00	24,000.00	4,200.00
Jonathan Thorne Me- morial Fund	22.12			22.12
Ralph Winfred Tower Memorial Fund	78.26			78.26
Sixtieth Anniversary En- dowment:				
Anthropology Special Fund	64.30	223.55		287.85
James Arthur Research Fund	83.36	14,313.97	6,748.00	7,649.33
Bashford Dean Ichthy- ological Library Fund	42.51	4,095.00		4,137.51
Vertebrate Palaeontol- ogy Field Fund ...	44.51			44.51

ENDOWMENT AND INVESTMENT ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Vertebrate Palaeontology Special Fund ..	\$ 64.28	\$ 223.54		\$ 287.82
Frederick G. Voss Anthropology and Archaeology Fund	3.29	116,728.37	\$116,428.99	302.67
Wallace Memorial Fund	35.75			35.75
The Boyce Thompson Mineral Collection Fund	32.50	3,825.23		3,857.73
Total Special Endowment	\$24,914.51	\$612,680.14	\$615,140.54	\$22,454.11
SPECIAL INVESTMENT FUNDS—(Restricted Funds):				
The Boyce Thompson Mineral Collection Installation Fund	51.63	9,960.09	8,402.20	1,609.52
Total Special Investment	\$ 51.63	\$ 9,960.09	\$ 8,402.20	\$ 1,609.52
SUMMARY				
General Endowment Funds	\$437,296.51	\$842,819.47	\$960,500.21	\$319,615.77
Special Endowment Funds.	24,914.51	612,680.14	615,140.54	22,454.11
Special Investment Funds.	51.63	9,960.09	8,402.20	1,609.52
Total Endowment and Investment	\$462,262.65	\$1,465,459.70	\$1,584,042.95	\$343,679.40

CITY MAINTENANCE ACCOUNT*

Receipts, 1937

Capital Fund:			
Balance, January 1, 1937			\$15,000.00
Department of Parks, City of New York, 1936:			
Salaries, Regular Employees		\$35,000.00	
Department of Parks, City of New York, 1937:			
Salaries, Regular Employees	\$378,231.41		
Salaries, Temporary Employees (Special Re-			
pairs)	5,607.92	383,839.33	
Expenses for Other than Personal Service:			
1410 Fuel Supplies		42,303.84	
Department of Parks, City of New York, 1937:			
New York State Roosevelt Memorial Building:			
Salaries, Regular Employees		41,160.63	
Expenses for Other than Personal Service:			
1411 Fuel Supplies	4,000.00		
1412 Office Supplies	50.00		
1413 Cleaning and Disinfecting Supplies.	700.00		
1414 General Plant Supplies	1,000.00		
1415 General Plant Materials	400.00	6,150.00	
Total Net Receipts for the Maintenance of All Departments.....			508,453.80
			<u>\$523,453.80</u>

*The annual appropriation of the City can be used only for the maintenance of the Museum, and is inadequate for this purpose. It cannot be used for the purchase of specimens or for the expenses of exploring and collecting expeditions. The deficiency in maintenance for 1937, amounting to \$364,186.51, has been met from the Trustees' General Account.

CITY MAINTENANCE ACCOUNT

Disbursements, 1937

Administration and Operation:

Administration	\$240,811.85	
Heating and Lighting	84,702.11	
Repairs and Installation	37,138.32	
Special Repairs	5,607.92	
Financial Administration	29,187.92	\$397,448.12

Scientific and Research:

Mineralogy	\$1,683.00	
Ornithology	1,537.00	
Vertebrate Palaeontology	780.00	
Anthropology	2,160.00	
Living Invertebrates	3,001.00	
Library	2,869.00	
Ichthyology	660.00	
Comparative Anatomy	660.00	13,350.00

Educational—Public School Work:

Public Education		15,327.04
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New York State Roosevelt Memorial Building:

Administration	\$36,760.63	
General Supplies and Expenses	750.00	
Heating and Lighting	9,639.26	
Repairs and Installation	178.75	47,328.64

\$473,453.80

Administration and Operation Salaries, 1936.. \$18,166.00

Scientific and Research Salaries, 1936 12,442.00

Educational—Public School Work Salaries, 1936 4,392.00 35,000.00

Total Net Disbursements for the Maintenance of All Departments.... \$508,453.80

Capital Fund:

Balance, December 31, 1937 15,000.00

\$523,453.80

GENERAL ACCOUNT

Receipts, 1937

Balance, January 1, 1937:

Cash		\$ 50,288.08	
Loans Receivable:			
Sixtieth Anniversary Endowment	\$91,972.82		
African Hall Construction	46,544.63		
Authorized Deficit of 1931	27,793.78		
Natural History Magazine	37,000.00	203,311.23	
		<u>\$253,599.31</u>	
Reserved for payment of Bank Loan		250,000.00	
Available Cash			\$3,599.31
Income from Investment and Trust Funds:			
General Endowment Fund	\$70,954.83		
Anonymous Trust Fund No. 1	1,088.10		
George F. Baker Fund	4,327.31		
Louis V. Bell Fund	2,641.22		
Wood Fosdick Fund	55,126.35		
Anna M. Harkness Fund	41,321.63		
Collis P. Huntington Fund	2,060.70		
Charles M. Jesup Trust Fund	799.19		
Charles S. Keene Trust	6,850.91		
Ogden Mills Endowment Fund	17,014.26		
J. P. Morgan Fund	19,916.84		
John D. Rockefeller, Jr., Fund	56,659.28		
The Sage Fund	65,782.06		
Sixtieth Anniversary Endowment	53,836.75		
Ten Year Development Program Fund.....	110.68	\$398,490.11	
Interest on Loans to:			
Natural History Magazine	\$1,251.52		
Junior Natural History Magazine	27.50		
Museum Book Shop	53.77	1,332.79	
Membership Fees:			
Sustaining Members	\$4,900.00		
Annual Members	34,445.00		
Associate Members	2,790.00	42,135.00	
Sales and Subscriptions:			
Sale of Publications	\$1,785.22		
Subscriptions to Natural History	3,124.68		
Sales and Exchanges	9,443.59	14,353.49	
Contributions by Trustees for General Purposes:			
C. Suydam Cutting.....	\$ 250.00		
F. Trubee Davison	1,000.00		
Cleveland E. Dodge	1,000.00		
Childs Frick	1,000.00		
Chauncey J. Hamlin	100.00		
Clarence L. Hay	1,000.00		
J. P. Morgan	1,000.00		
H. Rivington Pyne	300.00		
John D. Rockefeller, 3rd	500.00	6,150.00	
Contributions for General Purposes, see listing on page 91.....		\$13,465.15	
Contributions for Special Purposes:			
Cleveland H. Dodge Foundation, Inc.		5,000.00	
Refund of City Maintenance Account salaries paid from General Account in 1936 ...		35,000.00	
Authorized Deficit of 1937 advanced by General Account		15,384.60	531,311.14
Total Net Receipts for the Development of All Departments.....			\$534,910.45
Contributions by Trustees for General Purposes 1938:			
Childs Frick		2,500.00	
			<u>\$537,410.45</u>

GENERAL ACCOUNT

Disbursements, 1937

Administration:

Administration	\$59,642.85	
General Supplies and Expenses	51,367.22	
Heating and Lighting	57,262.20	
Repairs and Installation	30,348.56	
Special Repairs	1,267.08	
Architects' Services	1,558.22	
Legal Services	2,423.54	
Pension Fund	38,881.27	
Retirement Annuity Fund	3,854.93	
Group Life Insurance	10,520.39	
Financial Administration	55,692.05	
Natural History Magazine Cost	28,733.39	
Interest on Bank Loan	2,268.22	\$341,819.92

Scientific and Research:

Astronomy	\$ 118.64	
Geology and Invertebrate Palaeontology	5,295.33	
Mineralogy	3,553.97	
Mammalogy	12,500.60	
Ornithology	14,559.27	
Vertebrate Palaeontology	14,211.12	
Comparative Anatomy	5,123.74	
Anthropology	14,266.37	
Ichthyology	5,651.97	
Herpetology	6,687.05	
Experimental Biology	7,068.47	
Living Invertebrates	2,813.20	
Entomology	5,847.49	
Library	21,649.56	119,346.78

Printing, Books and Publications:

Printing and Publishing	21,992.38
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Preparation and Exhibition:

Preparation and Exhibition	2,541.77
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Educational—Public School Work:

Public Education	47,910.11
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New York State Roosevelt Memorial Building:

Administration	\$ 281.68	
General Supplies and Expenses	483.69	
Heating and Lighting	459.02	
Repairs and Installation	75.10	1,299.49

Total Net Disbursements for the Development of All Departments... \$534,910.45

Available Cash Balance, December 31, 1937 2,500.00

\$537,410.45

ALLOCATION OF BANK LOAN

Balance, December 31, 1937:

Cash \$59,279.29

Loans Receivable:

Sixtieth Anniversary Endowment	\$94,272.14	
African Hall Construction	47,708.25	
Authorized Deficit of 1931	28,488.62	
Natural History Magazine	70,000.00	
Junior Natural History Magazine	800.00	
Museum Book Shop	2,500.00	
Roosevelt Memorial Group Fund	14,213.29	
Ten Year Development Program Fund	19,853.81	
Authorized Deficit of 1937	15,384.60	293,220.71
		<u>\$352,500.00</u>

Less:

Available Cash Balance for 1938 2,500.00

Balance, Bank Loan, December 31, 1937 \$350,000.00

MORRIS K. JESUP FUND ACCOUNT***Receipts, 1937****Trustees' Restricted Funds:**

Income from Morris K. Jesup Fund	\$247,672.16
Sale of Publications	2,544.48
Sales and Exchanges	164.79

Total Net Receipts for the Development of All Departments..... **\$250,381.43**

Disbursements, 1937**Scientific and Research:**

Geology and Invertebrate Palaeontology ...	\$7,429.98	
Mineralogy	5,702.73	
Mammalogy	13,159.00	
Ornithology	15,494.42	
Vertebrate Palaeontology	17,403.01	
President Osborn's Science Fund	3,000.00	
Comparative Anatomy	11,441.87	
Anthropology	14,477.42	
Ichthyology	11,694.90	
Herpetology	3,383.91	
Experimental Biology	10,681.68	
Living Invertebrates	10,487.05	
Entomology	19,018.09	
Library	6,894.01	\$150,268.07

Printing, Books and Publications:

Printing and Publishing	25,057.00
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Preparation and Exhibition:

Preparation and Exhibition	\$43,551.23	
Living Invertebrates—Preparation	15,117.59	
Vertebrate Palaeontology—Preparation	16,387.54	75,056.36

Total Net Disbursements for the Development of All Departments.... **\$250,381.43**

\$250,381.43

*Disbursements of this account are made as the Board of Trustees may direct, for the purchase of specimens, for the expenses of field parties, and for the support of scientific work.

SPECIAL FUNDS ACCOUNT

Receipts and Disbursements, 1937

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Astronomy				
Harvard-M. I. T.-American Museum Siberian Polar Eclipse Expedition Fund	\$44.18			\$44.18
Hayden Planetarium-Grace Pe- ruvian Eclipse Expedition Fund		\$3,372.34	\$3,348.78	23.56
Geology and Invertebrate Palaeontology				
Meteorite Fund	\$31.74		\$31.74	
James Reuel Smith Fund....		\$231.00		\$231.00
Varve Clay Investigation Fund	25.00		25.00	
Mineralogy				
Matilda W. Bruce Fund.....	\$5.51	\$301.00	\$160.45	\$146.06
Mineral Hall Fund.....		21,400.00	21,400.00	
The Boyce Thompson Mineral Collection Fund	1,190.23	2,635.00	3,825.23	
The Boyce Thompson Mineral Collection Installation Fund	246.59	1,308.50	1,555.09	
Wallace Memorial Fund.....	55.10	537.50	341.61	250.99
Mammalogy				
Archbold Mammal Fund.....	\$78.98	\$25,000.00	\$25,078.98	
Biological Explorations Fund..		27,003.91	25,786.25	\$1,217.66
Carnegie Corporation Grant Travel Fund—Mammal- ogy		800.00	800.00	
Clark-Kissel Alaska Expedition Fund		13,500.00	11,504.71	1,995.29
Frick Alaska Expedition Fund		1,500.00	1,500.00	
Frick Osteology Fund.....		1,250.00	457.41	792.59
Harkness British Columbia Fund	341.32		10.00	331.32
Harkness Travelling Laboratory Fund		3,262.38	2,941.16	321.22
Krech-Solbert British Colum- bia Expedition Fund....		5,094.94	5,094.94	
Mammal Fund	1,082.32	2,400.00	1,360.22	2,122.10
McConnell Wyoming Expedi- tion Fund	634.46		634.46	
Ottley-Anthony Sudan Expedi- tion Fund	1,757.55		228.33	1,529.22
Ottley Equipment Fund.....		500.00	500.00	
Patterson Grand Canyon Ex- pedition Fund	343.35	7,063.07	7,406.42	
Rumsey British Columbia Fund	991.89		4.40	987.49
Snyder Canadian Expedition Fund		2,133.71	1,887.71	246.00
Special Canine Fund.....	128.18			128.18
Special North American Mam- mal Hall Fund.....	2,000.00		23.13	1,976.87
Vernay Artists Fund.....	7.75		7.75	
Vernay Rhodesia Expedition Fund		900.00	606.81	293.19
Vernay Special Fund.....		446.99	446.99	
Jack Young West China Expe- dition Fund		2,700.00	2,700.00	

SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Asiatic Exploration and Research				
Central Asiatic Expeditions Fund	\$2,811.15		\$2,811.15	
Central Asiatic Expeditions Fund:				
Sale of Publications.....	398.18	565.16	500.11	463.23
Kashmir Expedition Fund		\$425.00	200.00	\$225.00
Ornithology				
Barro Colorado Island Fund..		\$300.00	\$300.00	
Bird Photographic Fund.....	\$11.38	18.00	8.16	\$21.22
Colombian Expedition Fund..		500.00	500.00	
Olalla Fund	225.00			225.00
Ornithological Fund	2.92	207.00	209.92	
Phelps Venezuela Expedition Fund		10,000.00	6,437.50	3,562.50
Philipp Oology Fund.....		1,200.00	250.00	950.00
Margaret Olivia Sage Fund...	847.92	424.00		1,271.92
Satterlee Bird Fund.....		225.00	100.00	125.00
Harry Payne Whitney Memorial Fund	3,909.95	12,500.00	10,728.42	5,681.53
Whitney-Rothschild Installation Fund	318.09	12,200.00	11,376.92	1,141.17
Whitney South Sea Expedition Fund	7,752.09	120.00	2,323.03	5,549.06
Vertebrate Palaeontology				
American Museum-Sinclair Dinosaur Expedition Fund..	\$926.53		\$914.27	\$12.26
American Museum-Sinclair Dinosaur 1937 Expedition Fund		\$7,000.00	7,000.00	
American Pliocene Fund—Vertebrate Palaeontology	6,183.70	40,500.00	45,269.83	1,413.87
American Pliocene Fund—Vertebrate Palaeontology:				
Sale of Publications.....		91.20		91.20
Osborn Palaeontologic Research Fund	79.91	113.86	189.00	4.77
Third Scarritt Expedition Fund	334.24	7.06		341.30
Vertebrate Palaeontology Field Fund	3,369.08	1,215.94	2,436.79	2,148.23
Vertebrate Palaeontology Preparation Fund	344.44			344.44
Vertebrate Palaeontology Special Fund	206.68	34.94		241.62
Comparative Anatomy				
James Arthur Research Fund..	\$192.50	\$1,265.20	\$1,451.13	\$6.57
Columbia University African Fund	900.00		344.10	555.90
Comparative Anatomy Fund..	1,674.14	2,395.44	2,839.09	1,230.49
Introduction to Anatomy Fund	118.52			118.52

SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Anthropology				
Andean Fund	\$1,500.00	\$1,500.00	\$3,000.00	
Anthropology Fund	313.00		150.00	\$163.00
Anthropology Special Fund..	56.67	52.19		108.86
Indian Arts Project Fund....		2,000.00	1,087.30	912.70
Middle American Research Fund		3,423.25	3,423.25	
Northern Mexico Archaeologi- cal Fund		5,000.00	1,546.35	3,453.65
Phillips Anthropological Fund		100.00		100.00
Physical Anthropology Fund..	1,043.73	483.68	534.00	993.41
Physical Anthropology of Que- bec Fund	140.00			140.00
South Pacific Exploration Fund		1,500.00		1,500.00
University of Hawaii Research Fund	107.05	600.00	610.50	96.55
Frederick G. Voss Anthropol- ogy and Archaeology Fund	2,492.71	11,680.10	13,834.35	338.46
Amelia Elizabeth White Fund	150.00	150.00	38.00	262.00
Ichthyology				
Bashford Dean Ichthyological Library Fund	\$139.85	\$202.50	\$56.18	\$286.17
Ichthyology Research Fund...		1,238.92		1,238.92
Lerner Bimini Expedition Fund		11,000.00	11,000.00	
Lerner Cape Breton Expedition Fund	61.79	140.70	202.49	
Lerner Tuna Group Fund....	151.82		151.82	
Morden Caranx Fund.....	972.94	5,000.00	5,741.02	231.92
Purchase of Fish Specimens Fund	104.35		45.98	58.37
Tarpon Preparation Fund...		50.00	50.00	
Whale Shark Fund.....		500.00	500.00	
Experimental Biology				
Josiah Macy, Jr. Foundation Fund	\$4,332.26	\$4,000.00	\$2,405.53	\$5,926.73
National Council of Jewish Women Fund	166.72		166.72	
National Research Council Fund	900.00	2,000.00		2,900.00
Living Invertebrates				
Carnegie Corporation Grant Travel Fund— Living Invertebrates ..		\$600.00	\$600.00	
Templeton Crocker South Sea Cruise Fund		19,147.36	19,147.36	
Pearl Fisheries Expedition Fund		106.25		\$106.25
Terry-Holden British Guiana Expedition Fund		11,000.00	11,000.00	
Entomology				
Entomological Fund	\$1,734.88	\$2,016.76	\$560.85	\$3,190.79
Lepidoptera Fund	504.00	3,175.00	2,181.80	1,497.20

SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Library				
Anson W. Hard Library Fund		\$212.00	\$212.00	
Ralph Winfred Tower Memorial Fund		1,078.18	1,078.18	
Printing and Publishing				
Anthropological Handbook Fund	\$2,894.57	\$987.22	\$1,500.00	\$2,381.79
Boise Congo Publication Fund		4,000.00		4,000.00
Brewster-Sanford Publication Fund	434.06	1,871.72	6.97	2,298.81
Public Education				
Bear Mountain Trailside Museum Fund		\$717.21	\$717.21	
Carnegie Corporation of New York Fund	\$741.57		618.98	\$122.59
Department of Education Fund		1,000.00		1,000.00
Educational Lecture Fund....		120.55	120.55	
Laboratory School Fund.....	130.86	92.50		223.36
Pupil-Parent Fund	2,184.44	2,000.00	1,974.36	2,210.08
School Fund	239.52	18.50		258.02
Special Education Fund.....	6,236.31	6,081.00	3,349.88	8,967.43
Jonathan Thorne Memorial Fund	2,240.94	1,525.00	1,263.36	2,502.58
Preparation and Exhibition				
African Hall Group Fund....	\$18,669.68	\$2,750.00	\$7,662.61	\$13,757.07
Alaskan Brown Bear Group Fund		2,500.00		2,500.00
Bison and Pronghorn Group Fund		1,500.00	1,086.21	413.79
Black Rhino Group Preparation Fund	5,951.35		5,946.19	5.16
Blue Marlin Group Fund....	200.61		200.61	
Fleischmann-Clark Indo-China Expedition Fund		7,397.35	7,397.35	
Giant Panda Group Fund....	4,417.94			4,417.94
Lerner Tuna Group Fund....		151.82	151.82	
Nile Group Fund.....		20,717.61	6,721.83	13,995.78
Okapi Group Fund.....	737.64		737.64	
Okapi Group Preparation Fund	12,500.00		4,620.57	7,879.43
Ostrich and Wart Hog Group Fund	65.00	10,000.00	1,915.60	8,149.40
Robinson North American Mammal Hall Fund.....		5,000.00		5,000.00
Sahara Group Fund.....		10,000.00	5,007.20	4,992.80
South African Group Fund...	731.23		731.23	
Special African Hall Fund....		400.00	400.00	
Vulture Group Fund.....		5,000.00		5,000.00
Preparation and Exhibition—				
Living Invertebrates—				
Preparation:				
Pearl Fisheries Group Fund...	\$8,470.00		\$5,755.62	\$2,714.38

SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Administration				
Administration Fund	\$808.94	\$968.60	\$1,777.54	
Mrs. H. P. Davison Special Fund		809.54	809.54	
Publicity Fund		500.00	500.00	
Ten Year Development Pro- gram Dinner Fund.....		2,022.67	1,810.04	\$212.63
Frederick M. Warburg Special Fund		500.00	500.00	
Balance, January 1, 1937.....	\$122,097.00			
Total net receipts for the de- velopment of specific de- partments		\$391,236.32		
Total net disbursements for the development of specific departments			\$358,463.58	
Balance, December 31, 1937..				\$154,869.74
Totals	\$122,097.00	\$391,236.32	\$358,463.58	\$154,869.74

SPECIAL FUNDS ACCOUNT—1937

SUMMARY

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Astronomy	\$ 44.18	\$ 3,372.34	\$ 3,348.78	\$ 67.74
Geology and Invertebrate Palae- ontology	56.74	231.00	56.74	231.00
Mineralogy	1,497.43	26,182.00	27,282.38	397.05
Mammalogy	7,365.80	93,555.00	88,979.67	11,941.13
Asiatic Exploration and Research	3,209.33	990.16	3,511.26	688.23
Ornithology	13,067.35	37,694.00	32,233.95	18,527.40
Vertebrate Palaeontology	11,444.58	48,963.00	55,809.89	4,597.69
Comparative Anatomy	2,885.16	3,660.64	4,634.32	1,911.48
Anthropology	5,803.16	26,489.22	24,223.75	8,068.63
Ichthyology	1,430.75	18,132.12	17,747.49	1,815.38
Experimental Biology	5,398.98	6,000.00	2,572.25	8,826.73
Living Invertebrates		30,853.61	30,747.36	106.25
Entomology	2,238.88	5,191.76	2,742.65	4,687.99
Library		1,290.18	1,290.18	
Printing and Publishing.....	3,328.63	6,858.94	1,506.97	8,680.60
Public Education	11,773.64	11,554.76	8,044.34	15,284.06
Preparation and Exhibition.....	43,273.45	65,416.78	42,578.86	66,111.37
Preparation and Exhibition— Living Invertebrates—				
Preparation	8,470.00		5,755.62	2,714.38
Administration	808.94	4,800.81	5,397.12	212.63
Totals	\$122,097.00	\$391,236.32	\$358,463.58	\$154,869.74

CORPORATE STOCK ACCOUNT 1937

Receipts:

Department of Parks, City of New York:

C. D. P. 122A	\$28,179.61
C. D. P. 123N	17,291.31
N. D. P. 3-13	22,151.55
	<u>\$67,622.47</u>

Disbursements:

Payroll of Mechanics	\$67,622.47
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INCIDENTAL ACCOUNT 1937

Balance, January 1, 1937	\$ 4,056.98
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Receipts:

Individuals and Societies	11,163.25
Group Life Insurance:	
Employees' Premium Payments	\$11,369.48
Loans	5,958.44
	<u>17,327.92</u>

Committee on Popular Publications:

Revolving Fund:

Transferred from General Account	\$ 1,500.00
Sales	1,231.75
	<u>2,731.75</u>
	<u>\$35,279.90</u>

Disbursements:

Individuals and Societies	\$11,077.88
Group Life Insurance:	
Premiums	\$11,616.44
Loan Instalments	5,711.48
	<u>17,327.92</u>

Committee on Popular Publications:

Purchases	582.98
Balance, December 31, 1937	6,291.12
	<u>\$35,279.90</u>

All the foregoing accounts have been

Examined and { JUNIUS S. MORGAN
Approved { CORNELIUS V. WHITNEY } Auditing Committee.
 { H. RIVINGTON PYNE }

E. and O. E.

NEW YORK, December 31, 1937.

E. ROLAND HARRIMAN, Treasurer.

RETIREMENT ANNUITY FUND

Receipts, 1937

Contributions:

Employees	\$4,427.76
Trustees, et al	\$5,007.41
	<u>\$9,435.17</u>
Loan	1,084.32
	<u>\$10,519.49</u>

Disbursements, 1937**Annuity Premium Payments:**

Employees	\$4,965.46
Trustees, et al	5,554.03
	<u>\$10,519.49</u>

ADAMS & BECKER
Certified Public Accountants
110 East 42nd Street
New York

THE AMERICAN MUSEUM OF NATURAL HISTORY

CERTIFICATE OF AUDITORS

We have audited the cash transactions of The American Museum of Natural History for the year ended December 31, 1937.

According to the usual custom, certain collections to and including February 19, 1938 have been treated as of December 31, 1937, in order to obtain the benefit for the period then ended, of revenue earned during said period, but which became due and payable on January 3, 1938.

WE HEREBY CERTIFY, that in our opinion, subject to the foregoing comment, the receipts and disbursements for the year under review were properly accounted for and correctly stated upon the records.

(Signed) ADAMS & BECKER

Certified Public Accountants.

New York, February 21, 1938.

TREASURER'S REPORT
OF THE
PENSION FUND
OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
FOR THE YEAR 1937

INVESTED FUNDS

SUMMARY

	Par Value	Book Value
Investment Fund No. 1.....	\$1,052,791.63	\$1,041,267.51
Investment Fund No. 2.....	429,400.00	436,411.75
Endowment Fund	1,258.37	1,140.39
	<hr/>	<hr/>
	\$1,483,450.00	\$1,478,819.65
	<hr/> <hr/>	<hr/> <hr/>

PENSION FUND ACCOUNT

Receipts, 1937

Balance, January 1, 1937		\$158,411.72
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Contributions by Subscribing Employees:

Deductions of 4% from Payrolls of

All Accounts	\$40,831.56	
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Personal Payments by Subscribing Employees..	2,215.54	\$43,047.10
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Contributions to Equal Payments of Subscribing Employees:

Board of Trustees	\$38,881.27	
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Museum Restaurant	267.95	
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Natural History Magazine	558.09	
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Junior Natural History Magazine	88.00	
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Museum Book Shop	209.24	
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Planetarium Authority	3,042.55	43,047.10	86,094.20
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Interest on Deferred Contributions		137.64
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Income:

Investment Fund No. 1:

Interest on Securities.....	\$37,421.30	
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Operating 512 West 153rd St., N. Y. C.....	56.26	
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Operating 1159 Union Avenue, Bronx.....	45.94	
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Deposit on Sale 122 Ninth Ave., N. Y. C.....	500.00	
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Investment Fund No. 2:

Interest on Securities.....	16,332.43	
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Endowment Fund	50.34	54,406.27
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Total Operation Receipts		\$140,638.11
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Proceeds from Securities Redeemed:

Investment Fund No. 1.....	\$55,185.00	
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Investment Fund No. 2.....	36,750.00	\$91,935.00
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		\$390,984.83
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Examined and Approved	{	FREDERICK H. OSBORN	}	Auditing Committee
		GEORGE T. BOWDOIN		
		JACOB W. SHROPE		

PENSION FUND ACCOUNT

Disbursements, 1937

Payments to Subscribers and Beneficiaries:

Return of Contributions	\$ 6,652.71	
Interest on Contributions Returned	719.49	\$ 7,372.20

Service Pensions "A"	\$19,892.58	
Service Pensions "B"	2,617.19	
Service Pensions "C"	21,942.23	
Pensions in Event of Illness, Dismissal, etc.	5,874.60	

Widows' Pensions:

Section 16, (E)	1,881.36	52,207.96
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Death Gratuities:

Section 13, Sub. Div. 2 (B)	\$ 2,368.71	
Section 13, Sub. Div. 2 (A)	12,512.89	14,881.60

Total Operation Disbursements		\$74,461.76
Expenses		764.65

Purchase of Securities:

Investment Fund No. 1	\$256,865.00	
Investment Fund No. 2	36,700.00	\$293,565.00

Expenditures Necessary to Protect Mortgage Investments:

Investment Fund No. 1:

122 Ninth Avenue, N. Y. C.	1,217.27	294,782.27
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		\$370,008.68
Balance, December 31, 1937		20,976.15

\$390,984.83

E. & O. E.

NEW YORK, December 31, 1937

E. ROLAND HARRIMAN, *Treasurer.*

PENSION FUND—SPECIAL FUNDS ACCOUNT

Receipts, 1937

Welfare Fund:

Balance, January 1, 1937.....	\$747.30
Refunds from Individuals.....	317.00
	<hr/>
	\$1,064.30
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Examined and { FREDERICK H. OSBORN }
 Approved { GEORGE T. BOWDOIN } Auditing Committee.
 { JACOB W. SHROPE }

Disbursements, 1937

Welfare Fund:

Assistance and Relief.....	\$150.00
Balance, December 31, 1937.....	914.30
	<hr/>
	\$1,064.30
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E. & O. E.

NEW YORK, December 31, 1937

E. ROLAND HARRIMAN, *Treasurer.*

ADAMS & BECKER
Certified Public Accountants
110 East 42nd Street
New York

THE AMERICAN MUSEUM OF NATURAL HISTORY
PENSION FUND

CERTIFICATE OF AUDITORS

We have audited the cash transactions of the Pension Fund of The American Museum of Natural History for the year ended December 31, 1937.

According to the usual custom, certain collections to and including January 7, 1938 have been treated as of December 31, 1937, in order to obtain the benefit for the period then ended, of revenue earned during said period, but which became due and payable on January 3, 1938.

WE HEREBY CERTIFY, that in our opinion, subject to the foregoing comment, the receipts and disbursements for the year then ended were properly accounted for and correctly stated upon the records.

(Signed) ADAMS & BECKER
Certified Public Accountants.

New York, January 28, 1938.

V. MEMBERSHIP AND PERSONNEL

CLARENCE L. HAY, Secretary

WAYNE M. FAUNCE, Executive Secretary

At the close of 1937 the American Museum attained the highest membership enrolment in the history of the institution; 6,643 persons became members during the twelve-month period and only 2,694 terminated their affiliation or died. The latter figure represents a new low in the loss of members and the net result representing the total membership is 22,086 active Museum supporters.

The classification of the Membership Roll is as follows:

Associate Members	16,554	Fellows	105
Annual Members	3,696	Honorary Fellows	16
Sustaining Members	203	Patrons	219
Corresponding Members	21	Associate Benefactors	59
Life Members	1,076	Associate Founders	26
Honorary Life Members	81	Benefactors	21
Endowment Members			9

The Members' Lectures this year proved one of the most popular series ever conducted. Large audiences faced the lecturers. The Saturday Morning Lectures for the Children of Members were indicative of the fast-growing enthusiasm for natural history, and clearly show the effect of *Natural History* and *Junior Natural History* in the home.

Members' Annual Visiting Day, held in the Museum on June 8, was one of the highlights of the year's activities. All previous attendance records were broken, and registration showed that members as far west as California and as far south as Rio de Janeiro attended.

Approximately twenty members of the Works Progress Administration project in the American Museum have assisted in the work of the Membership Department during the past year. The Department cites its sincere appreciation for the invaluable assistance rendered and the splendid accomplishments of these workers during this period.

The following resolution was read by a member of the Museum at the Ninth Annual Members' Visiting Day, on June 8:

Whereas, the late Doctor George H. Sherwood, Honorary Director of The American Museum of Natural History and Curator-in-Chief of its Department of Education, served the institution over a period of thirty-six years with singular ability and distinction, and

Whereas, Doctor Sherwood was largely responsible for the initiation, eight years ago, of "Members' Annual Visiting Day," furthering, as it does, cooperation between the Members and the Scientific Staff, and giving the Members a broader and more intimate knowledge of the activities of the Museum,

Resolved, That, we the Members of The American Museum of Natural History, on this occasion—the Ninth Annual Members' Visiting Day—desire to record our profound sense of sorrow at the passing of Doctor Sherwood, who, by his kindliness, his exceptional charm, ability and great strength of character, endeared himself to all.

THE BOARD OF TRUSTEES

At the Annual Meeting, January 11, 1937, the following officers were reelected: President, F. Trubee Davison; First Vice-President, J. P. Morgan; Second Vice-President, Cleveland E. Dodge; Treasurer, E. Roland Harriman; Secretary, Clarence L. Hay.

The Trustees of the Class of 1936 were reelected to the Class of 1941: Douglas Burden, Cleveland E. Dodge, Childs Frick, E. Roland Harriman, John D. Rockefeller 3rd, and Leonard C. Sanford.

On May 3, 1937, the Constitution of the Museum was amended, increasing the number of Trustees from thirty to thirty-five.

At the meeting of the Board, held on May 3, the following Trustees were elected: Mr. Lewis W. Douglas to the Class of 1937; Dr. James Rowland Angell to the Class of 1938; Mr. Robert Earll McConnell to the Class of 1939, to fill the vacancy due to the death of Mr. Charles Hayden; Mr. Wilton Lloyd-Smith to the Class of 1940, and Dr. Livingston Farrand to the Class of 1941.

We regret to record the retirement of Mr. William K. Vanderbilt from the Board on November 8. Mr. Vanderbilt had served on the Board since January 4, 1926.

The Board of Trustees suffered the loss through death of several of its members: on May 30, Mr. Madison Grant, who had been a member of the Board since February 13, 1911; Mr. George F. Baker, also on May 30, who had served since February 7, 1921, and as Treasurer of the Museum from 1922-1927; also through the death on January 8 of Mr. Charles Hayden, who had been a Trustee since November 9, 1936, and on October 11, of Mr. Ogden L. Mills, who had been a Trustee since May 6, 1929.

THE ADMINISTRATIVE AND SCIENTIFIC STAFFS

George H. Sherwood, Ed.D., passed away on March 18, 1937, after a service on the Administrative and Scientific Staffs since 1901, as Assistant Curator of Invertebrate Zoology from 1901-1906, Curator of Education from 1906-1937, Assistant Treasurer, 1906-1911, Assistant Secretary, 1906-1921, Executive Secretary, 1921-1935, Acting Director, 1924-1927, Director, 1927-1935, Honorary Director, 1935-1937.

At the Spring Meeting of the Board of Trustees of The American Museum of Natural History, held on May 3, 1937, the following resolution was unanimously adopted:

Resolved, That the Trustees of The American Museum of Natural History sorrowfully record the death on March 18, 1937, of their beloved associate, Doctor George H. Sherwood. Doctor Sherwood served the Museum with conspicuous ability for more than thirty-six years, and contributed largely to the growth and development of every department of the Museum—particularly that of Education, which under his guidance has become an important factor in the public school system of the City of New York. We think of him as a genial companion, in whom strict honesty, justice and kindness were cardinal virtues. Doctor Sherwood's life was rich in friendship, with his work well done. He died as he himself would wish, and we think of him, now, as we shall in the future, with pride and affection.

At the Annual Meeting of the Trustees, January 11, 1937, Mr. Wilson L. Todd was appointed Power Plant Engineer in place of Mr. Charles E. Banks, retired. Mr. Charles J. O'Connor was appointed Membership Secretary instead of Membership Supervisor.

On December 31, 1937, Mr. J. B. Foulke resigned as Custodian,

having served the Museum for thirty-two years, first as Administrative Assistant, then as Superintendent of Buildings, and later as Custodian.

On January 11, 1937, Katharine K. Aplington, A.M., and Priscilla R. Ryan, A.B., were appointed Staff Assistants in the Department of Experimental Biology. W. W. Howells, Ph.D., was promoted from Associate in Physical Anthropology to Research Associate in Physical Anthropology.

C. M. Bogert, M.A., was appointed Assistant Curator in the Department of Herpetology, on February 18.

On March 18, George Pinkley, Ph.D., was promoted from James Arthur Research Assistant to Associate in Palaeoneurology, in the Department of Comparative and Human Anatomy.

William M. Wheeler, Ph.D., LL.D., Research Associate in Social Insects in the Department of Entomology, passed away on April 19, 1937.

On May 3, Mrs. Antoinette K. Gordon was appointed Associate in Asiatic Ethnology in the Department of Anthropology.

On June 17, Mr. Sherman P. Voorhees was appointed Advertising Manager of Museum Periodical Publications.

H. J. Clausen, Ph.D., resigned as Assistant Curator of Experimental Biology on September 8.

On November 4, A. L. Rand, Ph.D., was appointed Research Associate in Ornithology, and Mr. P. B. Philipp was appointed Research Associate in Oölogy in the Department of Ornithology. Frank A. Beach, Ph.D., was appointed Assistant Curator of Experimental Biology, the appointment to take effect January 1, 1938. Chester A. Reeds, Ph.D., resigned as Research Associate in Meteorites in the Department of Astronomy, on November 8.

On December 20, Clyde Fisher, Ph.D., was made Curator-in-Chief of the Department of Astronomy and the Hayden Planetarium, instead of Curator. He was made Editor-in-Chief of *The Sky* magazine, in place of Mr. Hans Christian Adamson, thus enabling Mr. Adamson to devote more time to Publicity. Professor William H. Barton, Jr., was promoted from Associate Curator to Executive Curator in the Department of Astronomy and the Hayden Planetarium. Mr. Wyllys Rosseter Betts, Jr., was appointed Field Associate in the Department of Living Invertebrates. Alfred Edwards Emerson, Ph.D., was appointed Research Associate in Termites in the Department of Entomology. T. D. A. Cockerell, Sc.D., was appointed Research Associate of Fossil Insects.

VI. APPENDIX
ADMINISTRATION OF THE YEAR 1937
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THE AMERICAN MUSEUM OF NATURAL HISTORY

INCORPORATED BY THE

LEGISLATURE OF THE STATE OF NEW YORK IN 1869

The Corporation consists of a self-perpetuating Board of thirty-five Trustees, elected for terms of five years. Also, *ex-officio*, the Mayor, the Comptroller, and the Commissioner of Parks of the City of New York.

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HISTORY

PRESIDENCY OF JOHN DAVID WOLFE, 1869-1872

1869 Museum incorporated. Constitution adopted as drafted by Joseph H. Choate.

1870 First home secured, the Arsenal, Central Park.

1871 The City of New York appropriated \$700,000 for building. (Section I.)

PRESIDENCY OF ROBERT L. STUART, 1872-1881.

1874 Cornerstone of first section of building laid by President Ulysses S. Grant.

1878 Contract adopted between Trustees and Department of Parks, as drawn up by Andrew H. Green and Joseph H. Choate.

1880 Educational work with the schools inaugurated by Professor Albert S. Bickmore.

PRESIDENCY OF MORRIS K. JESUP, 1881-1908.

1892 Museum opened to the public on Sundays.

1887—1905 The City of New York appropriated \$4,218,820.94 for eight new building sections, II-VIII, and XV.

1907 Museum opened free to the public every day in the year.

1908—1917 Mr. and Mrs. Jesup bequeathed \$6,000,000 to the Museum.

PRESIDENCY OF HENRY FAIRFIELD OSBORN, 1908-1933.

1908 Constitution amended making the Mayor, the Comptroller and the President of the Department of Parks, *ex-officio* members of the Board of Trustees.

1921 Greater New York Charter amended, placing the Museum on the same basis as Public Schools with respect to Corporate Stock Appropriations, by Chapter 618 of the Laws of 1921, State of New York.

1921—1925 The City of New York appropriated \$2,233,800 for new sections, IX-XI, and Equipment and Alterations of old sections.

1924 The State of New York provided for the Theodore Roosevelt Memorial (Educational). Cost \$3,500,000. (Original Chapter 615, Laws of 1924.) (Building Section XII.)

- 1929 Appropriation of \$3,550,000 by the City of New York for construction of African Wing, Power Plant and Service Building, and South Oceanic Wing. (Sections XIII, XVII and XIX.)
Contribution of \$750,000 by Harry Payne Whitney for one-half cost of South Oceanic Wing. (Section XIX.)

PRESIDENCY OF F. TRUBEE DAVISON, 1933-

- 1934 Contribution of \$150,000 by Charles Hayden for purchase of Zeiss Projection Planetarium and Copernican Planetarium.
The American Museum of Natural History Planetarium Authority erecting Planetarium Building with funds (\$650,000) secured through loan from the Reconstruction Finance Corporation. (Building Section XVIII.)

PERMANENT ENDOWMENT

The Endowment Fund was established in 1884. It now amounts to \$15,210,551.55 (book value). The Trustees especially desire to insure the permanent growth and welfare of the Museum through an increase of the General Endowment Fund. The additional sum of \$10,000,000 is needed at present.

FORM OF BEQUEST

I do hereby give and bequeath to "THE AMERICAN MUSEUM OF NATURAL HISTORY" of the City of New York

GIFTS AND BEQUESTS EXEMPT FROM TAXATION

Gifts, to the extent of fifteen per cent. of net income of the donor, and Bequests of any extent to The American Museum of Natural History are exempt from federal taxation, under the Federal Revenue Acts of 1926 and 1928.*

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The Classes of Contributory Membership are:

ASSOCIATE MEMBERS (annually).	\$3	PATRONS	\$1,000
ANNUAL MEMBERS (annually)..	10	ASSOCIATE BENEFACTORS....		10,000
SUSTAINING MEMBERS (annually)	25	ASSOCIATE FOUNDERS		25,000
LIFE MEMBERS	200	BENEFACTORS		50,000
FELLOWS	500	ENDOWMENT MEMBERS.....		100,000

HONORARY LIFE MEMBERS

HONORARY FELLOWS

CORRESPONDING MEMBERS

FOR INFORMATION APPLY TO THE SECRETARY OF
THE AMERICAN MUSEUM OF NATURAL HISTORY
Central Park West at 79th Street

* This exemption also applies in respect to the New York State Income Tax.