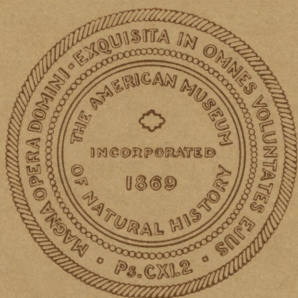


# THE AMERICAN MUSEUM OF NATURAL HISTORY



SIXTY-EIGHTH  
*Annual Report*  
FOR THE YEAR 1936

ISSUED MAY 1, 1937



## SERIAL SCIENTIFIC PUBLICATIONS

### NATURAL HISTORY, Journal of The American Museum:

Volumes I-XXXVIII, 1900-1936. 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.

### JUNIOR NATURAL HISTORY:

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

### BULLETIN of The American Museum:

Volumes I-LXXII, 1881-1936. Scientific records of explorations and collections of the Museum, in Geology, Palaeontology, Mineralogy, Zoology, and, originally, Anthropology. \$4.00-\$10.00 per volume.

### ANTHROPOLOGICAL PAPERS of The American Museum:

Volumes I-XXXVI, 1906-1936. Discoveries, explorations and researches in Archaeology, Anthropology and Ethnology among the extinct and living races of man. 25c.-\$5.00 a part.

### AMERICAN MUSEUM NOVITATES:

Nos. 1-898, 1921-1936. Devoted to publication of preliminary announcements and descriptions of new forms in the fields of Zoology, Palaeontology, Geology and Mineralogy. 15c. each.

### MEMOIRS of The American Museum:

Volumes I-XV, 1893-1930; New Series, I-III, 1912-1921. (Volumes II, IV, V, VII, VIII, X-XV, form the Jesup North Pacific Expedition series, Volumes I-XI.) Prices range from 75c. to \$18.00 per part.

## 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.

### BIBLIOGRAPHY OF FISHES:

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:

Article I, 1930, \$1.25; Article II, 1931, 60c.; Article III, 1931, \$1.75; Article IV, 1932, \$2.50; Article V, 1933, \$1.00.

### 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:

By Henry Fairfield Osborn, 1936. Volume I of an exhaustive study to be completed in two quarto volumes, cloth-bound, \$20.00.

(Publications continued on third page of cover.)

# THE AMERICAN MUSEUM OF NATURAL HISTORY



## SIXTY-EIGHTH *Annual Report* FOR THE YEAR 1936

"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, 1937





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## SIXTY-EIGHTH ANNUAL REPORT

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

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BY FREDERICK TRUBEE DAVISON, President

THE American Museum of Natural History is confronted with an important question of policy which it is my desire to bring to the attention of our membership in this, the Sixty-eighth Annual Report. Even a casual examination of the following pages will disclose the fact that the Museum has carried on its work effectively during the past year; that it continued its research activities in various fields; that a number of expeditions were conducted, all of which produced excellent results; that the attendance increased by almost one quarter of a million; and that the institution lived within its budget.

This picture, while a true one, does not tell the entire story. The expeditions, in every case, were financed by friends and not directly by Museum funds, and without the generosity of these interested individuals, most, and perhaps all, of these expeditions could never have been undertaken. However, the members of our scientific staff have made substantial progress during the past year in conducting research with relation to collections made in the past.

During 1936, more than 1,700,000 visitors entered our halls. This is an increase of nearly 250,000 over 1935. Nevertheless, the fact remains that the Museum could carry out its mission far more effectively to the public if sufficient means were available to complete the halls, collections and exhibits which have been delayed because of the lack of funds, and if it were able to adequately develop its all-important responsibility as an educational institution.

In 1929, under the leadership of the late Henry Fairfield Osborn, the Sixtieth Anniversary Endowment Fund was planned. After much thought the Trustees embarked upon a campaign in 1930 to raise at least \$10,000,000 in increased endowment. The adverse economic conditions which became more and more serious toward the end of 1930 forced the



Trustees to postpone this activity. Since then we have been marking time, and while it is fair to say that the Museum has not lost ground, it certainly has not advanced to the extent that would have been possible had conditions been normal. We believe that the year 1936 marks the last of the seven lean years of the Museum's finances—years during which many essential activities were curtailed, halls closed and departments deprived of employees and the facilities with which to do their work. The need to-day, therefore, is much more urgent than it was in 1930.

In the world of science there is no such thing as standing still. We either march forward in the acquisition of knowledge or else are passed by. The change in our financial picture brought the Trustees face to face with the question of whether or not the Museum would be content from now on to lose ground, to mark time, or to go ahead. The Trustees decided last fall that the increased progress of the Museum could no longer be delayed. They decided that the time had come to submit our immediate and pressing needs to our membership and to the public. Before doing this, an exhaustive survey was made by the Trustees and the scientific and administrative staffs, to determine not only the immediate needs but to establish a program of development for the next ten years, which could be confined to existing building facilities and which would in the main, use collections now in our storerooms. To the best of our knowledge this is the first time such a study plan has been developed, and the results are truly amazing. The detailed plan will be made available in the near future.

For nearly three-quarters of a century the American Museum of Natural History has been building up a treasure-house of facts from all parts of the world, as well as from such intangible realms as psychology, human and animal behavior, and astronomy. These collections are adequately housed in our great museum buildings, but great as these collections are and generally unsurpassed as they are, much remains to be collected. Probably the task will remain uncompleted to the end of time, for knowledge has no limits, but every effort should be made day by day and year by year to fill in the gaps and further enrich the treasure-house.

While collections are being perfected, the material at hand should be better utilized. As I see it, the Museum is entering into an era of more intensive research and broader and more far-flung education in the natural sciences. The fountain of knowledge is already within our walls; and it now remains to drink of it, to apply it to human needs, and to

make it useful not only to the scientist, but to the schools, to the universities and to all mankind. It is a colossal task, and a stimulating challenge.

In order to fulfill the heavy responsibility laid upon this institution, the personnel must be increased, gaps in our collections closed, public exhibition increased, teaching broadened, and facilities provided for additional research and publication in order that the fruits of scientific work may be supplied to those agencies which can most effectively disseminate them.

An outstanding event of the year 1936 was the dedication on January 19, of the New York State Theodore Roosevelt Memorial Building, on Central Park West at Seventy-ninth Street. Included in the impressive program were: the "Tribute from the Nation," by Franklin D. Roosevelt, President of the United States; Report by Peter D. Kiernan, Vice-Chairman of the Board of Trustees of the Roosevelt Memorial (the late Professor Henry Fairfield Osborn had been the Chairman of the Memorial Trustees); "Dedication and Presentation to the City of New York," by Governor Herbert H. Lehman; "Acceptance of the Memorial and Delegation of its Administration to the Trustees of The American Museum of Natural History," by Mayor Fiorello H. La Guardia; "Guiding Principles for Memorial Administration," by A. Perry Osborn, a Trustee of the American Museum; "Appreciations," by Colonel Theodore Roosevelt, and an Address by James R. Garfield, President of the Roosevelt Memorial Association. The addition of this magnificent structure, erected by the People of the State of New York, to the American Museum group of buildings portends a new era in the history of the Museum.

Another event, long anticipated, was the dedication of the Akeley Memorial Hall of African Mammals, in the African Wing, on May 19. Carl Akeley began his explorations in Africa in 1896, foreseeing that the encroachments of civilization would cause the disappearance of many denizens of that continent, and hoping that scenes and specimens might be reproduced or transplanted in permanent form in an African exhibit. President Davison delivered the address of welcome, and Mr. Daniel E. Pomeroy, Chairman of the Committee on African Hall and African Collections, conducted the dedication ceremonies. Without the constant attention and thought given by Mr. Pomeroy, it is doubtful if the hall would have been opened for many years.

On December 31, 1936, fourteen groups remain to be completed, but three of these are under construction. On the main floor all the specimens have been installed except the rare Okapi, the Nile River and the Sahara Desert groups. The first has been collected by Mr. William D.

Campbell and the second will be obtained by him in 1937. Through his personal efforts in the field and his generosity, together with that of Mr. Philip M. Plant who has recently become interested, it appears probable that the African Hall will be completed in the near future.

The Hayden Planetarium continues to be an outstanding attraction of the Museum and New York City. Since it was opened on October 3, 1935, it has been visited by 1,027,471 persons, who have been thrilled and instructed by the varied displays of the marvelous Zeiss Projection Planetarium and by the demonstrations of the less spectacular, but highly instructive, Copernican Planetarium. The subject of the regular Planetarium lecture has been changed each month. Two special courses of more advanced lectures have been given during the year and a number of special private performances have been arranged for various organizations. During the year 1936, 137,649 children from the New York City schools alone came to the Planetarium in organized classes, thus attesting to its value as an adjunct of the Museum's educational work with the school system.

The attendance in the exhibition halls of 1,700,000 visitors (exclusive of the Planetarium) shows an increase of nearly a quarter of a million over 1935. It is a most encouraging evidence that the Museum is becoming every year a greater and greater factor in the life of the city and the nation.

The financial status of the Museum was improved over 1935, but the annual budget is far below what is necessary to develop the potential resources of the collections in research, education and exhibition.

Through the generosity of various friends of the institution, several splendid gifts have been received. One of the most important was the William B. Whitney Tibetan Lamaist Collection. Because Mr. Suydam Cutting provided the cases, it was possible to open the exhibit during the year.

We regret that for several years past it has not been possible to publish a complete list of gifts, because of the expense involved, but we are grateful to all those who have contributed in any way.

The reports of the Treasurer and Bursar, the Secretary and Executive Secretary, and of the Director and Vice-Director, follow, giving in more detail the work of the year.



## II. SCIENTIFIC AND EDUCATIONAL PROGRESS

ROY CHAPMAN ANDREWS, Director

A few months ago a lady who was a constant visitor of the Museum, came to my office to protest. She said that whenever she wanted to go into an exhibition hall it seemed as though it was always closed for renovation and she asked why we must continually have changes going on in the halls.

I replied, "Instead of complaining about such a condition, you ought to be much pleased. It indicates, at least, that we are not satisfied with existing halls and are trying to keep them up to date. Would you be more pleased if you found them always in the same condition in which you saw them last with no changes? We feel that if a Museum remains static, if it does not progress in its ideas for installation and exhibition, it really is retrograding."

She replied, "I never thought of that. I guess you are right, after all."

It is an unfortunate fact that in addition to the halls which are continually being reconstructed and which must be temporarily closed, there are twelve halls in the Museum which are withdrawn from the public every day. This condition has existed since 1933. At that time the City reduced its annual appropriation for the maintenance of the Museum by \$150,000. The available City money after this 28% cut was not sufficient to maintain the necessary force of attendants to keep open all the exhibition space. Thus almost one-third of the space in the Museum is closed for part of the time each week. We hope that in the near future the City will have funds available to again allow us to throw all of our exhibition halls open to the public.

After the opening of the Roosevelt Memorial on January 19, 1936, this magnificent and impressive entrance on Central Park West became available to the Museum. In a building of the size of the American Museum, more than one entrance is essential. However, we are again faced with the fact that we do not have sufficient attendants to provide for the mechanics of maintaining two entrances. The closing of the old Seventy-seventh Street doors to the general public has worked a real hardship on many visitors who come to the Museum from the west side. When sufficient attendants to take care of the Seventy-seventh

Street entrance are furnished us by the City, the Museum will make both entrances available.

For many years the grounds surrounding the Museum have been in a most deplorable condition. During 1936, through the efforts of our energetic Park Commissioner, Mr. Robert Moses, work was begun to make the grounds really attractive. On the Eighty-first Street and Columbus Avenue sides, grading was carried on by a large force of men, grass was sown and trees planted. That part of Manhattan Square is now offering a real recreation ground to thousands of people. All through the winter, reconstruction of the part surrounding the Seventy-seventh Street entrance has been under way and this section of the grounds should be in beautiful condition before spring is well advanced.

I wish to say a word in appreciation of the assistance which the Works Progress Administration has rendered to the Museum. At the present time there are 255 W. P. A. workers in the institution. Necessarily, at the beginning there were many misfits and it has taken some time to shape the project into an effective working unit. I am glad to say that this has been done and that the W. P. A. employees in our institution are rendering a service which has helped maintain the quantity of work which we would not have been able to do without their efforts.

The activities of the different departments in the Museum have been set forth in the following pages. Although because of the rapidly increasing cost of materials and some loss of income, the finances are far below what is necessary to run the institution effectively, still we have been able to make a fair degree of progress. A large part of this has been due to the interest of friends who have made possible expeditions into the field and the preparation of much material for the exhibition halls. Without this group of patrons who are impressed by the work which the institution is doing for education and research, we should have been most severely handicapped. We look forward to 1937 to better financial conditions and increasing service to the public.

## NEW EXHIBITS

*Astronomy and the Hayden Planetarium.*—The popularity of the Hayden Planetarium has continued through this first full year of its program. Approximately forty-four performances have been given each week to the general public and ten to school children; the latter were free showings arranged through the Museum's Department of Education. The lecture subject for public performances has been changed each month. The school lectures have been planned to supplement the public school curriculum.

The attendance from January 1 to December 31, 1936, was as follows: Paid admissions, 574,106; school children (free), 137,649; total, 711,755. On May 17, Mr. and Mrs. Joseph G. Seidinglang of Trenton, N. J., bought the five hundred thousandth admission ticket and received a pair of binoculars donated by the Carl Zeiss Company, Inc.

Two special series, of six lectures each, have been held with the Zeiss instrument and special slides and motion pictures, one series by Dr. Fisher and the other by the various members of the Astronomy Department staff.

Special performances have been held for a number of organizations, among them the American Institute of Bankers, Illuminating Engineering Society, Intercollegiate Young Alumni, Corinthian Yacht Club, American Institute of Electrical Engineers, American Society of Mechanical Engineers, Mitchel Field Aviators, Radio Club of America, Annapolis Naval Cadets, Japanese Naval Cadets (lecture in Japanese), and United Air Lines.

In cooperation with the Weems System of Navigation, whose headquarters are in Annapolis, a course in Celestial Navigation was given in the Planetarium to navigators and aviators. Of the twenty-four two-hour periods, four were given with the Zeiss projection instrument by Mr. William H. Barton, Jr., of the Planetarium staff.

During 1936, additional equipment for use in the Planetarium dome has been made by Planetarium technicians: apparatus for producing northern lights on the Planetarium sky, tinted cloud effects for



the sky at dawn, comet, meteor-shower and nova; and cosmic ray machinery has also been set up for use in "turning on the stars."

In addition to the permanent exhibits in the Planetarium corridors, a number of loan exhibits have been displayed. Included in these have been a remarkable set of time-keeping instruments (hour-glass, water-clock, sun-dials); a collection of postage stamps with astronomical subjects; a model of the great 200-inch telescope, lent by Westinghouse Manufacturing Company; and a collection of precision instruments lent by Longines-Wittnauer Company, containing historic chronometers used by Byrd, Lindbergh and other famous aviators.

*Mineralogy.*—The revision of the exhibited series of feldspars undertaken by Dr. Pough has been completed. In addition, Dr. Pough has rearranged, enlarged and improved the New York Mineralogical Club's exhibited Collection of New York City Minerals, and the Museum series of minerals from the New Jersey trap-rock quarries. He is assembling at present a corresponding series from Franklin, N. J. All of these locality exhibits are of great value to collectors, students and teachers.

During the year the mineral accession case has been used to feature special exhibits of Wölsendorf fluorite specimens collected by Dr. Pough in 1935, an especially fine suite of specimens from the copper and lead mines at Tsumeb, Southwest Africa, and a suite of the minerals from the pegmatites of Topsham, Maine, studied and described by Professor Charles Palache of Harvard.

The exceptionally large beryl crystals from Albany, Maine, which, due to their great weight, were not suitable as floor exhibits, have been installed under the archway at Seventy-seventh Street.

*Vertebrate Palaeontology.*—The outstanding new exhibit of the year is the *Baluchitherium* model. This was prepared after intensive research on the entire collection of *Baluchitherium* material from Mongolia. The largest individual was selected and the size of the skeleton calculated from those bones. From the completed skeletal drawing a model one-eighth natural size was made, and finally, a low-relief model, life-size, 18½ feet high, was completed and installed on one wall of the exhibition hall.

Considerable progress was made on the south side of the Tertiary (Osborn) Hall, bringing all of the exhibits of fossil perissodactyls nearer to their final form. Particular note might be made of the Synopsis of

Perissodactyla exhibit and the synoptic exhibit demonstrating the evolution of the horse.

The four stratigraphic charts, executed with great care and fidelity, were prepared by Mr. John C. Germann and are worthy of note. They were completed early in the year and placed on exhibition. These charts, illustrating in color the sequence of Tertiary sediments in North America, comprise a real innovation in the pictorial representation of stratigraphy.

A small exhibit entitled "What is a Fossil?" has been placed at the entrance of the Osborn Hall.

*Geology.*—The space on the third floor, south and west corridors of the central pavilion of the Museum building, was vacated in May by Park Department artists. By the end of the year this space had been remodeled and repainted. The northernmost section will be used as a laboratory; the remaining sections will be devoted to the exhibition of rocks, ores, building stones and relief models. The building stones, together with a series of selected specimens representing types of granite and marble used in preparing memorial stones, were previously on exhibition on the first floor west corridor of the central pavilion. At the end of the year preparations were being made to move the exhibits and cases on the first floor to the new space provided on the third floor.

*Living Invertebrates.*—During the year four models of *Amphioxus* were completed by Dr. George H. Childs, with the assistance of Mr. H. O. Mueller, under the Curator's direction. The series portrays this important link between the invertebrates and the vertebrates, by means of two four-foot models showing the external and internal structure, the latter displayed in contrasting colors for the sake of clearness of demonstration. As the living animals are only about two inches in length, this involves an enlargement of approximately fifty diameters. These two models are being amplified by supplementary models of cross-sections and enlarged details. A duplicate set is also being prepared as a contribution to the Department of Ichthyology. Both sets are now on exhibition, one in the Darwin Hall and the other in the Hall of Fishes, while the subsidiary models are rapidly approaching completion in the Modeling Room of the Department.

The Exhibit of Color Variation in a West Indian Sun Shell was completed during the year for the Darwin Hall by Mr. Chris E. Olsen, assisted by Miss Janet Smedley. It shows a large series of the typical sun shell, *Tellina*, as picked up at random on a Bahaman beach. The

coloration of this shell varies individually from rose-pink through purple, yellow and white. The shells are so arranged as to display this chromatic transition and to emphasize the possibility of color differences within a single species. The chart is now on exhibition in the Darwin Hall.

A new unit has been added to the Rotifer Series through the completion of the model, *Epiphanes senta*, which was finished by Mr. Mueller during the first part of the year. This is one of the typical forms used in academic classes of zoology. It is modeled entirely in glass and is now on exhibition in the Rotifer Alcove of the Darwin Hall.

In addition to the uncompleted units of the *Amphioxus* series above mentioned, the following exhibits were under way during the year 1936:

Two fine additional models representing typical rotifers are nearing completion by Mr. Herman Mueller, one representing *Brachionus capsuliflorus*, the other *Euchlanis dilatata*. These two forms, together with that spoken of above, round out and strengthen the series of rotifer types according to departmental plans.

Mr. Mueller is now engaged in constructing an extremely delicate model for the series of Radiolaria which will fill a gap hitherto unoccupied. This delicate and complicated form is being handled with Mr. Mueller's usual skill.

During the year the Annulate Group was thoroughly gone over and repaired, and certain constructional faults were remedied.

A number of wax models of the West Indian species of fishes not used in the Coral Reef Group and planned for a future Sponge Fisheries Group have been constructed and colored by Messrs. Brunner and Southwick during the year. The series is still in progress. A duplicate set of these models is being prepared for presentation to Yale University in accordance with the request of Mr. John H. Phipps, in recognition of his participation in one of the expeditions to the Bahamas for obtaining material for the Coral Reef Group. This series is well on toward completion.

During the year a series of panels was painted by Mr. Olsen to represent clouds and sky and was installed in place of the former skylights in the Hall of Ocean Life. As a result, the color scheme and appearance of the hall have been greatly improved, and the excess daylight, which formerly made disturbing reflections on the group cases in the hall, has thereby been excluded. It is planned to introduce



special case-lighting and a general illumination in the hall adapted to the specific requirements of the exhibits.

*Fishes.*—In the main Hall of Fishes of the World, a number of striking exhibits has been added during 1936, as described below:

To the right and left of the Sailfish Group, near the main entrance from the Roosevelt Memorial, two large groups featuring a gigantic tuna and a blue marlin respectively, both mounted by Mr. Albert Pflueger of Miami, and presented by Mr. Michael Lerner; backgrounds and installation by the Department of Arts, Preparation and Installation.

Mounted muskellunge, the gift of Mr. Philip Mayer.

Enlarged models of *Amphioxus*, the "basal vertebrate," made by Dr. George H. Childs under the supervision of Dr. Roy W. Miner. This is an exhibit which has been greatly needed for many years, and the Department of Fishes is deeply indebted to the Department of Lower Invertebrates for preparing a duplicate set of these beautiful models.

A table case exhibit of the Archer Fish (*Toxotes*) of Siam, including fish preserved in fluid, and photographs showing how this wonderful fish can squirt from its mouth a small stream of water and by its means knock over spiders and other insects on the overhanging branches. The exhibit is based on the article in *Natural History* by Dr. Hugh M. Smith, which shows the mechanism by which the fish takes aim and fires its watery blow-gun, and on data from the New York Aquarium.

The cases illustrating the groups of pediculate fishes, of triggers and surgeon fishes, of chimæroids and of cyclostomes were revised, rearranged and developed by Messrs. Conrad and Guerry under the supervision of Dr. Gregory.

A mounted young whale shark eighteen feet long is ready for permanent exhibition (temporarily in the subway entrance hall of the Museum). This has long been one of the greatest desiderata of the Hall of Fishes, and the final exhibit is due to the perseverance of Dr. Gudger, the generosity of Mr. Charles T. Wilson, the skill of Mr. Ferraglio (working under the immediate supervision of Dr. James L. Clark) and the cooperation of many of Dr. Gudger's friends and correspondents who have sent him photographs and color notes of this remarkable fish.

In the Bashford Dean hall of fossil fishes, on the fourth floor, two fairly elaborate exhibits were completed and a third well started. The first is an illuminated diagram illustrating the sequence of different

groups of fishes throughout the ages of the fossil record; the second, likewise intended for students, illustrates the classification and anatomy of the various groups of the fossil ostracoderms, which were the fore-runners of the true fishes and of special interest because they stand near the base of the great ancestral tree of the vertebrates. These exhibits were prepared by Mr. Guerry under the supervision of Dr. Gregory.

Among various exhibits now in hand but not yet completed may be mentioned the following: model of a six-hundred-pound swordfish caught by Mr. Michael Lerner and presented by him; mounted skeleton of another swordfish caught by Mr. Lerner; model of man-eater shark caught by Mr. Francis H. Low, the skin of which was presented by him; model of mako shark caught by Mr. Winston Guest, who presented the skin; albino tarpon caught by Mrs. John L. Kuser, who presented the skin; nipple-tailed ocean sunfish (*Masturus*), the fish itself presented by Mr. Albert Pflueger—the acquisition of this great rarity, as in the case of the whale shark, was due largely to Dr. Gudger's activity in corresponding with scientific friends and colleagues and in publishing articles on subjects of interest to them. An exhibit of common fishes found within fifty miles of New York City is being brought together for the ambulatory of the Theodore Roosevelt Memorial.

*Herpetology.*—In the Hall of Reptile Life a succession of exhibits of living reptiles and amphibians was presented during the year. These were selected to illustrate features of special interest, and included among others (a) the Glass "Snake," *Ophisaurus*, a legless lizard contrasted with a true snake, (b) the Giant Toad, *Bufo marinus*, which has recently proved to be of great economic importance to the sugar plantations of Porto Rico, (c) Albino Frogs and Snakes, (d) the only living specimens of the Matecumbe Chicken Snake, a form recently destroyed by tornadoes, (e) the eggs and adults of the Marbled Salamander, a species which oviposits on land instead of in water, (f) the Mountain Black Snake compared with the common Black Snake, (g) the young and adults of the Hog-nosed Snake, (h) the tadpoles and adults of the Bahaman Tree Frog, (i) Lizard-eating Tree Snakes from Honduras, and (j) Desert Lizards from Texas. Each demonstration was on exhibition approximately two weeks.

A series of murals for the east side of the Hall of Reptile Life has been planned, and through the assistance of the Works Progress Administration one on the Gaboon Viper was completed. This shows the mother snake and her young startled by the intrusion of a Duikerbok.

*Experimental Biology.*—In the Hall of Biology and Public Health, important additions to the exhibit of vitamins were made during the year. The rôle of vitamins C, B and D in growth and health was demonstrated with mounted examples of rats, guinea pigs and pigeons. When complete the exhibit will also include the recent discoveries of the function of vitamin E on growth and reproduction.

In this hall the exhibit of the sources of energy has been improved and considerably enlarged. The food exhibit has been relabeled and brought up to date.

Considerable progress has been made on the exhibit of the principles of animal behavior. Groups are being prepared to show how the world looks through the eyes of animals. Dogs are color-blind, and hence the appearance of a room to them is very different from what it is to us. Hens are restricted in their activities by pecking orders which greatly modify their view of the world. Fish live in a world of reflection and refraction which is hard for us to visualize. The groups will bring home to the visitor how all living creatures depend on their sense organs and central nervous systems for their knowledge of the world. As these mechanisms have changed in evolution, the world of animals has changed.

Temporary exhibits illustrating various principles of biology were installed in the foyer, Education Hall and the Reptile Hall during the year. Many of these included living animals and illustrated such phenomena as the evolution of parental habits in vertebrates, the mechanism of color change and the problem of development. Among the exhibits was a large display of living tropical fish which was exhibited at the annual show of the New York Aquarium Society. The fish were arranged in sequence to show how their various types of life history have evolved from one another.

*Ornithology.*—The Alpine Group, work on which commenced in 1935, was completed and opened to the public on September 13, 1936. This splendid group, showing characteristic birds of the high European Alps, with the Matterhorn in the background, was presented by Mrs. Carl Tucker, whose generosity has provided similar groups in the past.

Work was begun by the Department of Preparation on the first of the series of Pacific bird groups for the Whitney Hall. This is to be the "Ship Followers" group, showing the birds which follow the vessels in the high latitudes of the South Pacific Ocean. The back-

ground has been nearly finished by Mr. Jaques, part of the foreground is in place, and many of the necessary birds have been mounted.

The birds for the Peruvian coastal group also have been mounted, in preparation for the commencement of work on that exhibit.

The mounted collection of local birds was removed from its former place on the West Landing and "Burroughs Room" of the second floor and installed in new cases with tinted backgrounds in the ambulatory of the first floor of the Roosevelt Wing, opposite the elevators, extending to the entrance to Whitney Wing. The improvement in lighting and arrangement, together with the greater accessibility of the exhibit, present a decided advance over the old installation. Placards are being placed in various halls to furnish guides to these and other separated portions of the various ornithological exhibits. The small table-groups of birds also have been removed from the West Landing of the second floor and distributed in the Hall of Flying Birds and nearby entrances, to clear the former room for occupancy by the Department of Anthropology. These small groups are not in final position. Some of them will be dismantled and their material used for exhibition in the forthcoming Hall of Biology of Birds in the Whitney Wing; others may be remodeled or renovated as occasion demands.

Some work has been done by Dr. Murphy on material and plans for the groups to be in Whitney Hall, for the Hall of Biology of Birds, and for the Little America Group for the Hall of Ocean Life.

*Mammals.*—On May 19, Annual Members' Day, the Akeley Memorial Hall of African Mammals was opened to the public with appropriate ceremonies. This date, the anniversary of the birth of the late Carl Akeley, was a fitting time for the formal dedication of the hall as a memorial to his genius and vision.

The opening to the public was one of the final steps in the culmination of almost twenty-five years of planning and construction, and is the tangible expression of support, financial and otherwise, given to the undertaking by so many friends of the Museum. The roster of these names is an imposing one, and without this cooperation the completion of the hall would have been impossible.

The Akeley Hall stands as the very finest example of habitat exhibition to be found in any museum in the world. While not all of the group spaces are filled, the fourteen finished groups shown at the time of the opening (one-half of the total number planned for the hall) afford an adequate demonstration of the magnitude and effectiveness

of the final project. Since the opening, additional groups have been started, either as field expeditions to collect the materials or as actual installations in group cases. The close of the year found the Impala Group practically ready for exhibition, the South African Group rapidly nearing completion, the Black Rhino Group with materials collected and installation begun, and no fewer than five groups pledged and the expeditions planned.

Progress toward the completion of the Hall of Ocean Life has been made in certain changes of construction, such as closing off the skylight by a series of panels painted to resemble sky and clouds, and by a rearrangement of the skeletons and models of cetaceans, to which several specimens are being added.

*Comparative and Human Anatomy.*—Partly through the generosity of Mr. Childs Frick, a life-sized low-relief model of the gigantic extinct Mongolian rhinoceros *Baluchitherium* was executed by Mr. John W. Hope of the Museum's Department of Preparation, under the joint supervision of Doctors Granger and Gregory. Skeletons of a flying phalanger, a giant anteater and a giant armadillo were mounted in the Department of Preparation for the study collections. The series of enlarged models of the brains of vertebrates was extended. The skeleton of a mountain zebra is being mounted by Mr. Chubb. A cast of the Cohuna skull, a fossil Australian type, was presented by Sir Colin McKenzie. Several restoration models of the palates and jaws of fossil anthropoid apes from the Siwaliks, India, were completed by Dr. Milo Hellman. A series of enlarged models illustrating the evolution of the skull from *Seymouria* to Man and another illustrating the evolution of the molar teeth of mammals, both made under the supervision of Dr. Gregory, are being distributed to countries other than the United States by R. F. Damon and Company of London.

*Anthropology.*—The most important activity was the installation of the William B. Whitney Tibetan Lamaist Collection. Mr. Whitney died before the exhibit was open to the public, and by his will presents to the Museum his entire collection including more than eight hundred items. New casing for this exhibit was made possible by donation from Mr. Suydam Cutting. The exhibit was completed and open to the public on December 14. The installation was planned by Mr. Whitney and executed by Mrs. Antoinette K. Gordon.

The exhibits for the American Indians on the ground floor have been improved by the addition of several miniature groups representing

basic economic activities such as Sugar Making, the Use of Maize, the Use of Birchbark, Making Splint Basketry, and Cultivating Maize. These groups and figures were executed by Mr. Narahara of the Department of Preparation. These have attracted a good deal of attention and prove serviceable to teachers and students. It is hoped to add many of these groups in the near future. Since the educational value of such groups seems as great as for the life-sized groups, their trifling cost warrants making many of them.

With the assistance of Works Progress Administration artists, we have experimented with illustrated labels, each representing important technological processes. For example, in the hall for Woodland Indians we have installed drawings, some in black and white, and some in color, covering the following topics: Costume of a Colonial Indian, weaving by the Sauk and Fox Indians, demonstrating the use of the tump-line, the making of babiche, the types of metal tomahawks, writing on birchbark, weaving mats, costume of a medicineman, etc. These labels are used in association with the specimens, explaining their uses. They not only add to the appearance of the exhibit, but convey more information than can be given in a textual label.

Many labels have been completed for the Indian halls, using a number key system, according to which the number for each specimen refers to a single case label which contains corresponding numbers and the information specimen by specimen.

Late in the year new space was added to the Hall of Mexican and Central American Archaeology on the second floor, which will give needed room for new exhibits, now in process of installation. In the hall for Southwest Indians extensive revisions have been made on the archaeological exhibits, to the end that they now demonstrate the chief advances in knowledge for the area as a whole. In addition, minor changes have been made in many other halls, substituting new material for old.

Mr. Paul Richard was appointed to succeed Mr. S. Ichikawa, retired, to supervise installation and direct the work of assisting artists and illustrators. It was largely due to his efficient assistance that the Department was able to carry through the above exhibition projects. In addition, part of his time was employed in the completion of several difficult restorations of fragmentary prehistoric masterpieces in ceramics and stone, returned by field collectors.

## RESEARCH AND PUBLICATION

*Astronomy and the Hayden Planetarium.*—The Planetarium magazine, now called *The Sky*, has increased in page-size and number of pages, and by the end of 1936 its circulation had reached 8,500.

The Junior Astronomy Club has continued the publication of the *Junior Astronomy News*.

*Mineralogy.*—During the year 1936 a number of books and papers have been contributed by members of the staff and under the auspices and supervision of the Department.

Dr. Frederick H. Pough, Assistant Curator in Mineralogy, has contributed: "Phenakit, seine Morphologie und Paragenesis," in *Neues Jahrbuch für Mineralogie, B. B.*; "The Morphology of Phenacite from two New Localities," in the *American Mineralogist*; "Bertrandite and Epistilbite from Bedford, New York," in the *American Mineralogist*; "A Mineralogist Abroad," in *Natural History*.

Mr. Clifford Frondel, working under the auspices of the Department, contributed a paper published in *American Museum Novitates*, on "Twisted Crystals of Pyrite and Smoky Quartz."

The Curator, Mr. H. P. Whitlock, published through Lee Furman, Inc., "The Story of the Gems: A Popular Handbook."

There are also at present the following research problems undertaken by Dr. Pough, in various stages of completion: "Morphology of Powellite," completed and accepted for publication; "Morphology of Wardite and Gordonite," and "New Phosphates from New Hampshire."

*Vertebrate Palaeontology.*—The first volume of the late Professor Osborn's "Proboscidea, a Monograph of the Discovery, Evolution, Migration and Extinction of the Mastodonts and Elephants of the World," was issued on August 15, 1936.

Another important paper, now in page proof, will be published in 1937 in the *Transactions of the American Philosophical Society*: "The Paleocene Faunas of New Mexico," a posthumous memoir by Dr. W. D. Matthew.

Three *Bulletin* articles and twelve *Novitates* were printed before publication was closed for the year. Several *Bulletin* articles and *Novitates* are in press.

A *Bulletin* and one *Novitates* article have been prepared by Dr. Barnum Brown for Museum publication, and several articles were printed in outside publications.

Studies on several groups of extinct reptiles have been advanced by Dr. Brown.

Extensive studies on the gigantic Asiatic rhinoceros *Baluchitherium* were carried on by Dr. Granger in conjunction with Dr. Gregory. These studies were embodied in a *Bulletin* article by Dr. Granger and Dr. Gregory, entitled "Further Notes on the Gigantic Extinct Rhinoceros *Baluchitherium* from the Oligocene of Mongolia."

Studies were begun early in the year by Dr. Granger and Dr. Gregory on the very extensive Mongolian Titanotheres collection and have been brought to a stage where early publication in 1937 is expected.

In February, the memoir "Siwalik Mammals in the American Museum of Natural History" by Dr. E. H. Colbert was published in the *Transactions of the American Philosophical Society*. This was the culmination of several years' work, by Dr. Colbert, on the Siwalik collection made by Dr. Barnum Brown in 1922.

Perhaps the most intensive work of the year has been done by Dr. Colbert on the Burma collection made by Dr. Brown in 1923. The study of this important collection is now virtually completed and a rather extensive paper setting forth the results will be submitted for publication in the early part of 1937.

During the first half of 1936, a long monograph on Paleocene faunas in Montana, undertaken in 1932 in cooperation between this Museum and the United States National Museum, was completed by Dr. Simpson. It will be published by the National Museum. At the same time, work on the Scarritt collections from Patagonia was continued. The greater part of these collections is now identified, and a large work on the earlier Patagonian faunas is in progress. About 340 pages of typed manuscript have now been completed, and the completion of the whole work is planned for 1937.

During the year, six *Novitates* were published by Dr. Simpson, dealing with notoungulates and Cretaceous and Paleocene mammals.

In all, twenty-one papers by Dr. Simpson have been published, and several are now in press or in manuscript form.

By means of a grant secured from the Geological Society of America, Dr. Mook was able to visit Europe to study types and the vast amount of Crocodilian material held especially in London, Munich and Tübingen.

*Geology*.—A catalogue of the Museum's meteorite collection by



Curator Reeds was concluded on June 30 and submitted for publication in the *Museum Bulletin*. Each specimen in the collection now bears an individual number corresponding to a similar entry in a register and on a reference card. At the end of 1935 there were 1,073 falls known throughout the world, consisting of 617 aërolites, 46 siderolites and 410 siderites. Of this number the Museum's meteorite collection contains 548 falls, represented by 282 aërolites, 28 siderolites, and 238 siderites. The total number of catalogued specimens in the Museum collection is 3,493. The Catalogue has been prepared in such a way as to give the reader not only a brief history of the Museum's collection, but also a systematic arrangement according to name, kind, and geographically by countries. The Catalogue will serve not only as a record of the material in hand, but also as a memorandum of its transfer from the Department of Geology to the Department of Astronomy, which took place October 1, 1935, just preceding the date of the opening of the Hayden Planetarium, October 3, 1935.

In addition to completing the cataloguing, and the transfer of the meteorite specimens to the Department of Astronomy, considerable time was involved in revising the locality designations of meteoritic falls due to changes in geographical boundaries in Europe and other parts of the earth since the World War. The nomenclature of meteorites in the collection was also brought up to date. Data bearing on the Willamette and Cape York meteorites were also assembled.

Near the end of October, the Corporation Counsel's office of New York County asked Curator Reeds to represent the City in court and prepare reports (1) on the geologic aspect of eighteen photographs taken during the excavation and construction of Pier 86, North River, and (2) "Rock Outcrops, De Witt Clinton Park, New York, N. Y." These reports were prepared and delivered by the end of the year.

In November, the Corporation Counsel's office of Westchester County asked Curator Reeds to represent the County in court and prepare a report on "The Geology of the Lower Sawmill Valley, Yonkers, N. Y." This report was prepared during November and December, and delivered on December 28.

*Living Invertebrates*.—During the past year, Dr. Van Name's fine and comprehensive monograph on "The American Land and Fresh-Water Isopod Crustacea" was published, and comprised an entire volume of the *Bulletin*. This noteworthy work will be of great importance to students of Crustacea. The following *Novitates* articles were issued

during the year: "Psammolittoral Rotifers of Lenape and Union Lakes, New Jersey," by Research Associate Frank J. Myers; "African and American Oligochæta in the American Museum of Natural History," by W. Michaelsen; "Notes on the Structure, Distribution and Synonymy of *Diphyllbothrium lanceolatum*," by H. W. Stunkard and H. W. Schoenborn; "New Species of Polychæteous Annelids Collected at Appalachicola, Florida," by J. K. Winternitz.

Curator Miner has made progress with his researches on corals and on his Handbook of Seashore Life, so far as possible in the intervals of administrative duties and field work. During August he published an article in the *National Geographic Magazine*, entitled "Sea Creatures of our Atlantic Shores," and finished another on the animals of tropic waters for the same magazine.

Research Associate Myers is continuing his investigations on rotifers, Dr. Stunkard on parasitic worms, and Professor Treadwell on marine annulates.

*Fishes*.—Dr. Gregory, assisted by Mr. G. Miles Conrad, continued his researches on the evolution and classification of various groups of fishes, especially the characins, the deep-sea isospondyls and Iniomi, the pediculates, and the swordfish. Three papers on these subjects were either published or in print by the end of the year.

On receipt of the annual *Zoological Record*, Mr. Nichols revised his manuscript report on the fresh-water fishes of China, to correlate it with the considerable recent literature on the subject. The publication of this monograph, which has cost so much labor and research, is one of the most urgent needs of the Department.

In connection with some new material obtained through Mr. William J. Morden, from Hawaii and South America, Mr. Nichols has been studying the marine group of Carangin fishes, and has prepared several preliminary papers on these, two of which have been published this year in *Copeia* and one in *Novitates*.

A small collection of fishes and a new antarctic genus and species from the Byrd Expedition are described in *Novitates* by Mr. Nichols and Miss LaMonte. A new species from the continental shelf off Virginia is described by Nichols and Firth in *Novitates*, and there is a note in *Copeia* on Pacific flying fishes by Mr. Nichols and Mr. Breder.

Mr. Nichols and Miss LaMonte have undertaken to edit a manuscript field-book of the fresh-water fishes of North America, which Mr.

Raymond Schrenkeisen of *Field and Stream* had in hand at the time of his death.

Miss LaMonte has continued her work on South American fishes, two thousand of which have been added this year to the large British Guiana collection given by Mr. A. S. Pinkus.

Dr. Gudger continued his researches on the whale shark, on abnormalities in coloration and other features among the flatfishes, on abnormalities in the teeth of sharks, on the structure and development of the tail of the nipple-tailed ocean sunfish and on the history and geographic distribution of the latter, on the alleged nest of the sargasso fish, and on the mortality of fishes at Sanibel, Florida. Nine articles on these and other topics were published during the year.

Dr. B. G. Smith completed his manuscript on the anatomy of the frilled shark, *Chlamydoselachus*, which is part of the *Bashford Dean Memorial Volume*. After being edited by Dr. Gudger, this paper was in press before the end of the year.

The year 1936 was noteworthy in this Department for the appearance of the two volumes of Dr. H. W. Fowler's great monograph on "The Marine Fishes of West Africa" (Parts I and II of Volume LXX of the *American Museum Bulletin*), based on the collection of the American Museum Congo Expedition of 1909-1915.

The World Record Charts of Gamefishes were published this year as usual in *Field and Stream*, by Miss LaMonte, Mr. Heilner and Mr. Schrenkeisen, and reprinted in the *World Almanac*. A subspecies of marlin described by Mr. Nichols and Miss LaMonte in a 1935 *Novitates*, and an article on marlins by them in *Natural History*, have been widely quoted in various sports magazines and books on gamefishing. Mr. Van Campen Heilner has a popular gamefishing book in press. Miss LaMonte, Mr. Heilner and Mr. Lerner, through constant touch with game fishermen all over the world, are compiling a large amount of valuable data on distribution and habits of these large fishes.

Material and data gathered on the Lerner Cape Breton Expedition of 1936 have resulted in a series of papers, of which the following are in press or nearing completion:

Mr. Nichols and Miss LaMonte: "Notes on the Swordfish at Cape Breton," *Novitates*.

Mr. Raven and Miss LaMonte: "Notes on the Alimentary Tract of the Swordfish, *Xiphias gladius*," *Novitates*.

Mr. Conrad: "On the Brain of the Swordfish," *Novitates*.

Dr. Gregory and Mr. Conrad: "Osteology of the Swordfish," *Novitates*.

(By a group of workers from Flower and Fifth Avenue Hospitals, New York University, and New York Aquarium): "On the Sex Hormone in the Swordfish," *Endocrinology*.

The last group and Miss LaMonte are working on the sex organs of the swordfish in relation to its breeding grounds and breeding habits.

Mr. Anthony Keasbey, a volunteer, completed his report on fossil fresh-water sunfishes. The manuscript of Dr. E. Grace White's monographic review of the elasmobranchs, or sharks and rays, was revised and completed; it is now awaiting publication. *Novitates* published three of her articles bearing on the classification of the elasmobranchs.

*Herpetology*.—Several studies on the natural history or distribution of reptiles and amphibians appeared this year. A paper on "Three Salientia of Geographic Interest from Southern Maryland" was published by Dr. Noble and Mr. Hassler in *Copeia*; a paper on the type locality of *Rana pipiens* was prepared by Mr. Kauffeld; Dr. Clausen published his "Observations on the Brown Snake *Storeria dekayi* (Holbrook), with Especial Reference to the Habits and Birth of Young." Dr. Bassler has completed his preliminary examination of the neotropical snakes in the collections of the American Museum. Dr. Boring is collaborating with Mr. Pope on a monograph of the Amphibia of China.

*Experimental Biology*.—The Department of Experimental Biology has been carrying forward a study of the relation of hormones and of brain structure to social behavior in the animal world. A preliminary report on "The Function of the Corpus Striatum in the Social Behavior of Fishes" was published by Dr. Noble in the *Anatomical Record*. This work has been supported by a grant from the National Research Council, Committee on Problems of Sex. Other analytical papers published this year include "Courtship and Sexual Selection of the Flicker" (Noble); "The Induction of Brooding Behavior in the Jewel Fish" (Noble, Kumpf and Billings), "The Sexual Behavior and Secondary Sexual Characters of Gonadectomized Fish" (Noble and Kumpf).

The rôle of the sense organs in the behavior of lower vertebrates is not well understood. This year a paper on "The Function of Jacobson's Organ in Lizards" was published in the *Journal of Genetic Psychology* (Noble and Kumpf), and another on "The Aggregation Behavior of *Storeria dekayi* and Other Snakes with Especial Reference to the Sense

Organs Involved" (Noble and Clausen) appeared in *Ecological Monographs*. A third paper on the sense organs involved in the courtship of snakes has been prepared by Dr. Noble for publication.

A paper by Dr. Clausen on the effect of aggregation on the metabolism of snakes was published, and another by Clausen and Poris on "The Effect of Light on Sexual Activity in the Lizard, *Anolis carolinensis*." Dr. Clausen and Mr. Mofshin published a note on "The Pineal of the Lizard *Anolis carolinensis*, a Photoreceptor as Revealed by Oxygen Consumption Studies." Dr. Etkin published two papers on the relation of the thyroid gland to metamorphosis in Amphibia. All these studies on the rôle of hormones in the development, physiology and behavior of lower vertebrates have been supported by the Josiah Macy, Jr. Foundation, to which the laboratory is greatly indebted.

The work of the research associates and guests in the laboratory often covers other fields of biology. This year Dr. Libbie Hyman published two papers on the biology of Protozoa. Dr. Duran-Reynals of the Rockefeller Institute, in cooperation with Dr. Clausen, completed a study of a new species of bacterium which infects lower vertebrates. Dr. Root completed a study of the respiration of turtles.

*Ornithology*.—The various research projects of the curators have continued so far as routine duties have permitted. Dr. Chapman continued his studies of the habits of tropical birds on Barro Colorado Island, Panama, where he was at the beginning of the year. He returned in December to the Island to continue these studies. During the summer he continued his studies of the origin and distribution of the various forms of North American grackles. He also investigated the relationships of some of the West Indian birds.

Mr. Zimmer continued his studies of Peruvian birds in relation to their allies of adjacent parts of tropical America, examining all the forms of each Peruvian species as represented in the extensive series now available in the Museum collection.

Dr. Murphy has pursued a revision of the Procellariiformes of the world, which will include a critical list of all forms, together with a classification of the natural regions of the world ocean in correlation with petrel distribution. He also has nearly completed a paper on the species of terns occurring beyond 50° south latitude.

Dr. Chapin has devoted his time to the revised manuscript of the second volume of his "Bird Life of the Belgian Congo," part of which it is hoped to have issued during the coming year. He is at present in

the Congo Museum at Tervueren, Belgium, continuing his studies of their African collections for this purpose.

Dr. Mayr has continued work on the Whitney collection and the south-sea island birds of the Rothschild collection. This work includes that on a collection of birds from South Borneo; a collection from Tanna Island, New Hebrides; a check-list of New Guinea birds; a revision of the genus *Collocalia*; on the New Zealand Cuckoo (*Urodynamis taitiensis*) in collaboration with Miss Bogert; a revision of the genus *Sericornis*; also a report on the birds collected by the Sage-Carter Szechuan Expedition, in collaboration with Mr. Birkhead, and a study of the birds collected by the Vernay-Hopwood Chindwin Expedition.

Mrs. Naumburg has continued her studies of East-Brazilian birds in the Kämpfer Collection.

Dr. Chapman has contributed two articles to *Natural History* and has written a number of book reviews for the same publication. He has also published an extensive article on the grackles, which was issued in *The Auk*.

Mr. Zimmer has published six papers in *American Museum Novitates*, being Nos. 19-24 of the "Studies of Peruvian Birds."

Dr. Murphy published the two volumes of "Oceanic Birds of South America," issued on February 21. Approximately five-sixths of the edition had been sold at the end of the year. Three minor publications were also issued during the year.

Dr. Chapin has published the description of a new genus and species of peacock-like pheasant from the Belgian Congo, a most important discovery. This paper appeared in *Revue de Zoologie et de Botanique Africaines*.

Dr. Mayr has published three series of descriptions of new species and subspecies of birds in the *American Museum Novitates*. A large report on the birds of the Archbold Expedition of 1933 to New Guinea is in press and should appear early in January. This paper is under the joint authorship of Dr. Mayr and Dr. Rand. Dr. Mayr also has published one paper in the *Ornithologische Monatsberichte* and one in the *Mitteilungen aus dem Zoologischen Museum in Berlin*.

Dr. A. L. Rand has also published two papers on results of the Archbold New Guinea Expeditions.

*Mammals*.—During the year, continuous study of the African collections made by Mr. Arthur S. Vernay in Angola and the Kalahari, and by Messrs. John H. Phipps and L. S. Bradley in Angola, was con-

ducted by Assistant Curators Carter and Hill who expect to publish a volume of the *Bulletin* on these important expeditions.

Assistant Curator Goodwin has completed a study of the mammals collected by the Rainbow Bridge-Monument Valley Expedition, and has been carrying on research based upon collections made by Mr. C. F. Underwood in Honduras and Costa Rica. He has also applied himself, as a standing project, to the compilation of data bearing on those mammals of eastern North America which have recently become extinct or are nearing extinction.

Assistant Curator Carter worked on the mammals collected by the Sage West China Expedition and selected specimens for exchange with the Nanking Government.

The publications in Mammalogy included: "A Pre-View of Eight Groups in the Akeley Hall of African Mammals" by H. E. Anthony (*Natural History*), and Excerpts from the article in *Natural History*, in the *Illustrated London News*. Contributions by G. G. Goodwin were: "8,000 Miles of Northern Wilderness" (*Natural History*); "The Story of Domestic Animals in America" (*Natural History*); "Big Game Animals in the Northeastern United States" (*Journ. Mammalogy*), and "A New Flying Squirrel from Honduras" (*Novitates*).

Mr. T. D. Carter contributed "The Short-tailed Shrew as a Tree Climber" (*Journ. Mammalogy*).

G. H. H. Tate and R. Archbold: "Results of the Archbold Expeditions, No. 8—Four Apparently New Polyprotodont Marsupials from New Guinea" (*Novitates*); and "Results of the Archbold Expeditions, No. 9—A New Race of *Hyosciurus*" (*Novitates*).

G. H. H. Tate: "Some Muridæ of the Indo-Australian Region" (*Bulletin*).

R. Archbold: "An Ascent of Mt. Albert Edward" (*American Alpine Journal*).

J. E. Hill and J. Grinnell: "Pocket Gophers (*Thomomys*) of the Lower Colorado Valley" (*Journ. Mammalogy*); "A New Pocket Gopher from Kern County, California" (*Proc. Biol. Soc. Wash.*).

R. T. Hatt: "Hyraxes Collected by the American Museum Congo Expedition" (*Bulletin*).

*Comparative and Human Anatomy*.—A revision of the titanotheres of Mongolia by Doctors Granger and Gregory was completed during the year. The fossil mammals collected in India under the direction of Dr. H. de Terra were presented in part to Yale University and in

part to this Museum. Messrs. Gregory, Hellman and Lewis have nearly completed their report on the fossil anthropoids of this expedition and Dr. Colbert has prepared a report on the other fossil mammals.

Dr. Gregory's principal papers of the year included the following titles: "Habitus Factors in the Skeleton of Fossil and Recent Mammals" (*Proc. Amer. Philos. Soc.*); "On the Phylogenetic Relationships of the Giant Panda (*Ailuropoda*)" (*Novitates*); "Further Notes on the Gigantic Extinct Rhinoceros, *Baluchitherium*, from the Oligocene of Mongolia" (*Bulletin*) (with Walter Granger); "A Biography of Henry Fairfield Osborn" (*Proc. Amer. Philos. Soc.*); "Dr. J. C. Merriam's Contributions to the Development of Vertebrate Palæontology on the Pacific Coast" (*Scientific Monthly*); "The Transformation of Organic Designs: A Review of the Origin and Deployment of the Earlier Vertebrates" (*Biol. Rev.*, Cambridge, England); "The Museum of Things versus the Museum of Ideas" (*Science*); "On the Meaning and Limits of Irreversibility of Evolution. An Address delivered at the Harvard Tercentenary Conference of Arts and Sciences" (*Amer. Naturalist*); "In Quest of Gorillas," a series of eleven articles by William K. Gregory and two by H. C. Raven, giving an illustrated account of the Columbia University-American Museum African Expedition in 1929 (*Scientific Monthly*); "Air Conditioning in Nature" (*Natural History*).

Mr. Raven completed his studies on "The Anatomy of the Viscera of the Giant Panda (*Ailuropoda melanoleuca*)," published in *American Museum Novitates*. His papers on "The Comparative Anatomy of the Sole of the Foot," "Notes on the Alimentary Tract of the Swordfish (*Xiphias gladius*)," and "Notes on the Taxonomy and Osteology of Two Species of *Mesoplodon* (*M. europaeus* Gervais, *M. mirus* True)" also appeared in *Novitates*.

Mr. Raven was absent on leave during most of the year in order to continue his studies on the anatomy of the gorilla; these studies were carried forward in Baltimore by invitation of the Department of Anatomy of Johns Hopkins Medical School. Many beautiful drawings are being made and it is planned to publish an annotated atlas of the anatomy of the gorilla by cooperation with the Departments of Anatomy of Johns Hopkins and Columbia Universities. By permission of Columbia University and the American Museum, Mr. Raven was able to devote part of his time to the teaching of gross anatomy in the Johns Hopkins Medical School.



Mr. Chubb has continued his studies on animal locomotion, on limb proportions in ungulates, on the vertebral formula in the Equidæ and on digital reduction in the Proboscidea.

Mr. G. Miles Conrad assisted Dr. Gregory in many of his researches and collaborated with him in the preparation of papers on the morphology and evolution of several groups of fishes. He read a paper summarizing recent researches in bone formation before the meeting of the Eastern Association of Graduates of the Angle School of Orthodontia.

Miss Helen Rockwell and Miss Barbara Sims, volunteer assistants, continued their work in connection with Dr. Gregory's projected volumes on the Evolution of the Vertebrates and the Evolution of Man.

*Anthropology.*—The following is a list of the most important researches carried on during the year:

Mr. N. C. Nelson completed a paper on archæological collections from Alaska, chiefly from an important site on the University campus. The study of these collections reveals parallels to the Dune Dwellers of the Gobi. Hence, the publication of this report will be an important contribution to North American archæology.

Dr. George C. Vaillant has catalogued his large collection from the Valley of Mexico and is now engaged in preparing a report on the same.

Dr. H. L. Shapiro is completing a study of the Japanese and Japanese crosses in Hawaii, a cooperative project carried on with the University of Hawaii.

Dr. Wendell C. Bennett has completed a report on archæological excavations in Venezuela, carried on under the auspices of the Venezuelan government. This project yielded new stratigraphic evidence; hence the publication of this report will be an important contribution.

Dr. W. W. Howells studied skeletal material at the University of New Mexico at Albuquerque, and since his return, is making a special study of several human skulls found in Wyoming which promise to be of considerable antiquity, and so of interest to all anthropologists.

Mrs. R. D. Sanderson completed the statistical work on Indian population, and manuscripts on the same were prepared by Dr. Clark Wissler, several of which have been published.

Dr. David Mandelbaum, who made several expeditions to the Cree Indians for the Department, spent the last quarter of the year in the

Museum, preparing his field notes for publication. This manuscript has been completed and will be published in due time.

The editing of manuscripts and arranging for illustrations is in the hands of Miss Bella Weitzner. During the year two papers were issued: "Excavations in Bolivia," by Dr. Wendell C. Bennett, and "Changes in Population Profiles Among the Northern Plains Indians," by Dr. Clark Wissler.

Manuscripts practically ready for publication are Dr. Bennett's "Excavations at La Mata, Maracay, Venezuela," Dr. Margaret Mead's "The Mountain Arapesh, New Guinea," and Dr. David Mandelbaum's "Cree Ethnography."

#### GENERAL DEPARTMENTAL ACTIVITIES

*Astronomy and the Hayden Planetarium.*—An optical workshop has been installed in the basement of the Planetarium building, with complete equipment for grinding, polishing and figuring telescope mirrors.

Mr. Charles A. Federer, Jr., was added to the Astronomy Department staff as Staff Assistant.

The Amateur Astronomers Association carried on its usual activities, including elementary and advanced courses in astronomy, constellation study, elementary and advanced mathematics useful in astronomy, and occasional field trips. Membership in this society totaled more than five hundred active members at the end of 1936.

The Junior Astronomy Club has continued its semi-monthly meetings.

Each of these societies has its special pages in *The Sky*, and members contribute articles and special features each month.

*Mineralogy.*—In addition to the spring and fall series of informal talks on eight Saturday afternoons, on "The Appreciation of Gems," the Curator spoke before the American Association of Museums spring meeting on "The Mineral Museum and the People"; at the annual dinner of the New York Booksellers' League on "The Museum: the People's University," and at Hunter College Annex on "Jade."

Dr. Pough, who is at present Secretary of the New York Mineralogical Club, has twice addressed the club at their monthly meeting. He has also spoken on gems at the 24-Karat Club, and on his collecting tour of Europe, before the Geographers and Physiographers Club.

*Vertebrate Palaeontology.*—A large part of the year has been spent in the tremendous task of moving the extensive storage collection of dinosaur specimens and casts into the new storage rooms in the basement. This has taken most of the time of three laboratory workers, with the assistance of several Works Progress Administration workers.

The skull and skeleton of *Styracosaurus*, from the Belly River beds of Canada, are being restored and prepared for exhibition as a panel mount showing both sides. The skull has been cast.

A free mount of a cast skeleton of *Placodus* is also nearing completion.

A large collection of small mammals' jaws and teeth from the Fort Union Paleocene beds of Montana has been prepared. This preparation was mostly microscope and needle work.

Departmental routine, laboratory supervision and exhibition preparation have absorbed much of Dr. Brown's time.

The following have been received through exchange: From the Field Museum, a complete skeleton of *Titanoides faberi*; from Upsala Universitet, Paleontologiska Institut, Upsala, Sweden, casts of complete skull of *Urmiatherium* and partial skull of *Tsaidamotherium*; from Père Teilhard de Chardin, Peiping, China, cast of partial skull of *Schizotherium chardini*.

*Geology.*—Arrangements were completed whereby the small, but interesting collection of fossil insects was transferred from the Department of Invertebrate Palaeontology to the Department of Entomology. It was understood, however, that an identified series of such fossils would be placed on exhibition in the Geology Hall.

The seismograph was kept running throughout the year, except for a few short periods when repairs had to be made. The electric control contacts in the clock had to be renewed, and due to frequent short circuits, the current was changed from the Museum's bell system to dry cell batteries. There were comparatively few earthquakes recorded during the year, this being an off year so far as numbers are concerned. However, violent disturbances in Canada, north of Lake Huron, and at Helena, Montana, were recorded, as well as from more distant points. Curator Reeds' statement that the deep-seated Canadian quake was another one of those periodic adjustments affecting the differential uplift of the land following the retreat of the last continental ice sheet, received widespread press and editorial comment. The National Broad-

casting Company invited Dr. Reeds as one of four speakers to participate in a radio broadcast on the Canadian quake.

The largest accession in Geology during the year was the collection of rocks, ores and fossils collected by the late Dr. George H. Hudson, of Plattsburg, N. Y. It was secured by purchase following a trip of Curator Reeds to Plattsburg in October. Numerous donations of small lots of specimens were also received.

Types and other specimens were lent for research purposes to Cornell, Harvard, Princeton and Yale Universities. Assistance to British scientists and the South Kensington Museum was rendered in the form of casts and photographs of type specimens.

Numerous letters seeking information and expert opinion on various topics were received and answered.

On October 27, Curator Reeds delivered an address in the Museum auditorium on "Earthquakes." This lecture was one of five illustrated talks on Exploration and Science presented by the Museum in the fall of 1936.

*Living Invertebrates.*—During the year, Mr. Mueller went over the entire series of glass models in the Darwin Hall, and completely cleaned them and brought them into condition.

Two thousand and sixty lots of invertebrates, including 6,872 specimens collected in the Philippines by Mr. Godfred R. Oesch in the island of Davao, were purchased from him.

*Fishes.*—Mr. Nichols and Miss LaMonte continued work on African and far northern collections; Mr. Nichols on fishes from North America and the Far East; Miss LaMonte on fishes from South America and the tropics. Work on South American fishes is much facilitated by the close cooperation between the New York Aquarium, the various independent collectors and this department. Miss LaMonte continued work on gamefishes, and work with Mr. Heilner and *Field and Stream*, on the world record gamefish charts.

Under Dr. Gudger's supervision, twenty-two volumes of separates have been added to the Dean Library. The following department catalogues are constantly being added to: *Dean Bibliography of Fishes* (Dr. Gudger and Miss Wilmann); Taxonomic Checklist of Brazilian and related fishes (F. LaMonte); catalogue of color plates (LaMonte); cata-

logue of uncolored figures (W.P.A. worker under Mr. Nichols and Miss LaMonte); catalogue of vernacular names (LaMonte). During the summer months, a volunteer worker, Paul Jennewein, helped Mr. Fred Kessler in his constant care of the study collections. Mr. S. S. Chetyrkin (a Works Progress Administration assistant) has made some seventy skeletons for the skeleton collection (under the direction of Miss LaMonte and Mr. Nichols).

Valuable fossil fishes were received as an exchange from the Oslo Museum, and fishes were received through exchanges with the Charleston Museum and the Connecticut State Board of Fisheries and Game.

A valuable collection of fossil dipnoans (fishes) was received as an interdepartmental exchange from the Museum of Zoology of Cambridge University, through Professor C. Forster Cooper.

Mr. Michael Lerner, who was elected by the Trustees as an Associate Benefactor of the Museum, has also been appointed Field Associate in the Department of Ichthyology.

*Herpetology.*—In the Department of Reptiles, the collections of Amphibia have been completely rearranged and relabeled. Collections of Mexican and Central American reptiles have been lent to competent students for study and report.

*Experimental Biology.*—Dr. Noble and his associates in the laboratory of experimental biology have continued their lectures to teachers and to advanced students of biology. The Department has a collection of over 3,000 microscopic slides of the tissues of typical vertebrates. These were consulted by a number of students during the year. The collection of vertebrate embryos is also enlarging, and serial sections have been made of some of the typical forms.

*Ornithology.*—As usual, a large part of the curatorial time has been devoted to routine work.

Cataloguing of the Rothschild Collection has proceeded with somewhat more than the anticipated speed. The remainder of the 56,698 American land birds were completed and work begun on the water birds of the world and on the Old World land birds. At the close of the year, 17,902 water birds and 55,564 Old World land birds have been catalogued, making a total of 130,164 to date. The American land birds were removed and distributed by families to their proper place with the other American birds on the fifth and sixth floors of the

Whitney Wing. In addition, numerous lots of miscellaneous specimens from other sources have been catalogued and distributed. The collection of bird skeletons has been catalogued and its distribution begun. Some work on the spirit-specimens has been put under way. This work has been done under the immediate supervision of Mr. O'Brien. The Old World land birds were further supervised by Dr. Mayr and the water birds by Dr. Murphy.

Dr. Murphy has given the opening lectures in two series of Museum courses, speaking once on general aspects of conservation and once on animal behavior with special reference to penguins. He also has given a course of four lectures entitled, "The World of Birds" in the "Know Your Museum Series."

Specimens in exchange were received as follows: A study skin of the extinct *Cochlothetaustes delalandei*, and 13 forms, mostly from the West Indies, from the Academy of Natural Sciences of Philadelphia; 249 Chinese birds and a specimen of the rare *Mergus octosetaceus*, from the Zoological Museum of Berlin.

The general collections of sea birds have been greatly scattered, due to former lack of space, and work has been begun by Mr. Schell, under Dr. Murphy's supervision, to assemble and arrange this material. About 11,335 specimens, representing four great groups, have been put away. The Old World land birds are being similarly consolidated by Mr. Birkhead under supervision of Dr. Chapin and Dr. Mayr.

Current card files of references to the original descriptions of new birds have been continued as heretofore. Much time has been spent in selecting material for exchanges with other institutions and also in making loans for study by other ornithologists. Similarly, critical examinations of American Museum material have been made by the various curators by request of ornithologists elsewhere, and manuscripts have been gone over which have been sent in for criticism and suggestions. The usual volume of general correspondence and telephonic requests for information on birds have required the expenditure of much time.

During the year the Department has sent out on loan 548 specimens, representing 120 requests. In addition, it has attended to requests of artists, sculptors, technicians, and bird students who have applied for permission to examine, study, or draw material from its collections. There have also been many visiting ornithologists who have wished to

see the collections, storage methods, exhibits, and other departmental details.

Four members of the staff attended the annual meeting of the American Ornithologists' Union at Pittsburgh in October.

There should be mentioned the gift by the American Museum of Natural History to the British Museum of thirteen original type specimens of British and Irish birds received in the Rothschild collection. It was felt that these specimens were of peculiar interest to British ornithologists and that their preservation in London would make them readily accessible to British students and serve the cause of Ornithology to its best advantage. Dr. L. C. Sanford carried the gift in person and presented it to the Trustees of the British Museum with the compliments of the American Museum.

Mr. Hugh Birkhead and Mr. Charles Schell were generous with their services as volunteers in the Department as for some time past.

*Mammals.*—Considerable routine activity connected with expansion into the additional space, acquired when the Department of Birds left the North Wing, has occupied the staff of the Department of Mammals. This increase in storage space permits of rearrangement and refinements in the care of collections and will eventually mean a great deal in the way of permanent improvement for the department. Because there are now, approximately, 115,000 specimens in the collection, these operations will necessarily require much time for their consummation.

A great deal of the time of the Curator was required in the discharge of his duties as Secretary of the Pension Board, which body has been unusually active because of the survey of the Pension Plan, and the problems arising with personnel because of changes in the Plan. In addition, he has served as Secretary of the Council of Heads of the Scientific Departments during the year.

With the assistance of workers assigned to the department by the Works Progress Administration, several important projects have been carried on during the year. These projects include the following:

"Arctic Animals" by Adlerberg, Vinogradov, Smirnov and Flerov, 250 pages translated from Russian into English; Ognev's "Mammals of Eastern Europe and Northern Asia," 400 pages of Volume 2 (Russian into English); translations from French and German of descriptions of species from Malaysia.

Gazetteer: 17,000 cards of South American localities where mammals have been collected.

Compiling records of North American big game in eastern North America; listing of North American collection according to state and province, giving statistics, classification and geographical distribution.

General clerical work; numbering of osteological collection; work continued on the card cataloguing of mammal collection (about 15,000 specimens carded).

*Comparative and Human Anatomy.*—Dr. Gregory served as a member of the Council of Heads of the Scientific Departments of the Museum, the Council of the New York Academy of Sciences, as Chairman of the Committee on the Marsh Fund of the National Academy of Sciences, as member of the Committee on Membership and the Committee on Meetings of the American Philosophical Society. He took part in many conferences relating to research, publication and exhibition in several museums and universities, conducted two graduate courses in vertebrate palæontology and supervised the research work of a number of graduate students of Columbia University.

By invitation of the Harvard Tercentenary Conference of Arts and Sciences, Dr. Gregory addressed the Conference on "The Meaning and Limits of Irreversibility of Evolution." By invitation also he delivered an illustrated lecture on "The Transformation of an Organic Design" before the Chicago Autumn Meeting of the National Academy of Sciences. Based on this lecture, an article entitled "The Bridge That Walks" was prepared for the January, 1937, number of *Natural History*, and a temporary exhibit on the subject prepared for installation in the foyer of the Museum. He gave an address entitled "The Museum of Things versus the Museum of Ideas" before the Philadelphia Academy of Natural Sciences at a special meeting held on May twenty-fifth for the purpose of raising funds to enable that institution to carry out its program of wider activity in research and exhibition. He took part in two radio broadcasts, one for the Museum, the other for the National Academy of Sciences. As Vice-President of the American Society of Naturalists, he arranged the symposium on "Supra-specific Variation in Nature and in Classification" held at Atlantic City in December and read a paper on this subject, which will appear in the *American Naturalist*.

Other general activities included the delivery of an address entitled "Ourselves and the World" before the graduating class of nurses at the Kingston, N. Y., Hospital and of a lecture before the Woodstock, N. Y., Historical Society entitled "In Quest of Gorillas." Many other



lectures were given and papers read before scientific and educational societies during the year.

During the past year Dr. Gregory was elected President of the Society of Ichthyologists and Herpetologists, Vice-President of the American Society of Naturalists, Honorary Member of the Institute of the Museum of La Plata, Argentina, Member of the Royal Society of Sciences of Upsala, Sweden, and Honorary Member of the State Russian Palæontological Society.

Twenty-three endocranial casts of Chinese, Australian, Bornean and Igorot natives were purchased from the University of Hong Kong through Dr. Tsai Ai-Le.

*Anthropology.*—A large fraction of the time of the Department is required for routine duties, interviewing callers, preserving collections, condensing classified storage to make room for incoming specimens, maintaining exhibition halls, selecting loan collections, etc.

In the Department of Anthropology there were approximately seventy-five accessions in the year, of which sixty-five were gifts. As usual, the larger collections were obtained through expeditions.

A number of volunteer assistants have contributed greatly to the advancement of the department's various programs. Mr. Southwick Phelps, checking exhibition cases in the Southwest Hall and writing labels; Miss Jane Howard, arranging and classifying Costa Rican pottery; Miss Beryl Dawson, compiling material for wall charts to be installed in Hall of Natural History of Man; Miss Viola Paucek and Miss Pat Caswell, repairing pottery; Mrs. George A. Graham, reference work in physical anthropology; Miss Janice Kennedy of Bennington College, Bennington, Vermont, made a study of the Cheyenne Indians; Mrs. George C. Vaillant assisted Dr. Vaillant in the field, and upon returning to the Museum, was engaged in cataloguing his collections; Miss Jane Kretschmer, checking and reorganizing the collection of phonograph records.

Through Works Progress Administration workers in the Department, the following work has been carried on: Compiling and annotating list of native peoples in Senegal and Niger river basin, Africa; executing pictorial labels for the exhibition halls; preparing exhibits in the Races of Man Hall; modeling figures for exhibition in the Races of Man Hall; analysis of economic data for the Indians of Canada; tabulating and computing anthropological measurements for races of the Pacific; typing and arranging field notes and other archive material.

## EXPEDITIONS

There were more than thirty expeditions in the field in 1936, financed by special funds contributed by friends of the Museum, or directly by collectors.

## NORTH AMERICA

*Vertebrate Palaeontology*.—Dr. Barnum Brown and Mr. R. T. Bird made a reconnaissance of Mesozoic formations in Arizona and Utah, and the Pleistocene of Indiana. They traveled chiefly by car, leaving New York in August and returning in October, going first to the Dinosaur Monument in Utah. They found the cut about two-thirds completed, with sixty-two men under National Park Service working on the excavation. When the cut is finished, the American Museum plans to do the relief work on the dinosaur specimens on the wall. Detailed reports were supplied to the National Park Service.

Dr. Brown and Mr. Bird drove south to Cameron, Arizona, prospecting in that vicinity. A gigantic Triassic skull, the largest known Phytosaur, more than four feet long, with the jaws, humerus and several vertebræ of the same animal, was collected, also Triassic plants.

A good deal of reconnaissance work was accomplished on the way back. Near Argos, Indiana, an incomplete Mastodon skeleton was collected.

Financed by Vertebrate Palaeontology Field Fund and the National Park Service.

An expedition was made to the Early Tertiary of the Rocky Mountain region, by G. G. Simpson and A. C. Silberling, collecting Paleocene mammals and making stratigraphic studies. Mr. Silberling worked the Scarritt Quarry, east of Crazy Mountains, near Harlowton, Sweet Grass County, Montana, for about a month, securing 75 jaws and many teeth. The collection now includes over a hundred jaws and many teeth and miscellaneous specimens. Outstanding among the new specimens is one with associated upper and lower jaws of the rare primate genus *Carpodaptes*, a unique and really priceless specimen. Financed by the Third Scarritt Expedition Fund.

A reconnaissance expedition to Alaska and Yukon Territory for the Museum was made by Dr. Erich M. Schlaikjer (in charge), and Messrs. David Cheek, Louis du Pont Irving and John Wolbach. Geological and palaeontological collections were secured, including Pleistocene fossils, also a Tertiary flora and many Tertiary fishes.

Most of the major areas in which Tertiary formations occur in the Yukon Territory west of Dawson, and in Alaska, were investigated. These are located in the region from Dawson to Circle, in the vicinity of Fairbanks in the Mount McKinley region, and in the Matanuska Valley. The results may be tabulated as follows:

First, discovery of a fish quarry from which a large number of specimens were collected—these are the first pre-Pleistocene vertebrates found in Alaska.

Second, the most extensive collection of fossil plants from Alaska was obtained.

Third, collections of invertebrates were made from the Carboniferous and Permian.

Fourth, three bison skulls, a wolf skull, and other Pleistocene materials were collected.

Financed by Messrs. Irving and Wolbach and by an anonymous friend of the American Museum.

*Entomology.*—During the summer Curator Lutz continued his work on the biology of insects at the departmental laboratory in Ramsey, N. J. One of the newer developments of this work was the recording, with the kind cooperation of Mr. Albert R. Brand, of insect sounds on film in such a way that the physical characteristics of the sounds can be thoroughly investigated. Financed by the Entomological Fund.

*Ichthyology.*—The Lerner Cape Breton Expedition, financed by Mr. Michael Lerner, went to the swordfishing and tuna grounds of Cape Breton and Wedgeport, Nova Scotia. Louisburg, Cape Breton, was used as a base, with a laboratory and three boats (one lent by the Dominion Government) at the disposal of the expedition. Mr. Lerner himself did some pioneering in the capture of broadbill swordfish on rod and reel. Large quantities of material, skeletal, anatomical and exhibit, were brought back, also data for the Tuna Group. The members of the Museum staff on this expedition were: Mr. Michael Lerner, Mr. Nichols, Miss LaMonte, Mr. Raven, Mr. G. Miles Conrad, Mr. Ludwig G. Ferraglio and Mr. Anthony Keasbey.

*Mammals.*—As has been the policy for the last two years, the building up of the collections of North American mammals has been a primary function of the Department of Mammals. Generously assisted by financial support derived from individuals interested in the plans of the department, and by the personal services of volunteer collectors, much valuable material came into the department collection during

1936. Two important expeditions were sent into British Columbia as part of the North American plan. An expedition worked in Colorado, another in Alaska, and the department shared in the proceeds of an expedition working in the Rainbow Bridge-Monument Valley region. This expedition, under the supervision of Dr. Ansel F. Hall, contributed 275 small mammals from southern Utah.

With the fund for purchase of North American mammals set up by Mr. Childs Frick, it was possible to buy a large number of specimens representing species hitherto lacking in the department, including the following items: Mr. W. S. Long continued field work in Utah and sent in 470 small mammals; Mr. Dawson A. Feathers continued field work in California and sent in 324 small mammals; Mr. W. F. Coultas collected in Iowa and sent in 183 small mammals.

In addition to the material returns from the year's campaign for a better collection of North American mammals, definite intangible benefits have accrued in the way of a stimulated outside interest in the plans of the Department of Mammals, and associations that may lead to additional contributions in the future. The Department received, at the close of 1936, a generous donation from Mr. William H. Harkness, to provide for a traveling laboratory (either a converted trailer or a special body built on a truck chassis) and to operate it for 1937. With this laboratory, the Department will be able to launch collecting trips into selected areas, which may be anywhere in the United States or Canada where roads or terrain permit such travel under circumstances conducive to efficient collecting.

From the Rumsey British Columbia Expedition, Mr. Dawson A. Feathers, Museum collector, assisted by Mr. John W. Pitney and Mr. John P. Meade, brought back a collection of 170 mammals, including grizzly bear, mountain goat, Stone sheep, and small mammals. Financed by Mr. E. Roland Harriman, Mr. Bronson H. Rumsey and Mr. John P. Meade.

On the Stillman-Durrell Kenai Peninsula Expedition, Dr. H. E. Anthony, Museum representative, accompanied Mr. James A. Stillman and Mr. J. H. Durrell. The expedition spent two months in the Kenai Peninsula, and brought back a collection of moose, sheep, black bear, and small mammals. Financed by Mr. Stillman.

On the 1936 Alberta-British Columbia Expedition, Mr. T. D. Carter was the Museum collector. He was assisted by Mr. Colles Stowell and Wilbur A. Sawyer, Jr., who volunteered their services. The expedi-

tion secured 507 small mammals. Financed by Mr. Edward S. Harkness, Mr. Harley L. Stowell and Dr. W. A. Sawyer.

The 1936 Snyder Colorado Expedition, Mr. G. G. Goodwin, Museum collector, brought back 300 small mammals from northwestern Colorado. Financed by Mr. Harry Snyder.

The Hill New Brunswick Expedition: Dr. J. Eric Hill spent his vacation in New Brunswick and brought back 101 small mammals.

The Newsom-Watson Anticosti Island Expedition spent several weeks collecting, and secured 33 specimens, including gray seal, black bear, white-tailed deer, and small mammals. Financed by Mr. William M. Newsom and Mr. Earle F. Watson.

The Frick Alaska Expedition, Mr. J. B. Dorsh, Museum collector, sent in 51 small mammals from the region of Fairbanks. Financed by Mr. Childs Frick.

*Anthropology.*—Dr. F. Rainey, University of Alaska, cooperating with the Department of Anthropology in archaeological investigations in the vicinity of Fairbanks, Alaska, in a field survey revealed a large number of early Eskimo sites with evidences of an unexpected development in pottery. Later in the season, Dr. Rainey excavated an archaeological site on the campus of the University, which, as previously announced, seems to represent a culture in North America parallel to the Dune Dwellers of the Gobi. Early in the year, Dr. Rainey completed a stratigraphic study of certain archaeological sites on St. Lawrence Island, establishing a tentative sequence for all the known cultures of Alaska. Financed by the Voss Fund.

During the summer, Mr. R. W. La Barre of Yale University visited several tribes of Plains Indians in the United States, investigating certain ceremonial practices, particularly those known as Peyote. The results of this investigation are now being prepared for publication. Financed by the Voss Fund.

Dr. George C. Vaillant returned from Mexico in April, having spent more than a year in systematic excavations in the Valley of Mexico. He collected in the neighborhood of eight thousand catalogue entries, illustrative of the types of artifacts made at different periods in the history of the Valley of Mexico. The most important feature of the work was the correlation of the culture sequences in the field-archæology of the Valley of Mexico with the traditional history as recorded in the native annals and Spanish sources. This last season

completes this phase of the Museum's research in Mexico, begun in 1928. Financed in part by the Voss Fund.

*Arts, Preparation and Installation.*—Mr. R. H. Rockwell spent several weeks with the McConnell Wyoming Expedition, doing reconnaissance work to determine the best location for North American Hall groups and to examine the possibilities of future collecting for this hall. Financed by Mr. Robert E. McConnell.

Mr. Ludwig Ferraglio accompanied the Lerner Cape Breton Expedition, took casts and color notes of specimens collected, and assisted in the laboratory. Financed by Mr. Michael Lerner.

### CENTRAL AMERICA

*Entomology.*—Mr. William C. Wood, Dr. Gertsch and Curator Lutz spent about six weeks in Panama and the Canal Zone, for the primary purpose of collecting butterflies and moths in two very distinct habitats: Barro Colorado Island in the Canal and El Volcan at more than 4,000 feet altitude on Chiriqui near the Costa Rican border. About 21,500 specimens were secured and are now being prepared for study. Financed by the Lepidoptera Fund.

*Mammalogy.*—Mr. C. F. Underwood collected in Honduras and sent in 107 small mammals, which were purchased through the fund provided by Mr. Childs Frick.

### SOUTH AMERICA

*Ichthyology.*—Mr. William J. Morden made expeditions to Brazil and Ecuador, bringing back fish material. Financed by Mr. Morden.

*Anthropology.*—Dr. Wendell C. Bennett spent the first half of the year in Peru, in an archaeological survey of the northern Inca area. From the results of this investigation, it is possible to construct a chronological sequence for that region with the probability of correlating it with other sequences in Bolivia, southern Peru, etc. This investigation was carried on in cooperation with the Government of Peru. Financed by the Voss Fund.

Mr. Junius Bird is excavating certain caves in southern Chile, near the Strait of Magellan. This is part of Mr. Bird's long and exhaustive survey of southern Chile and will constitute the most complete study ever undertaken for this area. The collections made by him last year are now in the Museum. In this project the Museum has worked in cooperation with the Government of Chile. Financed by the Voss Fund.

## EUROPE

*Vertebrate Palaeontology*.—Dr. Mook spent two months in Europe visiting museums and studying their fossil crocodile collections, on a grant from the Geological Society of America.

*Ornithology*.—Dr. James P. Chapin is continuing his studies on the African collections at the Congo Museum at Tervueren, Belgium.

## ASIA

*Astronomy and the Hayden Planetarium*.—Dr. Clyde Fisher, Curator of the Department, accompanied the Harvard-M.I.T. Expedition to Siberia to observe and photograph the total eclipse of the sun on June 19, 1936. Weather conditions were favorable, and the members of the expedition brought back valuable records of their observations.

While abroad, Dr. Fisher made a special trip to Estonia to study the meteor craters on the Island of Saaremaa in the Baltic. There are six craters within an area of about one-third of a square mile, the main one containing a beautiful circular lake surrounded by large forest trees.

Dr. Fisher's participation in the eclipse expedition and his visit to Estonia were financed by Mr. Charles Hayden.

The Department of *Ichthyology* received fishes, and the Department of *Herpetology* received a valuable collection of reptiles and amphibians, from the Fleischmann-Clark Indo-China Expedition. Financed by Major Max C. Fleischmann.

*Mammalogy*.—The F. T. Davison India Expedition collected eight mammals, including specimens of gaur, tiger and leopard. Financed and led by President and Mrs. F. Trubee Davison.

The Fleischmann-Clark Indo-China Expedition, Dr. James L. Clark, Museum representative, collected 25 mammals, chiefly large-game animals of southern Indo-China. Specimens of elephant, gaur, banteng, and water-buffalo were included. Financed by Major Max C. Fleischmann.

*Comparative and Human Anatomy*.—Dr. and Mrs. George Pinkley returned to the Museum in October of 1936, after an absence of four years. The first part of the time was spent in London, where Dr. Pinkley continued his studies in comparative anatomy, vertebrate palaeontology, and anthropology, with especial reference to the evolution and phylogensis of the human brain. These studies, which were partly in the interest of the James Arthur foundation for the

study of the evolution of the human brain, were made in the laboratories of Professor Sir Grafton Elliot Smith and Professor D. M. S. Watson of the University of London and at the British Museum (Natural History).

In China, Dr. Pinkley, assisted by Mrs. Pinkley, continued his studies on the brain at the University of Hong Kong and at the Peking Union Medical College. Dr. and Mrs. Pinkley were also guests of the National Geological Survey of China at the Cenozoic Research Laboratory and at the excavations at Choukoutien, where specimens of the fossil Peking Man had been found. On a trip to Borneo and the Philippine Islands, the National Geological Survey of China cooperated by sending Mr. Bien Mei-nien of the staff of the Cenozoic Laboratory with Dr. and Mrs. Pinkley. Here they collected specimens of smaller primate and insectivorous mammals, especially for Dr. Pinkley's researches on the brain, and in addition, made a reconnaissance exploration of cave deposits which might yield further evidence of fossil man in the Far East. Financed by the James Arthur Research Fund and Mrs. Marion Brown Shelton.

*Arts, Preparation and Installation.*—Dr. James L. Clark, acting as co-leader of the Fleischmann-Clark Indo-China Expedition, collected a number of large and small mammals and other specimens and studied the habits of game and the existing rules governing conservation in that region. Financed by Major Max C. Fleischmann.

## AFRICA

*Mammalogy.*—On the William D. Campbell Expedition, Mr. Gardell D. Christensen, of the Department of Arts, Preparation and Installation, was the Museum collector. The expedition secured 395 mammals, including specimens for the Black Rhinoceros and the Okapi Groups. An interesting series of small mammals was collected, including 46 genera and 64 different forms. One genus and six subspecies were new to the Museum's collections. Financed by Mr. William D. Campbell.

*Arts, Preparation and Installation.*—Mr. G. D. Christensen spent the entire year with the W. D. Campbell African Expedition, and collected specimens and color notes and photographs for two Akeley



African Hall groups, and miscellaneous mammals for the study collections. Financed by Mr. Campbell.

Mr. Richard C. Raddatz departed for Africa to assist in field work on the proposed Ostrich and Warthog Group. Financed by Mr. Philip M. Plant.

### SOUTH SEAS AND PACIFIC ISLANDS

*Living Invertebrates.*—Through the generosity and cooperation of Mr. Templeton Crocker and other friends of the Museum, Curator Miner made an expedition to the South Pacific accompanied by Mr. Wyllys R. Betts, Jr., and Mr. Chris E. Olsen. The object of the trip was to secure materials and data for constructing a new Pearl Fisheries Group for the Hall of Ocean Life. Curator Miner's party left home August 22 for the Pacific coast and took steamer for Honolulu, arriving on September 3. There they joined Mr. Crocker and Mr. William F. Coultas, the latter representing the Department of Ornithology of this Museum. On September 5 the party embarked on Mr. Crocker's yacht, the *Zaca*, and sailed for the Island of Tongareva, twenty-four hundred miles to the southwest, stopping briefly at Christmas Island on the way. Tongareva, situated about nine degrees south of the equator, is a typical coral atoll about eleven miles in diameter. Here, through the courtesy of the Government Agent, Mr. Philip Woonton, they engaged native pearl divers and made a survey of the atoll, where pearl shell was found to be abundant. There they spent two weeks largely in diving operations, with the aid of undersea equipment and submarine photographic apparatus, studying the conditions of the pearl beds and conducting pearl diving activities. The relation of pearl growths to the corals was also studied. Several thousand feet of undersea motion pictures were obtained, ten and one-half tons of coral specimens were secured, as well as large series of *Tridacna* and pearl shell. The associated fishes were also obtained, molds were made, and color sketches of all the living forms were secured. An extensive general collection of invertebrates and fishes was made by the party during the voyage. These were preserved in alcohol and will make an important addition to our scientific series. The work was greatly aided by the courtesy and assistance of Mr. Crocker, and special credit must be given to Mr. Toshio Asaeda, the artist and photographer of the *Zaca*.

After this work was completed, the party sailed to Pago Pago, American Samoa, where the corals were packed and shipped back to

the United States. The expedition then proceeded to Apia and thence to the Island of Savaii in British Samoa. Here, while Mr. Coultas was engaged in obtaining material for a bird group, the invertebrate section of the party made a careful survey of the animal life of the harbor and obtained large series of specimens of coral as well as invertebrates for purposes of comparison and to amplify our scientific collections. The *Zaca* then returned to Pago Pago on October 21, and the invertebrate section of the expedition sailed for Los Angeles via Honolulu, arriving at the Museum November 9. Preparations were immediately made for a sketch model for the Pearl Fisheries Group, and this was well under way at the end of the year. The expedition was financed not only by Mr. Crocker but also by contributions from Mr. George Whitney, Mrs. Johnston L. Redmond, Mrs. Charles S. Payson, Mr. Clarence L. Hay, Mr. George T. Bowdoin, Mr. Junius S. Morgan, Mrs. Payne Whitney, Mr. Wyllys Rosseter Betts, Jr., Mr. Cornelius Vanderbilt Whitney, and Mr. Vincent Astor.

Recently the Department received the good news that Mrs. George B. de Long has donated to the Museum a generous sum, to be used toward the expense of erecting the Pearl Fisheries Group. This donation will go far toward supplying this important unit in the series of exhibits for the Hall of Ocean Life.

*Ichthyology.*—The Morden expedition to Hawaii collected Carangid and flying-fish material. Financed by Mr. William J. Morden.

The Templeton Crocker Expedition made a collection of flying fishes from the coasts of Lower California. Financed by Mr. Crocker.

The Archbold-Rand New Guinea Expedition made a general collection of fishes. Financed by Mr. Richard Archbold.

*Herpetology.*—A valuable collection of reptiles and amphibians was received from the Archbold-Rand New Guinea Expedition. Financed by Mr. Richard Archbold.

*Ornithology.*—Mr. Templeton Crocker again sponsored and led an expedition to the Pacific, a portion of which has been devoted to the securing of accessories and specimens for three additional groups of birds for the Whitney Memorial Hall. Mr. Coultas, previously with the Whitney South Seas Expeditions, represented the Department of Ornithology on the present trip. Mr. Coultas reported having secured the necessary material on Savaii for the Samoan Group, on Kauai for the Hawaiian Group, and on Laysan Island for the group from that

locality, and was awaiting transportation for his return to the United States. Financed by Mr. Crocker.

The Whitney South Sea Expedition placed Mr. L. MacMillan in the New Hebrides, from which were received 340 birdskins, a number of nests, and several jars of specimens in alcohol. Financed by the Whitney South Sea Expedition Fund.

The Archbold-Rand New Guinea Expedition, of which Dr. Rand is the ornithologist, has been at work in the mountains of the south-central part of New Guinea and sent in one large shipment of 899 birdskins and 7 nests during the year. The expedition remains in the field. Financed by Mr. Archbold.

*Mammalogy*.—The 1936 Archbold-Rand New Guinea Expedition, Mr. Richard Archbold, leader, Mr. G. H. H. Tate and Dr. A. L. Rand, Museum collectors, reported approximately 800 mammals collected. Mr. Archbold returned to New York December 1, but Dr. Rand and Mr. Tate were still in the field at the end of the year. Financed by Mr. Archbold.

*Anthropology*.—Dr. Margaret Mead is still in Bali, engaged in ethnological studies and Museum collecting. She reports satisfactory progress and expects to return to the Museum during the year 1937, with many photographs, notes, and specimens. Financed by the South Pacific Exploration Fund.

Mr. Louis Pierre Ledoux, on his own initiative, conducted an expedition to New Guinea, returning to the Museum a fine collection with important data.

## EDUCATION

Education is a primary function of the Museum as set forth in the original Charter. The Museum was established "for the purpose . . . 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." How well this vision of the Founders has been realized is exemplified by the variety and extent of the Museum's educational program in 1936.

While figures are not the best criteria in evaluating educational activities, they are indicative of the scope of the work. The following table of statistics for 1936, showing contacts of more than forty-two million, does impress the reader with the fact that the Museum is a real adjunct of the educational system.

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

Lectures to School Children, Classes and Guiding.....	188,453
Meetings of Scientific Societies and Other	
Meetings and Lectures .....	17,523
Concerts .....	53,157
Exhibition Halls .....	1,520,694
Planetarium (Paid) .....	574,106
Planetarium—Classes (Free) .....	137,649
<hr/>	
Total Attendance for All Purposes .....	2,491,582
Lectures to Pupils in the Schools .....	12,358
Reached by Motion Picture Service .....	11,554,364
Reached by Lantern Slide Service .....	18,151,098
Reached by Circulating Collections .....	9,931,341
Bear Mountain Nature Trails .....	420,000
<hr/>	
Grand Total .....	42,560,743

In this report there is space for only the briefest comment on the activities, which have been more extensive and varied than ever before. The first mentioned are the newer features of the program.

For Teachers, four courses, designed to familiarize teachers with Museum materials and techniques, have been given. Two were directed by Mrs. Grace Fisher Ramsey, namely, "Methods of Teaching Geography in an Activity Program" and "The Museum in Elementary Social Studies," and two courses by Miss Farida A. Wiley on "Nature Study for City Teachers." In all, 444 teachers were enrolled, and they received for their work college credit from the College of the City of New York or from Hunter College, and also "alertness credit" from the Board of Education.

A new experiment in Teacher Training was initiated in the autumn, namely, a Crafts Course for Teachers. This consisted of instruction in making miniature habitat groups and geography crafts, conducted by Mr. John Orth and Mrs. Agnes K. Saunders. These techniques are valuable in teaching geography and the social sciences. Although this is a non-credit course, it is eagerly sought by teachers.

The four weeks of intensive training in museum materials and methods given to Student Teachers is recognized as part of their practice-teaching for their degree. This is a unique contribution on the part of the Museum to education. Under the direct supervision of Mrs. Ramsey and Miss Mastin, six groups of five students each from City College and one group from New College (Columbia) have been handled during the year. The results are very satisfactory and indicate that this feature of the educational program should be extended if possible. The students, without exception, have felt that much more experience has been gained through their Museum assignment than could possibly have been secured through many weeks of work in a public school.

Under the auspices of the Museum, Miss Wiley continued the Summer School for Nature Study at the State Institute of Applied Agriculture at Farmingdale, Long Island. New York University again gave credit for the course. Several states were represented in the registration, and one student came all the way from Hawaii. Several of the students have taken out membership in the Museum, and a number of the New York City teachers are bringing their classes to the Museum for instruction.

Of course the Hayden Planetarium demonstrations continue as an important contribution to education. The Department of Education is particularly concerned with the classes of school children visiting the Planetarium. In consultation with the staff of the Planetarium, a special program of topics changing weekly was given, with the idea that it would bring about a closer integration with the courses of study. The results did not bear out this supposition, and for 1937 a general demonstration will be the regular program, and toward the end of the term a series of specialized topics will be given for advanced groups. The attendance of classes for the year totaled 137,649 pupils.

In the field of Adult Education, a new feature was added to the program. Two courses of free lectures designated as Exploration Lectures were given in the auditorium. It was believed that the general public would welcome the opportunity to hear from staff members in person an illustrated account of their explorations and discoveries. Several of the Museum's most popular lecturers participated in these courses, which were widely advertised through adult education organizations and in the press. The attendance was so small and disappointing that this effort in adult education has been discontinued.

In other respects the adult education program has proceeded along the established lines. Under the supervision of Mrs. Agnes K. Saunders, and with the cooperation of Miss Beatrice Ball and Miss Sarah Elkus of the Board of Education, five programs of lectures were given to the Adult Students' Association. With the cooperation of Miss Dorothy Holverson, programs including two Planetarium demonstrations were given to the Evening Elementary School Students' Association.

Dr. William Lord Smith continued his regular Guiding Tours in the Exhibition Halls for adults and children. Special mention should be made of Dr. Smith's instruction and guidance for Nurses in Training. Some 1,385 nurses from practically all the hospitals of the metropolitan area have visited the Museum for this instruction.

The Nature Trails and Trailside Museums at Bear Mountain continue to attract many thousands of both children and grown-ups. As reported last year, this project is now operated throughout the twelve months. It is being financed by the State of New York but continues to be operated under the joint auspices of the Commissioners of the Palisades Interstate Park and The American Museum of Natural History, with Mr. William H. Carr as resident Director. It is a splendid example of outdoor nature education and is rendering a special educational service to the schools of the immediate vicinity. The total number of visitors for the year was 420,000.

Under the supervision of Professor Edward S. Robinson of Yale University, a series of preliminary experimental statistical studies on the reactions of visitors to Museum exhibits has been carried on under the immediate direction of Dr. Arthur W. Melton of the University of Missouri who was at the Museum during the summer. He was assisted by Mr. A. J. Arnheim and by fifteen observers who were supplied by the W. P. A. The first studies were confined to observation in three types of halls, namely, the Akeley African Hall, Anatomy of Man Hall and three Indian halls (Woodlands Indians, Plains Indians, and Southwest Indians). The second series of studies was of the behavior of the general visitor throughout his stay in the Museum. None of these studies has been completed and results will not be available for several months.

*Intramural Activities.*—Within the Museum, all the regular educational features have been carried forward as usual, with modifications to improve the service and make it more vital to the schools.

A series of ten Lectures for Children of the Public Schools was

given in the Auditorium. The number of lectures in this program has been reduced, but they have been planned so as to cover material not readily available in the schools, thereby continuing the policy of supplementing classroom work. All of these lectures have been given by members of the staff of the department, and all have been well attended.

The Exhibition Hall Talks, which consist of instruction in a small classroom followed by a visit to an exhibition hall, constitute one of the most important features of the Department's program. In announcing these lectures and talks for the schools, a special grade key chart was compiled, which enabled the teacher to find quickly the talks which were pertinent to his or her grade.

As usual, the teaching staff served as Guides for Classes, Special Groups and Members of the Museum. This service has made heavy drafts on their time and has curtailed somewhat their time for teaching. A notable feature of the general guiding has been the "radio tours" arranged in connection with the regular radio broadcast given by Mr. John R. Saunders and Mr. Robert Coles. In the broadcast, listeners are invited to meet Mr. Saunders or Mr. Coles at the Museum for special guiding to exhibition halls or collections referred to in the broadcast. A gratifying number accept these invitations.

With the aid of the Jonathan Thorne Memorial Fund, the spring and autumn series of Talks for the Blind and Sight Conservation Classes were given as usual. The schedules are arranged in conference with Miss Frances Moscrip, the City Supervisor of these classes. In many instances this is the children's first real contact with objects of nature.

Four series of Lectures for Biology Students in the High Schools were given. Two of the courses were for elementary students and two were for the advanced classes. In these lectures the Department had the cooperation of several members of the Scientific Staff of the Museum.

The usual series of Free Showings of Motion Pictures on Saturday afternoons, for the general public, was offered.

In addition to the teacher training courses and the student teacher instruction, the cooperation with colleges and universities has included Special Guiding for College Groups from nineteen colleges and universities. Miss Mastin conducted several sessions of a course on "History of Culture," conducted by Professor A. O. Hansen of City College. Last spring Miss Wiley was director of the Nature Lore Section of the Camp Leadership Course at Columbia. Several members of

the Department's teaching staff cooperated with her in giving this course.

For Members, in addition to the regular lecture courses given, two courses, of four lectures each, of intensive instruction in the Museum's collections and exhibits were presented under the general heading, "Know Your Museum Series." Dr. Chester A. Reeds gave the first series, on the subject, "The Earth and Its Dynamic Forces"; the second series was given by Dr. Robert C. Murphy on "The World of Birds."

Mr. Herbert P. Whitlock of the Department of Mineralogy gave two courses for the general public on "The Appreciation of Gems."

*Extramural Activities.*—Among the activities outside the Museum, foremost in educational value are the Loans of Circulating Nature Collections, Lantern Slides and Films, to the Public Schools of Greater New York and of Natural History Collections to New York Public Libraries. These are among the oldest features of the program.

The Circulating Nature Collections are not static exhibits. Every year they are carefully gone over and modified or added to, in order to make them more effective teaching units. There are now 2,950 units of exhibits in this loan series. Through this branch of the work, a great variety of natural history material is made available for objective teaching in the classrooms.

Next in importance in the program is the Lending of Lantern Slides. This illustrative material is drawn from the large library of negatives accumulated through the Museum's many expeditions and augmented by the selection of negatives from many other sources.

The work in the Circulation of Motion Picture Films has continued with increased demands from the schools.

The special Loans to Branch Libraries are increasing. In 1936, twenty-two libraries of the City were provided with loans of natural history collections. These collections stimulate the reading of good books and induce both old and young to visit the Museum.

A phase of the work, the importance of which is frequently overlooked, is the Photographic Service, which is very extensive in the United States and even extends to many foreign countries. There are more than 100,000 negatives on natural history subjects in the photographic library. From these, prints are supplied for illustrations in textbooks, encyclopedias, magazines, and the press. Many slides from them are supplied to teachers and lecturers in schools and colleges all over the country.



In carrying on such an extensive program, the Museum is greatly indebted to many friends for assistance and advice, for which it is grateful. Especially valuable has been the generous support of Mr. Felix M. Warburg and Mr. Frederick M. Warburg, whose gifts have made it possible to continue important activities, to enrich the loan collections and to increase the teaching staff.

Again the Museum is deeply indebted to Mr. J. H. McKinley for the valuable voice training for public speaking that he has so generously given to the staff members of the Education Department and of the Hayden Planetarium.

The Department desires to express appreciation of the valuable assistance rendered by the Works Progress Administration assistants who were assigned to the Department through Mr. William A. Rowan. Thanks are due the Board of Education for the W.P.A. teachers assigned to the Museum by Mrs. Anne M. Limpus. They have rendered excellent assistance in our lecture and guiding service. Worthy of special commendation is the contribution by the group of teachers who have been working on the Planetarium program. Their preparation of the pupils in the schools for visits to the Planetarium has been very helpful.

There are a host of other friends to whom the Department is most grateful for assistance and many courtesies.

### LIBRARY

In the Library the year 1936 was characterized by the renewed opportunity to bring our collections up to date. For some years it had been possible to keep abreast of the periodical literature only. Important new books were not added as issued. In the latter part of 1935, the income from the Ralph W. Tower Memorial Fund was made available for the purchase of books. The effect of the first full year of this fund is readily apparent in our collections.

The work involved in the distribution of the Museum publications was unusually heavy this year, due to the appearance of the two outstanding monographs—Robert Cushman Murphy: "Oceanic Birds of South America," and Henry Fairfield Osborn: "Proboscidea." Twelve hundred copies of Dr. Murphy's work were delivered to the Library. This important, expensive contribution was sent on exchange to the one hundred deposit institutions only; the remainder of the stock has been distributed by sale—December 31 saw the disposal of one thousand

and twelve copies of the twelve hundred numbered edition. The handling and mailing of the Osborn eleven-pound monograph on the Proboscidea was a task that consumed much time and energy. To date this has largely been distributed by exchange and gift.

The exchange list for *Natural History* was thoroughly revised in June, and approximately one hundred names were removed. A résumé of the institutions receiving all Museum publications on deposit was also made for the use of the Committee appointed by the Council to review the question of the distribution of scientific publications.

The shelf reading and shifting necessitated by the crowded condition of the anthropological book collections was completed. The sorting, classifying and cataloguing of the Lawrence collection of ornithological letters was finished. This contribution to the early history of American ornithology is now available for reference. A small beginning has been made on the extensive collection of entomological letters to Henry Edwards, which have long been in the possession of the Museum.

During the year, nine hundred and sixty-five volumes were bound for the Library and about fifty-seven hours' work was done in the bindery for various other departments. Since June, through the cooperation of the Works Progress Administration, the Library has had assistance in the bindery.

### ARTS, PREPARATION AND INSTALLATION

Though working under the handicap of a depleted staff and a decreased budget, the Department, under the direction of Dr. James L. Clark, carried out an unusually heavy program of exhibition, concentrating all its energies during the first months of the year on preparing the Akeley Memorial Hall of African Mammals for formal opening in May. In addition to the eleven habitat groups previously constructed, four new groups were brought to completion or well advanced this year on the mezzanine floor of the Hall:

Wild Dog Group—Gift of Major Max C. Fleischmann

Klipspringer Group—Gift of Mr. George Eastman

Impala Group—Gift of Mrs. Martin Johnson

South African Group—Gift of Mr. Arthur S. Vernay

New exhibits on the main floor include the temporary sketch models set in place to represent the Nile River and Sahara Desert Groups, plans for the collecting of which are well under way; the Okapi Group, which has been collected, and the fully assembled herd of elephants, which is featured as the centerpiece of the hall. Mr. Rockwell

and his assistants finished the mounting of the four elephants collected by President Davison and constructed a huge base, imitating the trampled ground, to accommodate these and the four others which make up the herd. A number of incidental problems, such as effective but not too conspicuous lighting, designing and placing of labels and harmonious arrangement of the decorative elements in the hall, received special attention. As a result of the perfection of the Museum's portrayal of Africa, wide publicity was aroused, and inquiries were received from all parts of the world as to the methods of preparation by which such signal success had been achieved.

Three unusual major exhibits were prepared for the Hall of Fishes. For the Blue Marlin Group and the Tuna Group, both presented by Mr. Michael M. Lerner, a novel treatment in simplified exhibition was evolved, designed to emphasize the magnificent specimens by placing them against a background suggesting the coloration of the local waters, the whole to be seen through a wall of flowed glass, with special lighting effects achieved through the use of sheets of chromium-plated metal to pick up the light from above and reflect it on the fish and the sea tones, thus creating the illusion of an under-water scene, with the large fish rising to the surface in pursuit of schools of small fishes, which are painted in.

The exceptionally fine mount of the *Rhineodon*, gift of Mr. Charles T. Wilson, was made by Ludwig Ferraglio, who was occupied for nearly a year with the sculpture, manikin making, adjustment of the bark-tanned skin and accurate coloring of the specimen. The result is one of the most perfect pieces of fish taxidermy in the world.

The Alpine Bird Group was constructed for Birds of the World Hall, with mounts by Mr. R. B. Potter, rockwork and flora by Messrs. A. E. Butler and G. E. Petersen, and an impressive painting of the Matterhorn as background by Mr. Francis L. Jaques.

For the proposed Whitney Memorial Hall of Birds, five miniature models were designed and built to scale, showing detailed studies of the South Sea Groups later to be created in habitat size. On the four habitat groups now financed (the Ship-Followers, the Galapagos, the Peru and the Nukuhiva) work has progressed rapidly and has been carried forward as far as possible while waiting for the completion of the cases.

In the hall assigned for Mammals of North Asia, Mr. Jaques painted a very effective composite panorama of Asiatic scenery on the dome.

For the Eastern Woodlands Hall, Mr. Narahara made four graphic

miniature models showing the corn, maple-sugar and birchbark industries and illustrating the everyday life of the Indians of the Eastern Woodlands.

The sketch model of the Greater Koodoo Group in the Akeley Memorial Hall of African Mammals was restored and shipped to the Corydon Memorial Museum at Nairobi, as a gift from the Committee on African Hall, in recognition of the many courtesies extended to the Museum in connection with field work in Africa.

The Department more than fulfilled its usual quota of routine work, supplying numerous replacements in the Local Bird Collection, restoring many mounts in the Hall of Fishes, improving the Sea Lamprey Group, filling three cases in the Fossil Fish exhibit with new models, cleaning 2,300 skulls and 350 skeletons, tanning 140 skins, making up 230 study skins and over 200 mounts and miscellaneous casts, and building five traveling exhibits for School Service use.

Messrs. Robert H. Rockwell and Raymond B. Potter received appointments as Staff Associates, in recognition of their long and able service in the Department.

#### PRINTING AND PUBLISHING

The Museum Print Shop was operated with four regular employees and three Works Progress Administration assistants. Two former employees of the shop were taken on as extra workers from time to time, when the volume, or nature, of the work was such that it could not be handled expeditiously by the regular staff.

The outstanding achievement of the year was the completion by the Print Shop of Volume I of the Proboscidea Memoir, by Henry Fairfield Osborn, great care having been taken and much time consumed in the editing, typesetting and proofreading of this 800-page work.

Article VI of the Dean Memorial Volume is well under way in the Print Shop, the typesetting having been completed and galleys submitted to the editor.

Publications printed by the Print Shop included ten issues of *Junior Natural History*, first published in March, with an edition of 7,500, which by November had increased to 15,000. From 200 to 1,000 reprints are made of *Natural History* articles each month. Two printings of each of two *Guide Leaflets* were also included in cylinder press work produced by the Shop in 1936. A handsome, 80-page *Guide Book* for the Hayden Planetarium is being paged and will go to press early in 1937.

The job printing includes the multitude of labels, programs, invitations, menus, application forms, bookkeeping forms, checks, letterheads, schedule cards, subscription blanks, form letters, magazine wrappers, publicity circulars, and other printed pieces required in administering the Museum activities. The growing volume of this job work was due not only to new forms constantly being required by the various departments but to an increase in the size of orders. An order as large as 25,000 copies of printed matter was formerly rare, but the Print Shop now receives many such orders; also orders for 50,000 or 100,000 copies; and a recent order for a circular called for 500,000 copies.

It was necessary to send to outside printers the *Annual Reports* of the Museum and of the Pension Board, the *General Guide*, and two *Guide Leaflets*. The *Bulletin*, *Novitates*, *Anthropological Papers*, *The Sky* and *Natural History* magazine continue to be printed regularly by outside printers.

### NATURAL HISTORY

In conformance with the general trend in the magazine field, and primarily to afford a better display of illustrations and to provide a "standard" page area for advertisers, the Board of Trustees, at the recommendation of the Executive Committee, the Trustee Committee on *Natural History* and the staff of the magazine, on November 9, 1936, authorized that the size of the magazine be increased from 7 x 10 to 8¾ x 11⅞ inches, beginning with the January, 1937, issue.

### JUNIOR NATURAL HISTORY

On the first of March, 1936, a new American Museum publication made its début—*The Junior Natural History*. It was felt that there might be a need for a magazine which would introduce the subject of natural history to children of elementary school age, and the fact that by November a 15,000 edition was necessary, proved this to be the case. The majority of these magazines each month are sold through the schools of Greater New York, and, while no concentrated effort has been made to secure yearly subscriptions, there has been a steadily increasing number of subscribers. Dorothy L. Edwards, for some years on the staff of *Natural History*, is editor of this new publication.

### PUBLIC AND PRESS INFORMATION

Under the direction of Hans Christian Adamson and with the able assistance of Miss Jean Wiedemer, the Department of Public and Press

Information has steadily extended its work in acquainting the public with the American Museum of Natural History and its scope in the realm of natural history sciences.

Together with the regular news releases and photographs covering the activities of the Museum and the Hayden Planetarium, which have brought national and international magazine and newspaper coverage, the Department has had the opportunity of using the radio as a vital means of creating public interest. Through the generous cooperation of the Columbia Broadcasting System, the National Broadcasting Company and the Mutual Network, some thirty broadcasts have been sent out to network audiences. A concrete example of the active interest which can be stimulated by means of extensive publicity in various publications and the radio was the opening of the Akeley Memorial Hall of African Mammals. More than 50,000 people visited this hall within the first three months as the result of the hundreds of articles carried in journals and newspapers throughout the United States, Europe and Africa.

The Department extends its warm appreciation for the understanding and cooperation of the Curators and Staff Members, and to the Photographic Department for the invaluable help it has given at all times.

### III. ADMINISTRATION, OPERATION, BUILDING

ROY CHAPMAN ANDREWS, Director

WAYNE M. FAUNCE, Vice-Director

The New York State Theodore Roosevelt Memorial was dedicated on Sunday, January 19, 1936. The cornerstone of this building was laid on October 27, 1931. Besides the features of the program mentioned by the President, items of interest were the singing of "America" by Boy Scouts and of "The Battle Hymn of the Republic" by Roland Hayes. Acknowledgments were made in the printed program to Rangeltone, Inc., for Organ; Radio Corporation of America for Sound; the American Museum Press; and participating broadcasting systems.

In spite of inclement weather, a large audience filled Memorial Hall in the new building, when the exercises began at two o'clock. At four o'clock the symphony composed and dedicated to Theodore Roosevelt by Vittorio Giannini was broadcast over NBC Radio System and was heard in Roosevelt Memorial Hall.

The dedication of the Akeley Memorial Hall of African Mammals took place on May 19. In recognition of this great event, the National Broadcasting Company presented a coast-to-coast broadcast over its Red Network, just previous to the dedication ceremonies, which began at three o'clock, Eastern Daylight Saving Time.

In connection with the opening of Akeley Hall, the Eighth Annual Members' Visiting Day was held, as reported in the Membership Section.

The planning of the remarkable groups in Akeley Hall, by Dr. James L. Clark, and the artistic and mechanical work done by his assistants and other members of the Museum staff, have resulted in the creation of one of the finest museum halls anywhere existing at present.

A feature of interest in the past year was the display, in Memorial Hall in the South Façade, of newly added specimens, exhibits in course of preparation, and special exhibitions of natural history import, of current interest. These exhibits were arranged by a Committee, of which Dr. George H. Sherwood, Honorary Director, was Chairman, assisted by Mr. Sterling Rockefeller as volunteer. As a rule the objects were shown for a period of two weeks, and during the year forty-six such exhibits were presented.

An event of considerable significance was the change of what for many years had been the main entrance to the Museum: that in the central section of the south façade on Seventy-seventh Street. The section containing this entrance was formally opened in 1892, and more than forty-one million persons used this means of access to exhibits, meetings and lectures. Beginning with October 1, 1936, the old entrance has been reserved for use by school children in classes and for persons attending evening lectures in the auditorium, School Service Building and other older sections.

The main entrance is now through the Theodore Roosevelt Memorial on Central Park West at Seventy-ninth Street. During Museum hours, three means of entrance are available at this building: the stone stairway to the second floor, the driveway and pedestrian entrance to the first floor, and from the Eighty-first Street station of the Eighth Avenue or Independent subway to the basement floor.

The exhibit of local birds has been moved from its place for many years in the West Corridor of the second floor of the Museum, to the first floor of the Roosevelt Memorial.

The Checkroom is on the first floor near the entrance of this building, and there is an entrance to the Planetarium from the first floor. An Information Desk is maintained on the second floor near the entrance.

The Museum Book Shop has been moved from the southeast corner of the Museum Memorial Hall in the south pavilion, to the second floor of the Roosevelt Memorial. The location and arrangement make an attractive place to examine the publications and articles on sale.

The Sales Booth in the South Pavilion, where the Book Shop was located, is now used for the sale of books for children.

As for many years the meetings of the New York Academy of Sciences and Affiliated Societies have been held at the Museum. Their offices are now located on the fourth floor of the Roosevelt building.

Concerts were provided by the Works Progress Administration Federal Music Project, on Sunday and Wednesday afternoons during the winter, spring and fall months.

The report of the General Superintendent, Mr. Rex P. Johnson, includes that of the Custodian, that of the Mechanical Superintendent (repairs and installation), and that of the Power Plant Engineer (heating and lighting).

The opening of the Theodore Roosevelt Memorial building on Jan-



uary 19 and of the Akeley African Hall on May 19, and the taking over by the Museum of the operation of the Roosevelt building on July 1, were some of the features occupying the attention of the Custodian. The office of the Custodian was moved from the former Seventy-seventh Street entrance to the Roosevelt building, when the location of the main entrance was changed.

It has been necessary to continue the practice of closing a number of exhibition halls each day, due to lack of attendants, and this condition was aggravated toward the close of the year by the withdrawal from the custodian's force of eighteen United States Works Progress Administration workers.

Preliminary work has been done toward developing a manual of standard practice instructions for attendants. Classes were initiated with the cooperation of the Department of Education of the Museum. A weekly fire inspection and fire drill have been made throughout the year.

Maintenance routine in repairs and installation included work on locks and keys, hardware, elevator repairs, window shades and awnings, skylight repairs and replacements, painting, repairs to floors, setting up and removing temporary exhibits, and making changes and improvements as directed by the Safety Committee.

Work in the South Oceanic or Whitney Wing included the installing of work benches, and shelves in cases, in the basement; preparation of plans and specifications for case lighting on the first floor; completion of many group cases on the second floor, ready for the installation of exhibits. Thousands of trays for bird storage were assembled and work done on the general equipment of the Whitney section.

Work in other sections of the building included the renovation and painting of offices, renovating and painting the tower room set aside for the William B. Whitney Tibetan Lamaist collection, and the installation of new cases provided for by Mr. Suydam Cutting; outdoor painting of windows; roof repairs; building of miscellaneous group cases; various alterations and equipment; drawings and specifications; and expedition equipment, etc.

In the section of heating and lighting, marked fuel economy was achieved; an increase in the output of electrical energy, an increase in coal storage, and improvements in the operation of various ventilating equipment; inspection and maintenance work on elevators; maintenance

work and alterations were carried out on the plumbing, heating, gas and fire systems of all buildings.

### GIFTS

Among the many gifts received during the year, the Museum takes pleasure in mentioning the following:

From the Academy of Natural Sciences of Philadelphia, a specimen of *Porzana flaviventer hendersoni*. (Ornithology).

From an anonymous donor, an aventurine incense burner.

G. Babault, a study skin of *Prionops alberti*. (Ornithology).

E. L. Bell, 129 butterflies, including 5 types and 96 paratypes.

Julia Bourgeois, 140 figurines from Mexico.

British Museum (Natural History), through the courtesy of Dr. A. T. Hopwood, two endocranial casts of *Adapis parisiensis*. (Comparative and Human Anatomy).

W. L. Bryant, fossil footprints of "*Paramphibius*." (Comparative and Human Anatomy).

Joseph Burden and Quentin Roosevelt, cave fossils (mostly four-horned antelope *Tetrameryx*).

Second Byrd Antarctic Expedition, seal material; new antarctic fish and a small general collection of southern hemisphere genera.

William H. Carr, two old books, parchment-bound, "*Astrognesia*" in Latin, and "*Del Lunario y Prognostico*" in Spanish; an astronomical notebook kept by Jay D. Harcourt, Wappingers Falls, N. Y.; scrapbook; original letters from various astronomers to Mr. Jay D. Harcourt.

T. D. A. Cockerell, eleven fossil insects.

A. J. Crandall, Cuttyhunk line.

Templeton Crocker, collection of invertebrates from the coast of Lower California and Mexico; dolphin skeleton.

Suydam Cutting, cases for the William B. Whitney Tibetan Lamaist collection.

Suydam Cutting and Arthur S. Vernay, ethnological collection from Tibet.

Mr. and Mrs. F. Trubee Davison, three tigers, two gaurs, two leopards, from India.

Mrs. George B. de Long, a green sapphire, 47½ carats, from Ceylon, and a generous donation toward erecting the Pearl Fisheries Group.

J. M. Dickinson, skeleton of Arabian horse.

George D. Doughty, a stegocephalian jaw, various teeth, artifacts, etc.

Frank E. Firth, of the U. S. Bureau of Fisheries, 42 specimens of crustaceans, annulates, coelenterates, fishes and an octopus, collected by Mr. Firth in Louisiana and off Cape Hatteras.

Childs Frick, three boxes of titanotheres specimens collected by the Colorado Museum; 51 small mammals.

Estate of Rubin Goldmark, five Navajo blankets and one belt, and a Chimayo blanket.

G. D. Guadagni and H. E. Norton, a Cretaceous palm leaf from Marathon, Texas.

Lyman Hale, two slabs of Triassic plants.

Dr. Ansel F. Hall, Director of the Rainbow Bridge-Monument Valley Expedition, 275 small mammals from southern Utah.

William H. Harkness, donation to provide for a traveling laboratory.

Clarence L. Hay, an obsidian figure, 25 stone figures, two pottery vessels, jade necklace, earplugs, and small masks, from Mexico.

E. B. Holt, collection of fossil crocodile and phytosaur specimens.

E. I. Huntington, 7,500 butterflies (*Lycenidae*).

Martin Johnson African Expedition Corporation, 54 reels Simba film, nine reels of sound on film of Simba, Spanish captions (7,338 feet).

Estate of Maximilian Kahn, one spinthariscopes (small cylindrical instrument with lens,—maker, W. Crookes). (*Astronomy*).

Morton C. Kahn, approximately 7,000 feet of 35 mm. motion picture negative of the Upper Aucaner Tribe of Bush Negroes on the Tapanahoni River in Dutch Guiana.

Eugene Kingman, oil painting, light effects at eclipse of 1932.

Mrs. John L. Kuser, mount of albino tarpon.

Louis Pierre Ledoux, ethnological collection from New Guinea.

Michael Lerner, tuna group, mounted skeleton of swordfish, caught by Mr. Lerner, model of 600-pound swordfish caught by Mr. Lerner.

E. E. Loomis, dance costume, Pawnee Indians, Oklahoma.

Dr. G. E. MacGinitie, 43 specimens of invertebrates from California, Mexico and Haiti.

Philip Mayer, mounted muskellunge.

Sir Colin McKenzie, Canberra, Australia, cast of Cohuna skull.

John Mekell, 800 butterflies, moths and cocoons.

Memorial Extension Commission, Inc., 25 separate slabs of granite and marble, each 9 x 9 x 2 inches in size, and two larger masses of carved stone.

Horace R. Moorhead, watercolor of a snow leopard, painted by Charles R. Knight.

William J. Morden, fish material from Hawaii and South America.

Frank J. Myers, seventy-four slides of mounted and identified rotifers of 73 species, including four holotypes, one type, two cotypes, and ten paratypes, from northern India and the Panama Canal Zone.

New York Aquarium, fishes.

New York Zoological Society, one grizzly and one Tibetan bear, one pronghorn antelope, one civet, one Sambar deer, 12 snakes, 8 lizards.

Lithgow Osborne, dolphin—*Delphinus delphis* Linnæus.

Henry G. Parkhurst, Jr., jade figurine from State of Guerrero, Mexico.

Albert Pflueger, ocean sunfish—*Masturus lanceolatus*.

A. S. Pinkus, collection of fishes from British Guiana.

Raffles Museum, Singapore, through F. N. Chasen, Esq., six specimens of *Hylomys*.

Ivan Reinvald, Inspector Mining Industry of Estonia, Ministry of Economic Affairs, Tallinn, Estonia, eight meteorite crater specimens (dolomite and other material excavated from craters).

Colonel Theodore Roosevelt, one tapir, two jaguar, one red wolf.

L. C. Sanford, study skins of a male and a female *Francoelinus hartlaubi*. (Ornithology).

Sarawak Museum, Kuching, Borneo, through the courtesy of E. Banks, Esq., two specimens of *Ptilocercus*. (Comparative and Human Anatomy).

Robert J. Sim, 190 named specimens of beetles (Scarabacidae), of which 42 are paratypes.

Homer W. Smith, five specimens of fossil dipnoans and other fishes from the Devonian of Scotland.

Mr. and Mrs. James A. Stillman, head and horns of Alaska moose.

D. H. Thompson, State Natural History Survey Division, Illinois, fishes.

Charles H. Townsend, a collection of 149 bird skins, chiefly North American.

A. L. Treadwell, 352 specimens of identified annulates of 42 species, including three types and one paratype, collected in Florida by Professor A. S. Pearse.

Dr. E. L. Troxell, Trinity College, Hartford, Connecticut, a partial skeleton of *Diacodexis*. (Vertebrate Palæontology).

Mrs. Carl Tucker, donation for Alpine Group.

United States National Museum, ascidians embracing nine species, collected by Captain R. A. Bartlett near northeast Greenland.

W. G. Van Name, 53 slides of mounted sections of ascidians and 104 lots of identified ascidians in alcohol, including 23 types and 15 cotypes from Bermuda, Florida, North Carolina, Maine, and Massachusetts, collected by Dr. Van Name.

Bequest of William B. Whitney, collection of Tibetan Lamaist religious objects, consisting of over 800 pieces.

Charles T. Wilson, whale shark and mounting.

James Zetek, 132 specimens of identified shells, comprising 45 species, from Panama and Haiti, collected by Mr. Zetek.

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The American Museum of Natural History desires to make acknowledgment to the United States Works Progress Administration for the City of New York, for the assistance given the Museum in 1936 in the many educational, library, exhibition, research, mechanical and technical activities carried on by the Museum as a public institution. For this work the Museum budget would have been inadequate.

The Government allotment was \$381,600.00, to provide for salaries, equipment, materials and supplies, and other direct costs. This sum would have provided for a full quota of 355 workers, but the number on the payroll has not exceeded 252, and the total W.P.A. expenditure has been correspondingly lower.

The standard of work at the Museum is high, and in many cases demands technical training, specialization, and extreme care.

The W.P.A. assistants included: Artists, attendants, bacteriologists, biologists, chemists, clerical workers, craftsmen, docents and guides, laboratory workers, sculptors, stenographers, technicians and typists.

The work was done in whole or in part by these workers, under the supervision of members of the Museum Staff, and was of great value in supplementing the regular work of the Museum.

The projects included: Accessory work, arranging figures and manuscripts, arrangements for meetings and for staff art exhibit, assembling equipment for expeditions, bibliographic work, work in bindery, book-keeping offices and print shop, care of collections, cataloguing, checking, circulation of slides and films to public schools, classification of specimens, coloring casts, collection and compilation of data and statistics, copying manuscripts, field notes, etc., designing educational panels, developing murals, economic studies, editing field notes, assistance on exhibits, ex-

perimental study of installation, field work, filing, assistance in first aid room, making miniature habitat groups, identification of specimens, indexing, assistance at information desk, inspection and repair of slides and films, installation of new material, lettering, manufacture of background material for exhibition cases, making charts, diagrams, drawings, dynamic exhibits, labels, lantern slides, maps, placards, posters, signs and sketches; microscopic studies, assistance in mailing publications, mimeograph work, modeling, mounting drawings, photographs and specimens, numbering and recording material, executing paintings, moving storage cases and racks and storage collections, photographic work, preparing collections for exhibit, study or shipment; manuscripts and lectures to accompany slides, registering classes, reorganizing photographic library, restoration of specimens, restoring or renovating old valuable paintings, retouching photographs, selecting specimens for loan, skeletonizing fishes, various repairs to buildings, studies in relation to brain structure, work in animal psychology, tabulating, working out plans for storage; messenger service, proofreading, research work, unpacking of specimens, gazetteer of localities, translating.

## IV. FINANCIAL ADMINISTRATION

E. ROLAND HARRIMAN, Treasurer

FREDERICK H. SMYTH, Bursar

### BUDGETARY FUNDS OF 1936

In conformity with the policy, inaugurated when Mr. F. Trubee Davison assumed the Presidency of the Museum in 1933, that the Museum must operate within its income, the Trustees adopted on January 13, 1936, a budget for 1936 of \$1,187,204.02, with receipts and disbursements in balance. While several changes in income occurred during the year, we were able, owing to increased dividends and other receipts, and economies effected by the Administrative Staff, to end the year with a cash balance of \$599.31, and did not find it necessary to call upon the employees for contributions as in recent years.

This balanced budget, which covered to a large extent operation only, does not indicate that the Museum had sufficient funds for 1936. It did not allow for the extensive work of field parties, preparation, research, publishing or education. The curtailment of the foregoing activities has handicapped the advancement of the Museum.

Substantial gifts have been made to Special Funds for specially designated work, but inasmuch as they are of a non-recurring character they do not enter into our normal income.

### SUMMARY OF ALL ACCOUNTS

The summarized statement of operating costs includes not only our Budgetary Funds but also Special Funds which are used only for designated purposes. Receipts shown in the Budgetary Funds amount to \$1,157,858.73 and disbursements \$1,157,259.42. The statement of Special Funds shows receipts in the amount of \$444,080.01 and disbursements \$321,983.01.

## SUMMARY OF RECEIPTS AND DISBURSEMENTS

FOR ALL PURPOSES, 1936

## Receipts

City of New York for Maintenance.....	\$392,858.15		
City of New York for Maintenance of New York State Roosevelt Memorial Building	23,581.00		\$416,439.15
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Trustees' Funds:			
Balance, January 1, 1936.....	\$144,588.13		
Income from Endow- ment Fund .....	\$648,456.23		
Contributions of Trus- tees .....	62,588.65		
Contributions of Mem- bers and Friends....	228,709.51		
Membership Dues ....	59,292.00		
Sale of Publications and Exchanges .....	32,147.78		
Contributions of Foun- dations .....	9,000.00		
Contributions of Em- ployees for General Purposes .....	717.29	1,040,911.46	1,185,499.59
		<hr/>	<hr/>
Total Income, all Sources.....			\$1,601,938.74

## Disbursements (Operating Costs)

## Scientific and Research:

Astronomy .....	\$2,555.28	
Geology and Invertebrate Palaeon- tology .....	12,906.35	
Mineralogy .....	24,904.86	
Mammalogy .....	117,086.45	
Central Asiatic Exploration and Re- search .....	8,483.93	
Ornithology .....	59,152.82	
Vertebrate Palaeontology .....	63,970.05	
Professor Osborn's Science Fund ..	4,152.22	
Comparative Anatomy .....	20,601.76	
Anthropology .....	47,066.01	
Ichthyology .....	38,821.84	
Herpetology .....	8,815.63	
Experimental Biology .....	17,772.04	
Living Invertebrates .....	19,583.63	
Entomology .....	25,050.20	
Library .....	30,090.83	
	<hr/>	\$501,013.90



Printing, Books and Publications:		
Printing and Publishing .....		\$57,244.58
Preparation and Exhibition:		
Preparation and Exhibition .....	\$109,840.14	
Vertebrate Palaeontology .....	16,391.26	
Living Invertebrates .....	14,623.69	
		140,855.09
Educational—Public School Work:		
Public Education .....		76,040.94
Administration and Operation:		
Administration .....	274,126.80	
General Supplies and Expenses .....	43,060.89	
Heating and Lighting .....	125,424.23	
Repairs and Installation .....	60,277.68	
Special Repairs .....	6,857.50	
Legal Services .....	2,344.76	
Pension Fund .....	37,766.10	
Group Life Insurance .....	9,965.47	
Natural History Magazine Cost .....	38,991.24	
Interest on Bank Loans .....	1,888.05	
Financial Administration .....	78,907.43	
		679,610.15
Totals other than New York		
State Roosevelt Memorial Building .....		\$1,454,764.66
New York State Roosevelt Memorial Building:		
Administration .....	\$18,239.91	
General Supplies and Expenses .....	1,414.42	
Heating and Lighting .....	4,535.20	
Repairs and Installation .....	288.24	
		\$24,477.77
Total, All Costs .....		\$1,479,242.43
Balance, December 31, 1936 .....		<u>\$122,696.31</u>

## PERMANENT ENDOWMENT, 1936

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

Gift of Beatrice, Countess of Granard, Gladys Phipps and Ogden L. Mills	\$101,517.50
Bequest of Louis V. Bell .....	5.92
Bequest of Roger Deering .....	5,000.00
Bequest of Wood Fosdick .....	7,900.00
Bequest of Reid A. Kathan .....	25,000.00
Bequest of Henry Fairfield Osborn .....	178.74
Membership Fees .....	8,300.00
	<u>\$147,902.16</u>

In addition there was established a fund known as Anonymous Trust Fund No. 1, which is valued at \$178,560.00, and which provides that the income shall be paid in perpetuity to the Museum.

The Committee also reports the following transactions during the year:

*Receipts*

Cash on hand, January 1, 1936 .....	\$114,957.59	
Cash received a/c Gifts, Bequests and Membership Fees	113,284.66	
Cash transferred from income accounts for reinvestment	12,664.13	
Redemption and Sale of Securities .....	2,822,722.09	
Amortization Payments .....	20,163.98	
		<u>\$3,083,792.45</u>

*Disbursements*

Purchase of Securities .....	\$2,183,061.25	
Real Estate Operations .....	1,468.55	
Transferred to Pension Fund .....	437,000.00	2,621,529.80
		<u>\$462,262.65</u>
Balance, December 31, 1936 .....		

The balance of \$462,262.65 was invested by the Finance Committee just after the close of 1936.

The Endowment Fund on December 31, 1936, amounted to a book value of \$14,360,172.80 in securities and \$462,262.65 in cash, making a total of \$14,822,435.45. In addition, the Museum receives income on three trust funds, the principal amount of which is \$478,560.00, which increases the total value to \$15,300,995.45.

The value of the marketable securities, according to December 31st prices, was \$14,027,690.35, an increase over book value amounting to \$1,240,396.26. The book value of other investments, consisting of real estate holdings, was \$1,572,878.71.

The estimated income from our invested funds, after deducting interest in default on certain holdings, amounts to \$611,767.91, a yield of 4.12% of the value at which the investments are carried on our books.

The City Bank Farmers Trust Company continued to service our real estate mortgages and properties.

CONTRIBUTIONS FOR GENERAL PURPOSES, 1936

In order to save space under the heading "Contributions for General Purposes" in the printed financial statement, we give the list below:

Mrs. Charles S. Aldrich.....	10.00	Kate F. Merle-Smith.....	100.00
A. A. Amer.....	1.00	Clement Miller.....	5.00
Anonymous.....	525.00	R. L. Montgomery.....	2.00
Mrs. Daniel Bacon.....	7.00	Mrs. Paul Moore.....	100.00
Dr. Edythe A. Bacon.....	2.00	John J. Nairn.....	2.00
Mrs. F. M. Bacon.....	10.00	James B. Neal.....	2.00
Henry R. Benjamin.....	10.00	Bertram Nicholson.....	4.00
Miss Louise M. Boyden.....	2.00	David Ogilvy.....	2.00
I. Bregoff.....	5.00	George Pert.....	10.00
Comdr. Emory A. Bryant.....	2.00	Mrs. W. Y. Peters.....	2.00
Charles G. Christman.....	15.00	Miss Anna J. Pierrepont.....	25.00
Yuanting T. Chu, Ph.D.....	10.00	Abram S. Post.....	10.00
Miss Florence Clements.....	1.00	Harold I. Pratt.....	500.00
Miss Grace L. Cortright.....	2.00	Presbyterian Hospital Alumni.....	50.00
Mrs. Charles D. Dickey, Jr.....	2.00	Susan W. Price.....	1,000.00
Prof. R. Dohrn.....	2.92	Miss Ursula Reichle.....	3.00
Mrs. Arthur B. Emmons.....	100.00	Miss Nina Rhoades.....	10.00
E. W. Ferguson.....	5.00	Horace Roberts.....	5.00
Miss Mary Frye Frost.....	7.00	Hubert E. Rogers.....	500.00
John A. Garver.....	25.00	Mrs. William Sanford.....	150.00
Margaret Gray.....	2.80	Second Panel Sheriff's Jury, County of New York.....	15.00
E. W. Gudger.....	36.50	Herbert Schulte.....	2.00
Mrs. William L. Harkness.....	200.00	Dr. Benjamin Schwartz.....	2.00
H. G. Hicks.....	2.00	George G. Scott.....	2.00
Mrs. H. H. Hill.....	2.00	Miss Emily B. Shepard.....	2.00
Ernest Hudson, Jr.....	2.00	R. D. Sparks.....	1.00
John A. Hughes.....	4.16	O. G. Streiter.....	1.00
Oswald W. Knauth.....	25.00	Harriet M. Strelitz.....	2.00
Miss Vivien C. Mackenzie.....	2.00	Jane I. Taylor.....	2.00
L. D. W. Magie.....	5.00	Miss Thea C. Thompson.....	1.00
Edward Mallinckrodt, Jr.....	100.00	Russell W. Todd.....	10.00
Howard Mansfield.....	25.00	Frederick H. Warner.....	5.00
Mrs. Valentine Marsh.....	3.00	Nellie M. Welton.....	7.00
Emilio Masnata.....	10.00	Charles S. Witherell.....	7.00
Samuel Mason.....	4.00		
A. Osborne Mayer.....	2.00		
Carl A. Mead.....	5.00		
Mrs. Ferris J. Meigs.....	10.00		
			<hr/>
			<b>\$3,725.38</b> <hr/>

# FINANCIAL STATEMENT, 1936

## ENDOWMENT AND INVESTMENT ACCOUNT

### Receipts and Disbursements, 1936

#### GENERAL ENDOWMENT FUNDS—(Unrestricted Funds):

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
General Endowment Fund:	\$33,761.46	\$655,708.66	\$610,142.69	\$ 79,327.43
George F. Baker Fund..	35.09	17,699.89	17,699.05	35.93
Louis V. Bell Fund....	78.20	15,204.86	14,729.71	553.35
Wood Fosdick Fund ...	63.87	161,277.28	159,035.25	2,305.90
Anna M. Harkness Fund	36.76	351,731.25	348,163.82	3,604.19
Collis P. Huntington Fund .....	102.00	47,820.71	47,901.47	21.24
Ogden Mills Endowment Fund .....	29.02	186,210.04	185,918.75	320.31
J. P. Morgan Fund....	84.09	203,111.64	200,213.25	2,982.48
John D. Rockefeller, Jr., Fund .....	23,109.59	291,083.32	100,534.35	213,658.56
The Sage Fund .....	4,255.94	53,306.59	49,710.80	7,851.73
Sixtieth Anniversary En- dowment Fund .....	5,254.57	729,070.11	607,689.29	126,635.39
<b>Total General Endow- ment .....</b>	<b>\$66,810.59</b>	<b>\$2,712,224.35</b>	<b>\$2,341,738.43</b>	<b>\$437,296.51</b>

#### SPECIAL ENDOWMENT FUNDS—(Restricted Funds):

Matilda W. Bruce Fund	\$ 102.00		\$ 99.25	\$ 2.75
Anson W. Hard Library Fund .....	19.99			19.99
Morris K. Jesup Fund..	47,431.88	\$479,921.25	503,060.10	24,293.03
Osborn Palaeontologic Research Fund .....	46.88	178.74	204.50	21.12
Physical Anthropology Fund .....	79.74			79.74
Margaret Olivia Sage Fund .....	27.00			27.00
Jonathan Thorne Me- morial Fund .....		30,073.37	30,051.25	22.12
Ralph Winfred Tower Memorial Fund .....	77.51	100.00	99.25	78.26
Sixtieth Anniversary En- dowment:				
Anthropology Special Fund .....	64.30			64.30
James Arthur Research Fund .....	83.36			83.36
Bashford Dean Ichthy- ological Library Fund .....	41.76	100.00	99.25	42.51
Vertebrate Palaeontol- ogy Field Fund....	44.51			44.51
Vertebrate Palaeontol- ogy Special Fund..	64.28			64.28

ENDOWMENT AND INVESTMENT ACCOUNT  
(Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Frederick G. Voss Anthropology and Archaeology Fund .....	\$ 3.29			\$ 3.29
Wallace Memorial Fund	35.75			35.75
The Boyce Thompson Mineral Collection Fund .....		\$ 10,950.00	\$ 10,917.50	32.50
<b>Total Special Endowment .....</b>	<b>\$48,122.25</b>	<b>\$521,323.36</b>	<b>\$544,531.10</b>	<b>\$24,914.51</b>

SPECIAL ENDOWMENT FUNDS—(Restricted Funds):

The Boyce Thompson Mineral Collection Installation Fund .....	24.75	1,714.13	1,687.25	51.63
<b>Total Special Investment .....</b>	<b>\$ 24.75</b>	<b>\$ 1,714.13</b>	<b>\$ 1,687.25</b>	<b>\$ 51.63</b>

SUMMARY

General Endowment Funds .....	\$66,810.59	\$2,712,224.35	\$2,341,738.43	\$437,296.51
Special Endowment Funds.	48,122.25	521,323.36	544,531.10	24,914.51
Special Investment Funds .	24.75	1,714.13	1,687.25	51.63
<b>Total Endowment and Investment .....</b>	<b>\$114,957.59</b>	<b>\$3,235,261.84</b>	<b>\$2,887,956.78</b>	<b>\$462,262.65</b>

**CITY MAINTENANCE ACCOUNT\*****Receipts, 1936****Capital Fund:**

Balance, January 1, 1936 .....	\$15,000.00
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**Department of Parks, City of New York, 1936:**

Salaries, Regular Employees .....	\$352,882.43
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Salaries, Temporary Employees (Special Repairs) .....	5,543.00	\$358,425.43
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**Expenses for Other than Personal Service:**

1410 Fuel Supplies .....	34,432.72
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**Department of Parks, City of New York, 1936:****New York State Roosevelt Memorial Building:**

Salaries, Regular Employees.....	20,431.00
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**Expenses for other than Personal Service:**

1411 Fuel Supplies .....	\$2,000.00
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1412 Office Supplies .....	150.00
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1413 Cleaning and Disinfecting Supplies .	300.00
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1414 General Plant Supplies .....	400.00
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1415 General Plant Materials .....	300.00	3,150.00
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<b>Total net receipts for the maintenance of all departments .....</b>	<b>416,439.15</b>
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<b><u>\$431,439.15</u></b>
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\*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 1936, amounting to \$311,808.22, has been met from the Trustees' General Account.

**CITY MAINTENANCE ACCOUNT**

**Disbursements, 1936**

**Administration and Operation:**

Administration .....	\$219,661.67	
Heating and Lighting .....	75,593.14	
Repairs and Installation .....	36,460.74	
Special Repairs .....	5,543.00	
Financial Administration .....	28,933.00	\$366,191.55

**Scientific and Research:**

Mineralogy .....	\$1,683.00	
Ornithology .....	1,537.00	
Vertebrate Palaeontology .....	780.00	
Anthropology .....	1,396.76	
Living Invertebrates .....	3,001.00	
Library .....	2,839.73	11,237.49

**Educational—Public School Work:**

Public Education .....		15,429.11
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**New York State Roosevelt Memorial Building:**

Administration .....	\$18,231.16	
General Supplies and Expenses .....	798.67	
Heating and Lighting .....	4,321.99	
Repairs and Installation .....	229.18	23,581.00

**Total net disbursements for the maintenance of all departments.... \$416,439.15**

**Capital Fund:**

Balance, December 31, 1936.....	15,000.00
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**\$431,439.15**

*Report of the Treasurer*

## GENERAL ACCOUNT

## Receipts, 1936

## Balance, January 1, 1936:

Cash .....		\$ 79,300.17
Loans Receivable:		
Sixtieth Anniversary Endowment .....	\$89,729.58	
African Hall Construction .....	45,409.39	
Authorized Deficit of 1931 .....	27,115.89	
Natural History Magazine .....	25,000.00	187,254.86

\$266,555.03Reserved for payment of Bank Loan.....250,000.00Available Cash ..... **\$16,555.03**

## Income from Investment and Trust Funds:

General Endowment Fund .....	\$71,154.61	
Anonymous Trust Fund No. 1 .....	3,705.23	
George F. Baker Fund .....	2,633.20	
Louis V. Bell Fund .....	2,096.93	
Wood Fosdick Fund .....	43,680.67	
Anna M. Harkness Fund .....	36,167.94	
Collis P. Huntington Fund .....	1,924.17	
Charles M. Jesup Trust Fund .....	3,614.24	
Charles S. Keene Trust .....	6,852.13	
Ogden Mills Endowment Fund .....	8,950.51	
J. P. Morgan Fund .....	24,242.12	
John D. Rockefeller, Jr., Fund .....	50,024.70	
The Sage Fund .....	60,288.08	
Sixtieth Anniversary Endowment .....	52,815.62	\$368,150.15

## Interest on Loans to:

Natural History Magazine .....	\$766.03	
Junior Natural History Magazine .....	13.54	
Museum Book Shop .....	7.50	787.07

## Membership Fees:

Sustaining Members .....	\$ 5,000.00	
Annual Members .....	34,780.00	
Associate Members .....	19,512.00	59,292.00

## Sales and Subscriptions:

Sale of Publications .....	\$ 3,873.55	
Subscriptions to Natural History .....	2,909.59	
Sales and Exchanges .....	12,390.01	19,173.15

## Contributions by Trustees for General Purposes:

George F. Baker.....	\$500.00	
John D. Rockefeller, 3rd .....	500.00	1,000.00

## Contributions by Employees for General Purposes

717.29

Contributions for General Purposes, see listing  
on page 69.....

3,725.38

## Contributions for Special Purposes:

Cleveland H. Dodge Foundation, Inc.....	5,000.00	\$457,845.04
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**Total net receipts for the development of all departments..... \$474,400.07**

## Contributions by Trustees for General Purposes 1937:

Clarence L. Hay .....	\$1,000.00	
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## Contributions for General Purposes 1937:

Childs Frick Corporation .....	2,000.00	3,000.00
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\$477,400.07



## GENERAL ACCOUNT

## Disbursements, 1936

## Administration:

Administration .....	\$51,199.54	
General Supplies and Expenses .....	43,060.89	
Heating and Lighting .....	49,831.09	
Repairs and Installation .....	23,816.94	
Special Repairs .....	1,314.50	
Legal Services .....	2,344.76	
Pension Fund .....	37,766.10	
Group Life Insurance .....	9,965.47	
Financial Administration .....	49,974.43	
Natural History Magazine Cost .....	38,991.24	
Interest on Bank Loan .....	1,888.05	\$310,153.01

## Scientific and Research:

Astronomy .....	\$ 97.73	
Geology and Invertebrate Palaeontology .....	5,871.73	
Mineralogy .....	2,850.04	
Mammalogy .....	8,042.33	
Ornithology .....	4,129.20	
Vertebrate Palaeontology .....	17,495.32	
Comparative Anatomy .....	5,025.77	
Anthropology .....	7,357.34	
Ichthyology .....	3,746.62	
Herpetology .....	5,172.83	
Experimental Biology .....	4,088.41	
Living Invertebrates .....	5,606.84	
Entomology .....	4,369.91	
Library .....	19,670.76	93,524.83

## Printing, Books and Publications:

Printing and Publishing .....	18,052.20
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## Preparation and Exhibition:

Preparation and Exhibition .....	1,205.14
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## Educational—Public School Work:

Public Education .....	49,968.81
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## New York State Roosevelt Memorial Building:

Administration .....	\$ 8.75	
General Supplies and Expenses .....	615.75	
Heating and Lighting .....	213.21	
Repairs and Installation .....	59.06	896.77

Total Net Disbursements for the Development of All Departments... \$473,800.76

Excess of Receipts over Disbursements ..... \$ 599.31

Contributions for General Purposes, 1937 ..... 3,000.00

Available Cash Balance, December 31, 1936..... \$3,599.31

\$477,400.07

## ALLOCATION OF BANK LOAN

## Balance, December 31, 1936:

Cash .....	\$50,288.08
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## 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
		\$273,599.31

## Less:

Available Cash Balance for 1937 .....	3,599.31
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Balance, Bank Loan, December 31, 1936 ..... \$250,000.00

*Report of the Treasurer***MORRIS K. JESUP FUND ACCOUNT\*****RECEIPTS, 1936**

Balance, January 1, 1936:

Cash .....		<b>\$8,673.00</b>
Trustees' Restricted Funds:		
Income from Morris K. Jesup Fund.....	<b>\$256,473.38</b>	
Sale of Publications .....	<b>1,700.23</b>	
Sales and Exchanges .....	<b>192.90</b>	

**Total Net Receipts for the Development of All Departments.....** **\$258,366.51**
**\$267,019.51**
**Disbursements, 1936**

Scientific and Research:

Geology and Invertebrate Palæontology.....	<b>\$7,018.11</b>	
Mineralogy .....	<b>5,644.49</b>	
Mammalogy .....	<b>14,536.39</b>	
Ornithology .....	<b>24,653.98</b>	
Vertebrate Palæontology .....	<b>17,242.04</b>	
President Osborn's Science Fund .....	<b>4,152.22</b>	
Comparative Anatomy .....	<b>11,666.75</b>	
Anthropology .....	<b>20,345.19</b>	
Ichthyology .....	<b>13,880.88</b>	
Herpetology .....	<b>3,642.80</b>	
Experimental Biology .....	<b>11,610.31</b>	
Living Invertebrates .....	<b>7,634.86</b>	
Entomology .....	<b>18,629.00</b>	
Library .....	<b>6,272.87</b>	<b>\$166,929.89</b>

Printing, Books and Publications:

Printing and Publishing .....		<b>26,349.10</b>
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Preparation and Exhibition:

Preparation and Exhibition .....	<b>\$42,725.57</b>	
Living Invertebrates—Preparation .....	<b>14,623.69</b>	
Vertebrate Palæontology—Preparation .....	<b>16,391.26</b>	<b>73,740.52</b>

**Total Net Disbursements for the Development of All Departments...** **\$267,019.51**
**\$267,019.51**

\*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, 1936

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
<b>Astronomy</b>				
Astronomic Fund .....	\$1.73		\$1.73	
Harvard-M. I. T.-American Museum Siberian Polar Eclipse Expedition Fund: Charles Hayden .....		\$2,500.00	2,455.82	\$44.18
Payments .....				
Totals .....	\$1.73	\$2,500.00	\$2,457.55	\$44.18
<b>Geology and Invertebrate Palaeontology</b>				
Meteorite Fund .....	31.74			31.74
Varve Clay Investigation Fund .....	16.51			
Refund .....		25.00		
Payments .....			16.51	25.00
Totals .....	\$48.25	\$25.00	\$16.51	\$56.74
<b>Mineralogy</b>				
Matilda W. Bruce Fund.....	15.12			
Interest .....		.59		
Payments .....			10.20	5.51
Mineral Hall Fund:				
Mrs. Edith H. de Long....		1,530.00		
Payments .....			1,530.00	
The Boyce Thompson Mineral Collection Fund .....	9,825.00			
Interest .....		2,315.23		
Payments .....			10,950.00	1,190.23
The Boyce Thompson Min- eral Collection Installa- tion Fund.....	969.63			
Interest .....		991.09		
Payments .....			1,714.13	246.59
Wallace Memorial Fund.....	40.60			
Interest .....		537.50		
Payments .....			523.00	55.10
Totals .....	\$10,850.35	\$5,374.41	\$14,727.33	\$1,497.43
<b>Mammalogy</b>				
Archbold Mammal Fund.....	17.32			
Richard Archbold .....		78,224.56		
Payments .....			78,162.90	78.98

## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Davison Alberta Expedition Fund:				
Henry P. Davison .....		176.25		
Payments .....			176.25	
Harkness British Columbia Fund:				
Edward S. Harkness.....		750.00		
W. A. Sawyer.....		500.00		
Harley L. Stowell.....		500.00		
Payments .....			1,408.68	
		1,750.00	1,408.68	341.32
Mammal Fund .....	294.82			
Childs Frick Corporation..		2,000.00		
Payments .....			1,212.50	1,082.32
McConnell Wyoming Expedi- tion Fund:				
Robert E. McConnell.....		2,500.00		
Payments .....			1,865.54	634.46
McCloy North American Mammal Fund .....	100.00			
Payments .....			100.00	
Newsom-Watson Anticosti Is- land Expedition Fund:				
William Monypeny Newsom		725.00		
Earle F. Watson.....		725.00		
Payments .....			1,450.00	
		1,450.00	1,450.00	
Ottley-Anthony Sudan Expe- dition Fund .....	1,772.71			
Payments .....			15.16	1,757.55
Patterson Grand Canyon Ex- pedition Fund:				
Morehead Patterson .....		500.00		
Payments .....			156.65	343.35
Rumsey British Columbia Ex- pedition Fund:				
E. Roland Harriman.....		\$150.00		
John P. Meade.....		109.67		
Bronson H. Rumsey.....		4,700.00		
Payments .....			\$3,967.78	
		4,959.67	3,967.78	991.89

## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Snyder Canadian Expedition Fund .....	156.83			
Harry Snyder .....		1,140.79		
Payments .....			1,297.62	
Special Canine Fund.....	128.18			128.18
Special North American Mam- mal Fund:				
Robert Earl McConnell Foundation .....		2,000.00		2,000.00
Stillman-Durrell Alaska Expe- dition Fund:				
J. A. Stillman.....		2,665.40		
Payments .....			2,665.40	
Vernay Artists Fund:				
Arthur S. Vernay.....		500.00		
Payments .....			492.25	7.75
Totals .....	\$2,469.86	\$97,866.67	\$92,970.73	\$7,365.80
<b>Asiatic Exploration and Research</b>				
Central Asiatic Expeditions Fund .....	3,564.17			
Roy C. Andrews.....		2,000.00		
Wilhelmina C. Andrews...		5,000.00		
Townsend Lawrence.....		200.00		
Julius F. Stone.....		500.00		
George W. Vaillant.....		15.00		
Payments .....			8,468.02	2,811.15
Sale of Publications.....	128.31	285.78		
Payments .....			15.91	398.18
Totals .....	\$3,692.48	\$8,000.78	\$8,483.93	\$3,209.33
<b>Ornithology</b>				
Alpine Group Fund.....	\$148.51			
Mrs. Carl Tucker.....		\$1,500.00		
Payments .....			\$1,648.51	
Barro Colorado Island Fund:				
Mrs. Carl Tucker.....		300.00		
Payments .....			300.00	
Bird Photographic Fund.....	18.40			
C. R. Carpenter.....		15.00		
Frank M. Chapman.....		28.00		
Payments .....			50.02	11.38
Totals .....	18.40	43.00	50.02	11.38

**SPECIAL FUNDS ACCOUNT (Continued)**

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Cutting-Whitney Fund.....	1,140.28			
Transferred to Anthropol- ogy .....			1,140.28	
Olalla Fund .....	225.00			225.00
Ornithological Fund .....	3.77			
Frank M. Chapman.....		100.00		
Elsie M. B. Naumburg....		100.00		
L. C. Sanford.....		33.00		
Payments .....			233.85	
	3.77	233.00	233.85	2.92
Margaret Olivia Sage Fund..	427.27			
Interest .....		424.00		
Payments .....			3.35	847.92
Harry Payne Whitney Memor- ial Fund .....	2,200.00			
A. G. C. Sage.....		2,500.00		
Henry W. Sage.....		2,500.00		
Payments .....			3,290.05	
	2,200.00	5,000.00	3,290.05	3,909.95
Whitney-Rothschild Installa- tion Fund .....	6,819.96			
Mrs. Gertrude Vanderbilt Whitney .....		5,000.00		
Payments .....			11,501.87	318.09
Whitney South Sea Expedition Fund .....	9,953.80			
Payments .....			2,201.71	7,752.09
Totals .....	\$20,936.99	\$12,500.00	\$20,369.64	\$13,067.35
<b>Vertebrate Palaeontology</b>				
American Museum-Sinclair Dinosaur Expedition Fund	\$620.56			
Refund .....		\$305.97		\$926.53
American Pliocene Fund — Vertebrate Palaeontology.	3,280.22			
Childs Frick Corporation...		29,500.00		
Payments .....			26,596.52	6,183.70
Osborn Palaeontologic Research Fund .....	126.31			
Interest .....		147.60		
Payments .....			194.00	79.91

**SPECIAL FUNDS ACCOUNT (Continued)**

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Scarritt Patagonian Expedi- tion Fund .....	58.44			
Payments .....			58.44	
Third Scarritt Expedition Fund .....	137.97			
Sale of Specimen.....		1,500.00		
Payments .....			1,303.73	334.24
Vertebrate Palæontology Field Fund .....	2,454.66			
Interest .....		1,214.42		
Payments .....			300.00	3,369.08
Vertebrate Palæontology Prep- aration Fund .....	344.44			344.44
Vertebrate Palæontology Spe- cial Fund .....	172.18			
Interest .....		34.50		206.68
Totals .....	\$7,194.78	\$32,702.49	\$28,452.69	\$11,444.58
Comparative Anatomy				
James Arthur Research Fund..	162.38			
Interest .....		1,505.00		
Payments .....			1,474.88	192.50
Baluchitherium Fund:				
Childs Frick Corporation..		1,000.00		
Payments .....			1,000.00	
Columbia University African Fund .....	\$1,000.00			
Payments .....			\$100.00	\$900.00
Comparative Anatomy Fund..	1,033.50			
Childs Frick Corporation..		1,000.00		
Harry C. Raven.....		300.00		
Mrs. Marion Brown Shelton		675.00		
Payments .....			1,334.36	
	1,033.50	1,975.00	1,334.36	1,674.14
Introduction to Anatomy Fund	118.52			118.52
Totals .....	\$2,314.40	\$4,480.00	\$3,909.24	\$2,885.16
Anthropology				
Andean Fund:				
Mrs. Truxtun Beale.....		1,500.00		1,500.00
Anthropology Fund .....	313.00			313.00

## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Anthropology Special Fund..	22.17			
Interest .....		34.50		56.67
Cutting-Whitney Fund:				
Transferred from Ornithology .....		1,140.28		
Payments .....			1,140.28	
Keith Collection Fund:				
Clarence L. Hay.....		1,925.00		
Payments .....			1,925.00	
Middle American Research Fund .....	300.00			
Clarence L. Hay.....		925.00		
Sales .....		1.25		
Payments .....			1,226.25	
	300.00	926.25	1,226.25	
Physical Anthropology Fund.	852.35			
Interest .....		477.88		
Payments .....			286.50	1,043.73
Physical Anthropology of Quebec Fund .....	140.00			140.00
South Pacific Exploration Fund .....	\$1,395.00			
Payments .....			\$1,395.00	
Swazi Village Fund:				
Mrs. Bryce Turner.....		200.00		
Payments .....			200.00	
Tibetan Expedition Fund:				
C. Suydam Cutting.....		400.00		
Payments .....			400.00	
University of Hawaii Research Fund:				
Harvard University .....		519.30		
Payments .....			412.25	107.05
Frederick G. Voss Anthropology and Archaeology Fund .....	1,738.32			
Interest .....		13,276.11		
Payments .....			12,521.72	2,492.71
Amelia Elizabeth White Fund:				
Miss Amelia Elizabeth White .....		150.00		150.00
Totals .....	\$4,760.84	\$20,549.32	\$19,507.00	\$5,803.16



## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
<b>Ichthyology</b>				
Bashford Dean Ichthyological Library Fund .....	97.98			
Interest .....		203.59		
Payments .....			161.72	139.85
<b>Lerner Cape Breton Expedi- tion Fund:</b>				
Michael Lerner .....		14,681.64		
Payments .....			14,619.85	61.79
<b>Lerner Tuna Group Fund:</b>				
Michael Lerner .....		1,000.00		
Payments .....			848.18	151.82
<b>Morden Caranx Fund:</b>				
William J. Morden.....		\$6,600.00		
Payments .....			\$5,627.06	\$972.94
<b>Purchase of Fish Specimens Fund .....</b>	139.25			
Payments .....			34.90	104.35
<b>Whale Shark Fund .....</b>	250.81			
Charles T. Wilson.....		500.00		
Payments .....			750.81	
<b>Totals .....</b>	<b>\$488.04</b>	<b>\$22,985.23</b>	<b>\$22,042.52</b>	<b>\$1,430.75</b>
<b>Herpetology</b>				
Fletcher Field Fund.....	164.96			
Daniel C. Pease.....		300.00		
Payments .....			464.96	
<b>Totals .....</b>	<b>164.96</b>	<b>300.00</b>	<b>464.96</b>	
<b>Experimental Biology</b>				
Josiah Macy, Jr. Foundation Fund .....	3,607.34			
Josiah Macy, Jr. Foundation Payments .....		2,000.00		
			1,275.08	4,332.26
<b>National Council of Jewish Women Fund:</b>				
National Council of Jewish Women .....		500.00		
Payments .....			333.28	166.72
<b>National Research Council Fund:</b>				
National Research Council		900.00		900.00
<b>Totals .....</b>	<b>\$3,607.34</b>	<b>\$3,400.00</b>	<b>\$1,608.36</b>	<b>\$5,398.98</b>

## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
<b>Living Invertebrates</b>				
Templeton Crocker South Sea Cruise Fund:				
Templeton Crocker .....		10,000.00		
Payments .....			10,000.00	
<b>Pearl Fisheries Expedition Fund:</b>				
Vincent Astor .....		\$150.00		
Wylls Rosseter Betts, Jr. ....		678.37		
George T. Bowdoin .....		150.00		
Templeton Crocker .....		1,074.80		
Clarence L. Hay .....		150.00		
Junius S. Morgan .....		150.00		
Mrs. Charles S. Payson .....		150.00		
Mrs. Johnston L. Redmond .....		150.00		
Cornelius V. Whitney .....		150.00		
George Whitney .....		150.00		
Mrs. Payne Whitney .....		150.00		
Payments .....			3,103.17	
		3,103.17	3,103.17	
<b>Totals .....</b>		<b>\$13,103.17</b>	<b>\$13,103.17</b>	
<b>Entomology</b>				
Entomological Fund .....	1,847.47			
Cyril F. dos Passos .....		15.00		
Owen S. Paxson .....		100.00		
David Rockefeller .....		324.00		
Mrs. William Sanford .....		50.00		
Miss Emilie E. Schwarz .....		100.00		
Herbert F. Schwarz .....		20.00		
Payments .....			721.59	
	1,847.47	609.00	721.59	1,734.88
<b>Lepidoptera Fund .....</b>	<b>729.70</b>			
F. Trubee Davison .....		100.00		
Cyril F. dos Passos .....		504.00		
William Procter .....		500.00		
Payments .....			1,329.70	
	729.70	1,104.00	1,329.70	504.00
<b>Totals .....</b>	<b>\$2,577.17</b>	<b>\$1,713.00</b>	<b>\$2,051.29</b>	<b>\$2,238.88</b>
<b>Library</b>				
Anson W. Hard Library Fund:				
Interest .....		212.00		
Payments .....			212.00	
<b>Purchase of Books Fund .....</b>	<b>22.00</b>			
Payments .....			22.00	

## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Ralph Winfred Tower Memorial Fund:				
Interest .....		1,073.47		
Payments .....			1,073.47	
Totals .....	\$22.00	\$1,285.47	\$1,307.47	
Printing and Publishing				
Anthropological Handbook Fund .....	\$2,013.40			
Sales .....		\$881.17		\$2,894.57
Brewster Sanford Publication Fund .....	\$,014.87			
Sales .....		7,601.23		
Payments .....			12,182.04	434.06
Mammal Publication Fund...	211.24			
Payments .....			211.24	
Naumburg Publication Fund..	450.00			
Payments .....			450.00	
Totals .....	\$7,689.51	\$8,482.40	\$12,843.28	\$3,328.63
Public Education				
Bear Mountain Trailside Museum Fund .....	51.14			
Commissioners of Palisades Interstate Park Commission .....		826.06		
Payments .....			877.20	
Carnegie Corporation of New York Fund .....	2,265.18			
Payments .....			1,523.61	741.57
Educational Lecture Fund:				
Tuition Fees .....		207.20		
Payments .....			207.20	
Laboratory School Fund.....	88.79			
Lecture Fees .....		42.07		130.86
Nature Trails Fund.....	36.86			
Miss Ruth Blossom.....		25.00		
George Doe Scott.....		5.00		
Contributions from Children of Members .....		52.00		
Payments .....			118.86	
	36.86	82.00	118.86	
Pupil-Parent Fund .....	\$184.44			
Childs Frick Corporation..		\$4,000.00		
Payments .....			\$2,000.00	\$2,184.44

**SPECIAL FUNDS ACCOUNT (Continued)**

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
School Fund .....	189.02			
Subscription .....		10.00		
Guide Service .....		40.50		
	<hr/> 189.02	<hr/> 50.50	<hr/>	<hr/> 239.52
Special Education Fund.....	5,172.79			
Felix M. Warburg.....		5,000.00		
Frederick M. Warburg....		1,000.00		
Payments .....			4,936.48	
	<hr/> 5,172.79	<hr/> 6,000.00	<hr/> 4,936.48	<hr/> 6,236.31
Jonathan Thorne Memorial Fund .....	2,120.39			
Interest .....		1,100.22		
Payments .....			979.67	2,240.94
	<hr/>	<hr/>	<hr/>	<hr/>
Totals .....	<hr/> \$10,108.61	<hr/> \$12,308.05	<hr/> \$10,643.02	<hr/> \$11,773.64
<b>Preparation and Exhibition</b>				
African Elephant Preparation Fund .....	144.97			
Payments .....			144.97	
	<hr/>	<hr/>	<hr/>	<hr/>
African Hall Group Fund...	33,623.23			
William Hanemann .....		10.00		
Henry W. Sage.....		4,000.00		
Dividends .....		285.00		
Transferred from Wild Dog Group Fund .....		960.73		
Payments .....			20,209.28	
	<hr/> 33,623.23	<hr/> 5,255.73	<hr/> 20,209.28	<hr/> 18,669.68
Black Rhino Group Prepara- tion Fund:				
William D. Campbell.....		7,500.00		
Payments .....			1,548.65	5,951.35
	<hr/>	<hr/>	<hr/>	<hr/>
Blue Marlin Group Fund....	1,000.00			
Payments .....			799.39	200.61
	<hr/>	<hr/>	<hr/>	<hr/>
Campbell African Expedition Fund:				
William D. Campbell.....		\$10,000.00		
Payments .....			\$10,000.00	
	<hr/>	<hr/>	<hr/>	<hr/>
Davison India Expedition Fund .....	4.71			
F. Trubee Davison.....			10,185.83	
Payments .....		10,181.12		
	<hr/>	<hr/>	<hr/>	<hr/>

## SPECIAL FUNDS ACCOUNT (Continued)

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Fleischmann-Clark Indo-China Expedition Fund: Major Max C. Fleischmann Payments .....		1,980.06	1,980.06	
Giant Panda Group Fund.... Dean Sage .....	2,000.00	3,000.00	582.06	4,417.94
Payments .....				
Okapi Group Fund..... Payments .....	866.57		128.93	737.64
Okapi Group Preparation Fund: William D. Campbell.....		12,500.00		12,500.00
Ostrich and Wart Hog Group Fund: Philip M. Plant..... Refund .....		10,000.00 65.00	10,000.00	
Payments .....				
		10,065.00	10,000.00	65.00
South African Group Fund: Arthur S. Vernay..... Payments .....		5,000.00	4,268.77	731.23
Wild Dog Group Fund..... Payments .....	4,813.31		3,852.58	
Transferred to African Hall Group Fund .....			960.73	
	4,813.31		4,813.31	
Totals .....	\$42,452.79	\$65,481.91	\$64,661.25	\$43,273.45
Preparation and Exhibition— Living Invertebrates — Preparation Pearl Fisheries Group Fund: Mrs. Edith H. de Long...		8,470.00		8,470.00
Totals .....		\$8,470.00		\$8,470.00
Administration Administration Fund: F. Trubee Davison..... Payments .....		3,436.79	2,627.85	808.94

**SPECIAL FUNDS ACCOUNT (Continued)**

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Frederick M. Warburg Special Fund:				
Frederick M. Warburg....		500.00		
Payments .....			500.00	
Totals .....		<u>\$3,936.79</u>	<u>\$3,127.85</u>	<u>\$808.94</u>
Balance, January 1, 1936.....	\$119,380.10			
Total net receipts for the development of specific departments .....		\$325,464.69		
Total net disbursements for the development of specific departments .....			\$322,747.79	
Balance, December 31, 1936..				\$122,097.00
Totals .....	<u>\$119,380.10</u>	<u>\$325,464.69</u>	<u>\$322,747.79</u>	<u>\$122,097.00</u>

**SPECIAL FUNDS ACCOUNT—1936****SUMMARY**

	Balance Jan. 1	Receipts	Disbursements	Balance Dec. 31
Astronomy .....	\$ 1.73	\$ 2,500.00	\$ 2,457.55	\$ 44.18
Geology and Invertebrate Palaeontology .....	48.25	25.00	16.51	56.74
Mineralogy .....	10,850.35	5,374.41	14,727.33	1,497.43
Mammalogy .....	2,469.86	97,866.67	92,970.73	7,365.80
Asiatic Exploration and Research .....	3,692.48	8,000.78	8,483.93	3,209.33
Ornithology .....	20,936.99	12,500.00	20,369.64	13,067.35
Vertebrate Palaeontology .....	7,194.78	32,702.49	28,452.69	11,444.58
Comparative Anatomy .....	2,314.40	4,480.00	3,909.24	2,885.16
Anthropology .....	4,760.84	20,549.32	19,507.00	5,803.16
Ichthyology .....	488.04	22,985.23	22,042.52	1,430.75
Herpetology .....	164.96	300.00	464.96	
Experimental Biology .....	3,607.34	3,400.00	1,608.36	5,398.98
Living Invertebrates .....		13,103.17	13,103.17	
Entomology .....	2,577.17	1,713.00	2,051.29	2,238.88
Library .....	22.00	1,285.47	1,307.47	
Printing and Publishing .....	7,689.51	8,482.40	12,843.28	3,328.63
Public Education .....	10,108.61	12,308.05	10,643.02	11,773.64
Preparation and Exhibition....	42,452.79	65,481.91	64,661.25	43,273.45
Preparation and Exhibition— Living Invertebrates— Preparation .....		8,470.00		8,470.00
Administration .....		3,936.79	3,127.85	808.94
Totals .....	<u>\$119,380.10</u>	<u>\$325,464.69</u>	<u>\$322,747.79</u>	<u>\$122,097.00</u>

THE AMERICAN MUSEUM OF NATURAL HISTORY

CORPORATE STOCK ACCOUNT

1936

**Receipts:**

Department of Parks, City of New York:	
C. D. P. 122A.....	<u>\$45,462.38</u>

**Disbursements:**

Payroll of Mechanics, etc. ....	<u>\$45,462.38</u>
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INCIDENTAL ACCOUNT

1936

Balance, January 1, 1936 .....	\$ 3,588.23
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**Receipts:**

Individuals and Societies .....	14,778.43
Group Life Insurance:	
Employees' Premium Payments.....	\$10,447.69
Loans .....	5,084.03
	<u>15,531.72</u>

**Committee on Popular Publications:**

Revolving Fund .....	\$ 2,400.00
Sales .....	185.88
	<u>2,585.88</u>
	<u>\$36,484.26</u>

**Disbursements:**

Individuals and Societies .....	\$15,327.95
Group Life Insurance:	
Premiums .....	\$11,030.09
Loan Instalments .....	4,501.63
	<u>15,531.72</u>

**Committee on Popular Publications:**

Purchases .....	1,567.61
Balance, December 31, 1936 .....	4,056.98
	<u>\$36,484.26</u>

All the foregoing accounts have been

Examined and	{	OGDEN L. MILLS	}	Auditing Committee.
Approved		CORNELIUS V. WHITNEY		
		H. RIVINGTON PYNE		

E. and O. E.

NEW YORK, December 31, 1936.

E. ROLAND HARRIMAN, *Treasurer.*

ADAMS, COBB & 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, 1936.

According to the usual custom, certain collections to and including January 21, 1937 have been treated as of December 31, 1936, 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 2, 1937.

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, COBB & BECKER

Certified Public Accountants.

New York, February 20, 1937.



TREASURER'S REPORT  
OF THE  
PENSION FUND  
OF  
THE AMERICAN MUSEUM OF NATURAL HISTORY  
FOR THE YEAR 1936

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INVESTED FUNDS

SUMMARY

	Par Value	Book Value
Investment Fund No. 1.....	\$ 852,191.63	\$ 837,367.74
Investment Fund No. 2.....	427,000.00	436,986.75
Endowment Fund .....	1,258.37	1,140.39
	<hr style="border-top: 1px solid black;"/> \$1,280,450.00 <hr style="border-top: 3px double #000;"/>	<hr style="border-top: 1px solid black;"/> \$1,275,494.88 <hr style="border-top: 3px double #000;"/>

## PENSION FUND ACCOUNT

## Receipts, 1936

Balance, January 1, 1936 .....			\$84,664.34
Contributions by Subscribing Employees:			
Deductions of 4% from Payrolls of			
All Accounts .....	\$39,374.66		
Personal Payments by Subscribing Employees....	2,204.61	\$41,579.27	
Contributions to Equal Payments of Subscribing Employees:			
Board of Trustees .....	\$38,409.71		
Museum Restaurant .....	302.92		
Natural History Magazine .....	298.14		
Junior Natural History Magazine .....	65.98		
Museum Book Shop .....	159.23		
The Planetarium Authority .....	2,343.29	41,579.27	83,158.54
Contributions by Reinstated Subscribing Employees and Interest Thereon:			
Contributions Previously Refunded Employees.....	\$2,431.19		
Interest on Contributions Previously Refunded.....	248.33		
Interest on Contributions and Interest Returned.....	161.19		
Interest on Deferred Contributions .....	67.88		2,908.59
Income:			
Investment Fund No. 1:			
Interest on Securities .....	\$36,817.66		
Operating 512 West 153rd Street, N. Y. C.....	210.46		
Investment Fund No. 2:			
Interest on Securities .....	3,428.32		
Endowment Fund:			
Interest on Securities.....	50.34	40,506.78	
Total Operation Receipts .....		\$126,573.91	
Proceeds of Securities Sold and Redeemed:			
Investment Fund No. 1 .....		190,525.00	
Special Contribution by the Trustees of			
The American Museum of Natural History:			
Investment Fund No. 2 .....		437,000.00	
			<u>\$838,763.25</u>

Examined and Approved	{	FREDERICK H. OSBORN	{	Auditing Committee.
		GEORGE T. BOWDOIN		
		JACOB W. SHROPE		

PENSION FUND ACCOUNT

Disbursements, 1936

Payments to Subscribers and Beneficiaries:

Return of Contributions .....	\$ 7,401.46	
Interest on Contributions Returned .....	887.83	\$8,289.29

Service Pensions "A" .....	19,333.56	
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Service Pensions "B" .....	2,178.54	
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Service Pensions "C" .....	21,156.69	
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Pensions in Event of Illness, Dismissal, etc.....	5,235.56	
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Widows' Pensions:

Section 13, Sub. Div. 2 (a) (1932).....	1,053.67	
---	----------	--

Section 16, (e) (1936) .....	940.68	49,898.70
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Death Gratuities:

Section 13, Sub. Div. 2 (a) (1932) .....	\$ 780.00	
--	-----------	--

Section 13, Sub. Div. 1 (b) (1936) .....	1,795.06	2,575.06
--	----------	----------

Total Operation Disbursements .....		\$60,763.05
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Expenses .....		635.10
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Investment Fund No. 1:

Purchase of Securities .....	\$179,615.75	
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Expenditures Necessary to Protect Mortgage Investments:

512 West 153rd Street, N. Y. C.....	\$2,099.58	
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1159 Union Avenue, Bronx, N. Y. ....	250.00	
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606 Madison Street, Brooklyn, N. Y. ....	1.30	2,350.88	181,966.63
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Investment Fund No. 2:

Purchase of Securities .....		436,986.75
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Balance, December 31, 1936:

On Hand .....	\$10,217.66	
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On Deposit with The National City Bank of New York,		
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79th Street Branch .....	148,194.06	158,411.72
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		<u>\$838,763.25</u>
--	--	---------------------

E. & O. E.

NEW YORK, December 31, 1936.

E. ROLAND HARRIMAN, *Treasurer.*

## PENSION FUND—SPECIAL FUNDS ACCOUNT

## Receipts, 1936

## Welfare Fund:

Balance, January 1, 1936 .....	\$420.05
Refunds from Secretary and Individuals .....	574.25
	<hr/>
	\$994.30
	<hr/>

Examined and { FREDERICK H. OSBORN }  
 Approved { GEORGE T. BOWDOIN } Auditing Committee.  
 { JACOB W. SHROPE }

## Disbursements, 1936

## Welfare Fund:

Assistance and Relief .....	\$247.00
Balance, December 31, 1936:	
On Deposit with The National City Bank of New York, 79th Street Branch .....	747.30
	<hr/>
	\$994.30
	<hr/>

E. &amp; O. E.

NEW YORK, December 31, 1936.

E. ROLAND HARRIMAN, *Treasurer.*

ADAMS, COBB & 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, 1936.

According to the usual custom, certain collections to and including January 4, 1937 have been treated as of December 31, 1936 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 2, 1937.

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

(Signed) ADAMS, COBB & BECKER  
Certified Public Accountants.

New York, January 30, 1937.



## V. MEMBERSHIP AND PERSONNEL

CLARENCE L. HAY, Secretary

WAYNE M. FAUNCE, Executive Secretary

During 1936, 3,416 persons applied for membership in the Museum and their names were added to our membership rolls. This increase, which ranks as the second highest ever attained, leads in the number of higher class members enrolled. Deaths and resignations, however, exacted a heavy toll, to the extent of 4,188.

The total membership enrolment on December 31, 1936, was 18,137, classified as follows:

Endowment Members .....	10	Fellows .....	100
Benefactors .....	23	Honorary Life Members.....	83
Associate Founders .....	27	Life Members .....	1,086
Associate Benefactors .....	53	Corresponding Members .....	22
Patrons .....	217	Sustaining Members .....	198
Honorary Fellows .....	17	Annual Members .....	3,446
Associate Members .....		12,855	

One of the gala events on the membership calendar during the year was the Eighth Annual Members' Visiting Day, May the nineteenth. The occasion of Members' Visiting Day was the dedication of the Akeley Memorial Hall of African Mammals, celebrating Mr. Akeley's birthday. Nearly 1,400 members and guests, seated in the beautiful rotunda of the Theodore Roosevelt Memorial, adjacent to Akeley Hall, were addressed by President F. Trubee Davison and by Mr. Daniel E. Pomeroy, Trustee, intimate friend, who financed several of Mr. Akeley's expeditions to Africa, and accompanied him on one expedition. Mr. Pomeroy, on behalf of the Trustees, officially gave the Hall to the Museum, and President Davison accepted this inspiring and lasting gift, eulogizing Mr. Akeley's inestimable contribution to mankind as naturalist, inventor and explorer.

The Members' Lectures, held on Thursday evenings, four in the spring and four in the fall, were well attended. The Lectures for the Children of Members, conducted on four alternate Saturday mornings in the spring and four in the fall, were also very popular and of great educational value.

In the Know Your Museum Series, Dr. Chester A. Reeds, Curator of Geology and Invertebrate Palæontology, conducted four lectures in the spring for members, on "The Earth and its Dynamic Forces," and Dr. Robert Cushman Murphy, Associate Curator of Oceanic Birds, gave four lectures in the fall on "The World of Birds." These lectures were informal talks followed by walks through the Museum halls, in order that members might better enjoy and appreciate the exhibits.

Members received invitations to attend the annual display by the Horticultural Society of New York on November the fifth. Invitations were also sent for the Exhibition of Painting, Sculpture and Craft, presented by members of the Museum staff and associated workers in Education Hall, from April twenty-first to May twentieth. Dr. Samuel T. Orton of Columbia University delivered the fifth annual James Arthur Lecture on The Evolution of the Human Brain, on Friday evening, May the fifteenth, the subject being "The Language Area of the Human Brain and Some of Its Disorders."

### THE BOARD OF TRUSTEES

At the Annual Meeting, January 13, 1936, the following officers were re-elected: 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 whose terms expired at the Annual Meeting were re-elected to the Class of 1940: George T. Bowdoin, Cornelius V. Whitney, J. P. Morgan, Daniel E. Pomeroy, Henry W. Sage, and H. Rivington Pyne.

At the Trustees' meeting of November 9, 1936, Mr. Charles Hayden was elected to the Class of 1939, to fill the vacancy due to the death of Professor Henry Fairfield Osborn, which occurred on November 6, 1935.

The ex-officio members of the Board of Trustees are the Mayor, the Comptroller and the Commissioner of Parks of the City of New York.

### THE SCIENTIFIC STAFF

At the Annual Meeting of the Trustees, January 13, 1936, the following changes in the Scientific Staff were authorized:

Mr. Charles A. Federer, Jr., was appointed Staff Assistant in the Department of Astronomy and the Hayden Planetarium.



Frederick H. Pough, Ph.D., was appointed Assistant Curator in the Department of Mineralogy.

C. H. Curran, D.Sc., was promoted from Assistant Curator to Associate Curator in the Department of Entomology.

G. Miles Conrad, B.A., was appointed Assistant Curator in the Department of Comparative and Human Anatomy.

The following appointments were not renewed: Mr. L. Wales Holden, Staff Assistant, Department of Education, and Frank E. Lutz, Ph.D., Research Associate in Outdoor Education, Department of Education.

The title of Mr. William H. Carr was changed from Assistant Curator to Assistant Curator (Outdoor Education).

Mr. John R. Saunders was promoted from Staff Assistant to Assistant Curator in the Department of Education.

Mr. Raymond B. Potter and Mr. Robert H. Rockwell were appointed Staff Associates in the Department of Arts, Preparation and Installation.

The appointment of Mr. Tom Davin as Manager of Publications and Printing in the Department of Printing and Publishing was terminated as of January 1, 1936, and his appointment as Manager in the Department of Natural History was terminated, to take effect April 30. The appointment of Miss A. Katherine Berger, Associate Editor of Natural History, was terminated, taking effect April 30.

The decease of Frank S. Mathews, M.D., Research Associate in the Department of Experimental Biology, occurred on February 18, 1936.

On March 19 the following changes were made:

William Etkin, Ph.D., and R. H. Root, Ph.D., were appointed Research Associates in the Department of Experimental Biology.

On April 23, 1936, Mr. William D. Campbell was appointed Field Representative in the Department of Mammalogy.

On June 16, the title of C. H. Curran, D.Sc., was changed from Associate Curator in the Department of Entomology, to Associate Curator of Diptera, and the title of Willis J. Gertsch, Ph.D., was changed from Assistant Curator to Assistant Curator of Spiders, in the same department.

On October 15, George D. Pinkley, Ph.D., was appointed James Arthur Research Assistant in the Department of Comparative and Human Anatomy, and Mr. Michael Lerner was appointed Field Associate in the Department of Living and Extinct Fishes.

On November 9, Cyril F. dos Passos, LL.B., was appointed Research Associate in Lepidoptera. The appointments of Homer W. Smith, Sc.D., and R. H. Root, Ph.D., Research Associates in the Department of Experimental Biology, were discontinued, and on this date Libbie H. Hyman, Ph.D., and R. E. Bowen, Ph.D., were appointed Research Associates in this Department.

## VI. APPENDIX

### ADMINISTRATION OF THE YEAR 1936

#### BOARD OF TRUSTEES

##### President\*

F. TRUBEE DAVISON

##### First Vice-President

J. P. MORGAN

##### Second Vice-President

CLEVELAND E. DODGE

##### Treasurer

E. ROLAND HARRIMAN

##### Secretary

CLARENCE L. HAY

#### ELECTIVE TRUSTEES

##### Class of 1936

DOUGLAS BURDEN

E. ROLAND HARRIMAN

CLEVELAND E. DODGE

JOHN D. ROCKEFELLER, 3rd

CHILDS FRICK

LEONARD C. SANFORD

##### Class of 1937

F. TRUBEE DAVISON

CLARENCE L. HAY

LINCOLN ELLSWORTH

OGDEN L. MILLS

MADISON GRANT

WILLIAM K. VANDERBILT

##### Class of 1938

GEORGE F. BAKER

A. PERRY OSBORN

ARCHER M. HUNTINGTON

KERMIT ROOSEVELT

JUNIUS S. MORGAN

FREDERICK M. WARBURG

##### Class of 1939

CHAUNCEY J. HAMLIN

ARTHUR S. VERNAY

SUYDAM CUTTING

A. HAMILTON RICE

FREDERICK H. OSBORN

CHARLES HAYDEN

##### Class of 1940

GEORGE T. BOWDOIN

DANIEL E. POMEROY

CORNELIUS V. WHITNEY

HENRY W. SAGE

J. P. MORGAN

H. RIVINGTON PYNE

#### EX-OFFICIO TRUSTEES

FIGEOLLO H. LA GUARDIA

(MAYOR OF THE CITY OF NEW YORK)

FRANK J. TAYLOR

(COMPTROLLER OF THE CITY OF NEW YORK)

ROBERT MOSES

(COMMISSIONER OF PARKS OF THE CITY OF NEW YORK)

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\*The President is ex-officio a member of all Committees.

**STANDING COMMITTEES OF THE TRUSTEES****Executive Committee**CLEVELAND E. DODGE, *Chairman*

F. TRUBEE DAVISON, <i>ex-officio</i>	JUNIUS S. MORGAN
E. ROLAND HARRIMAN, <i>ex-officio</i>	DANIEL E. POMEROY
CLARENCE L. HAY, <i>ex-officio</i>	OGDEN L. MILLS
GEORGE T. BOWDOIN	KERMIT ROOSEVELT
CHILDS FRICK	A. PERRY OSBORN

**Finance Committee**E. ROLAND HARRIMAN, *Chairman*

GEORGE F. BAKER	A. PERRY OSBORN
FREDERICK M. WARBURG	JUNIUS S. MORGAN
FREDERICK H. SMYTH, <i>Bursar</i>	

**Auditing Committee**

OGDEN L. MILLS, <i>Chairman</i>	CORNELIUS V. WHITNEY
H. RIVINGTON PYNE	

**Nominating Committee**

MADISON GRANT, *Chairman*  
 GEORGE F. BAKER  
 DOUGLAS BURDEN

**Pension Board****Trustee and Employee Members**FREDERICK M. WARBURG, *Chairman*

FREDERICK H. OSBORN	FREDERICK H. SMYTH
GEORGE T. BOWDOIN	JACOB W. SHROPE
A. PERRY OSBORN	H. E. ANTHONY, <i>Secretary</i>

**Counsel to the Board of Trustees**

LEWIS L. DELAFIELD

**GENERAL DEPARTMENTAL COMMITTEE OF THE  
TRUSTEES**

F. TRUBEE DAVISON, <i>Chairman</i>	JUNIUS S. MORGAN
GEORGE T. BOWDOIN	FREDERICK H. OSBORN
DOUGLAS BURDEN	A. HAMILTON RICE
C. SUYDAM CUTTING	JOHN D. ROCKEFELLER, 3rd
CLEVELAND E. DODGE	LEONARD C. SANFORD
CHILDS FRICK	ARTHUR S. VERNAY
CLARENCE L. HAY	FREDERICK M. WARBURG

**Co-ordinating Committee of General Departmental Committee**

FREDERICK H. OSBORN, <i>Chairman</i>
DOUGLAS BURDEN                      CLARENCE L. HAY

**SPECIAL COMMITTEES OF THE TRUSTEES**

**Astronomy and Planetarium**

**A. CRESSY MORRISON, *Chairman***

H. RIVINGTON PYNE	WALDEMAR A. CHADBOURNE
CHARLES J. LIEBMAN	JOHN M. MOREHEAD
O. H. CALDWELL	JOHN I. DOWNEY
JOHN A. KINGSBURY	DUNCAN H. READ
HENRY NORRIS RUSSELL	WALLACE W. ATWOOD
GEORGE ELLERY HALE	LENOX RILEY LOHR
HARLOW SHAPLEY	CHARLES HAYDEN
SAMUEL ALFRED MITCHELL	CLYDE FISHER, <i>Curator</i>

**African Hall and African Collections**

DANIEL E. POMEROY, <i>Chairman</i>	HENRY W. SAGE
A. PERRY OSBORN	H. E. ANTHONY, <i>Curator</i>
KERMIT ROOSEVELT	JAMES L. CLARK, <i>Preparation</i>

**North American Mammals**

**MADISON GRANT, *Chairman***

CHILDS FRICK	JOHN D. ROCKEFELLER, 3rd
DOUGLAS BURDEN	MALCOLM P. ALDRICH
KERMIT ROOSEVELT	H. E. ANTHONY, <i>Curator</i>

**Rothschild Collection**

LEONARD C. SANFORD, <i>Chairman</i>	FRANK M. CHAPMAN, <i>Curator</i>
MRS. GERTRUDE VANDERBILT WHITNEY	ROBERT CUSHMAN MURPHY ERNST MAYR
LORD ROTHSCHILD	ROY CHAPMAN ANDREWS, <i>Director</i>

**Whitney Wing**

LEONARD C. SANFORD, *Chairman*  
 MRS. GERTRUDE VANDERBILT WHITNEY  
 FRANK M. CHAPMAN, *Curator*  
 ROBERT CUSHMAN MURPHY  
 ROY CHAPMAN ANDREWS, *Director*

**Natural History and Membership**

FREDERICK M. WARBURG, <i>Chairman</i>	
CLARENCE L. HAY	CASS CANFIELD
ROBERT L. JOHNSON	F. D. DUKE

**New York State Theodore Roosevelt Memorial****A. PERRY OSBORN, *Chairman***

MRS. W. SHEFFIELD COWLES	ROBERT E. MCCONNELL
FRANK L. CROCKER	MAJOR GENERAL FRANK R. McCoy
MRS. RICHARD DERBY	RICHARD C. PATTERSON
MRS. LEWIS W. DOUGLAS	GEORGE N. PINDAR
JAMES A. GARFIELD	JOHN RUSSELL POPE
JAMES R. GARFIELD	JOHN M. SCHIFF
MRS. WILLIAM H. GOOD	ALFRED E. SMITH
PETER D. KIERNAN	COLONEL HENRY L. STIMSON
DR. ALEXANDER LAMBERT	WILLIAM ALLEN WHITE
LORD LEE OF FAREHAM	

**North Asiatic Hall**

C. SUYDAM CUTTING, <i>Chairman</i>	JAMES L. CLARK
KERMIT ROOSEVELT	H. E. ANTHONY
ARTHUR S. VERNAY	ROY CHAPMAN ANDREWS
WILLIAM J. MORDEN	DEAN SAGE, Jr.
LT. COL. F. M. BAILEY, C.I.E.	THEODORE ROOSEVELT

**ADMINISTRATIVE AND SCIENTIFIC STAFFS FOR  
1936**

**OFFICERS OF ADMINISTRATION**

**Honorary Director**

GEORGE H. SHERWOOD .

**Director**

ROY CHAPMAN ANDREWS .

**Vice-Director and Executive Secretary**

WAYNE M. FAUNCE

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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.

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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.  
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