

THE AMERICAN MUSEUM
OF NATURAL HISTORY

SEVENTY-SECOND ANNUAL REPORT
FOR THE YEAR 1940

SERIAL SCIENTIFIC PUBLICATIONS

NATURAL HISTORY, The Magazine of The American Museum of Natural History:

Volumes I-XLVI, 1900-1940. 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 (\$3.50 Canada, South America, foreign); 50c. a copy.

THE JUNIOR NATURAL HISTORY MAGAZINE:

Volumes I-V, 1936-1940. An illustrated monthly magazine for young readers. \$1.00 a year; 10c. a copy; special rates for schools.

THE SKY, Magazine of Cosmic News. Published by the Sky Publishing Corporation.

Volumes I-IV, no. 1, 1936-1939, published by the Hayden Planetarium of the American Museum of Natural History. An illustrated monthly magazine on astronomy and astronomical subjects. \$2.00 (\$2.50 foreign) a year; 20c. a copy.

BULLETIN of the American Museum:

Volumes I-LXXVII, 1881-1940. Scientific records of explorations and collections of the Museum, in Geology, Palaeontology, Mineralogy, Zoology, and, originally, Anthropology. \$4.00-\$10.00 a volume.

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Volumes I-XXXVII, 1906-1940. 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. 1-1100, 1921-1940. 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 a 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. Covers the entire literature of fishes to 1914 and embraces 45,000 titles arranged alphabetically by authors. Three 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; Article VI, 1937, \$3.50; Article VII, 1940, \$2.50.

(Publications continued on third page of cover.)

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SEVENTY-SECOND ANNUAL REPORT FOR THE YEAR 1940

"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, 1941

EDITED BY RUTH TYLER

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SEVENTY-SECOND ANNUAL REPORT OF THE PRESIDENT

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

TODAY, as never before in modern times, we see the biological principle of "survival of the fittest" distorted into an excuse for mass brutality in total disregard of all the spiritual aspirations built up since the prototypes of modern man appeared in the Glacial Period. "Superior race" is the creed on which Hitlerism thrives. The aim of emergence of species, including man, through ruthless competition is glorified, although cooperation in nature has been demonstrated throughout the ages. Thus we have seen in a dictated Europe the regimentation of the schools, the elimination by death or ostracism of all intellectually honest teachers and leaders, the closing of colleges and universities, the burning of books, and the destruction of museums.

The struggle of the democracies against the dictatorships is not only a fight for freedom to live, a fight to satisfy physical and emotional hunger, but it is just as importantly at present, and even more importantly for the future, a fight for the freedom to think.

In this struggle the museum stands at the forefront of the institutions designed to satisfy intellectual hunger. The museum is not limited like the public school to the young. The museum is not dedicated like the college or university solely to the educated. The museum does not, like the library, serve only the literate. The museum deals with all peoples on all levels and can and does reach out to meet the intellectual hunger of all people of every degree on all levels of intellectual attainment. It is a democracy's most important agency for the spread of honest understanding of life.

During a period when measures of defense of freedom and democracy take shape in the training of men and the production of materials, we must not let the fact be forgotten that in the end the surest defense for democracy is an enlightened people. To this end all possible springs of knowledge must be enlarged and the channels of informa-

tion deepened so that understanding may flow unimpeded to all people who hunger for it.

A distinguished geographer said, "Man alone of all creatures is able to worry about the future and to make provision for meeting problems for which he did not inherit a solution." In other words, man has the unique privilege of being able to think out his own salvation. The real work of the museum is to help people to think in terms of realities and not theories.

The Museum is the one center in which the mighty record of life is preserved. To obtain this record and to house the specimens adequately against the time when many of the species will have vanished from the earth has been, and is, a motivating force of the institution.

But just as important is it to use these vast collections effectively not only for the benefit of pure science but for objective teaching in its exhibition halls. Our chief concern is to meet the needs of a changing and chaotic world in what we teach and how we teach it.

The superb Akeley African Hall has required fifteen years to build and will be completed in 1941. The Hall of North American Mammals is rapidly taking shape, and the Whitney Memorial Hall of Oceanic Birds is more than half completed. The development of the anthropological exhibitions has, however, not kept pace with those of zoology. To correct this the Co-ordinating Committee of the Trustees is preparing a long-range program for revising all the halls below the fourth floor on the 77th Street and Columbus Avenue sides of the building. Here the story of man and his place in nature will be presented by the most modern and selective methods of exhibition while the vast store of materials will still be available for research students.

I wish to speak of one other important project for 1941. No matter what the outcome of the present struggle in Europe may be, it is obvious that the world of the future will be radically different from the one in which we have lived so comfortably during the past. In order to meet the new conditions, as far as they can be predicted, the Trustees have directed that a thorough study be made of the Museum. Every phase of its operation and work will be carefully weighed and scrutinized in order that the development of the institution may be most effectively planned for the years to come.

The demand upon the generosity of the people of the United States for every conceivable purpose has had its effect upon the funds annually donated to the Museum and will inevitably be more felt in the future. Nevertheless, through the splendid efforts of the Ten Year Development Program and the Men's and Women's Committees, the Museum was able to end the year with its books almost in balance. The Trustees and all the members of the staff wish to express their deep appreciation to these workers for their assistance.

Although we know that we are facing a chaotic and uncertain world, the Museum enters the new year with confidence that it will continue as an unparalleled center for recreation, a tremendous stimulant to outdoor living, a medium of escape from bewilderment, and an increasingly important source of objective education for the community and the nation.

TEN YEAR DEVELOPMENT PROGRAM

The two major activities of the Ten Year Development Program in 1940 were the Women's Century Fund Committee under the chairmanship of Mrs. Winthrop W. Aldrich and the Men's Committee under the chairmanship of Mr. S. Sloan Colt. Recognizing the difficulties which we faced, the membership of both committees was enlarged. Mrs. Aldrich's Committee was increased to 65; the Men's Committee, to 146.

The number of contributions received was 798 for a total of \$74,743.50, of which \$4,014 was credited to the Membership Department.

A summary of four years of the Program shows:

1937—1940	1,599 contributors
Cash received (all purposes)	\$464,612.35
Pledges	36,050.00
Total	<u>\$500,662.35</u>

Approaches were made during the year to foundations and a number of special prospective donors.

In May the first President's Dinner was given to those who have served on the Ten Year Development Program during the past four years. The Chairman, Mr. A. Perry Osborn, received a scroll in appreciation of his work.

The membership effort inaugurated in 1939 was transferred to the Membership Department.

Interest of our committees was maintained by meetings at the Museum at which members of the Scientific Staff spoke.

The officers of the Program are: Mr. F. Trubee Davison, Chairman; Mr. A. Perry Osborn, Executive Chairman; Mrs. Winthrop W. Aldrich and Mr. S. Sloan Colt, Vice-Chairmen; Mr. E. Roland Harriman, Treasurer; and Mr. Reuel C. Estill, Secretary.

REPORT OF THE DIRECTOR

In spite of the fact that the Museum operated in 1940 under severe financial stringency, real progress was made in every department. The number of visitors to the Museum, membership enrollment, and subscriptions to the Museum popular magazines all increased.

Although expeditionary work in most parts of the world was restricted or completely abandoned because of wars, some collecting was accomplished, and field work in the Western Hemisphere proved particularly fruitful. Fortunately all specimens for the African Hall are secured, so that this record of the magnificent wild game with some of the avifauna of the continent of Africa is nearly finished. The North American Mammal Hall is intended to preserve for all time, as the Akeley Hall does for African wild life, the animals of North America which are also rapidly disappearing. The energetic efforts of the Committee for the North American Hall have secured pledges for all the main groups, and the specimens and accessories for many of these are already collected. In the Whitney Memorial Bird Hall the group showing the birds of the region of the Snow Mountains in New Guinea, presented by Mr. Richard Archbold and constructed and installed with Whitney funds, was completed and opened to the public in the summer.

The departmental accounts which follow will give the details of new exhibits in other sections of the Museum which space prohibits mentioning here.

The continued support and generosity of friends of this Museum who are interested in the work we are doing and its perpetuation are evidenced by the inclusion of many gifts in the collections received during the year.

Our research work keeps pace with exhibition and far outdistances the budget allowances for publication. Although we publish to the very limit of our finances every year, and many members of the staff contribute papers to outside journals, manuscripts from every department accumulate with the editor so that we are over a year behind schedule. It is one of our more serious problems.

On October 27 the great bronze equestrian statue of Theodore Roosevelt by James Earle Fraser was unveiled by Mrs. Theodore Roosevelt, Sr., at the entrance of the Roosevelt Memorial building facing Central Park West. The statue is one of the largest equestrians in the world, and depicts Roosevelt as a hunter and explorer, an

aspect of his life associating him most closely with the American Museum.

It is with profound sorrow that I have to record the death of Dr. G. Kingsley Noble, Curator of Experimental Biology and of Herpetology. Doctor Noble was only forty-six years old and during the brief period of his life had made an enviable reputation. Under his direction the Departments of Herpetology and of Experimental Biology developed into two of the most vital in the work of the American Museum. The Hall of Living Reptiles was built under his supervision and opened to the public in 1927. Many years of research work in the experimental biology laboratories under Doctor Noble's charge resulted in the Hall of Animal Behavior, opened in 1939, where the exhibits attempt to reveal the mental life of familiar animals, based upon psychological and physiological research. Doctor Noble's scientific publications included "The Biology of the Amphibia" and several scientific papers in herpetology, ornithology, neurology, anatomy and phylogeny of vertebrates, amphibian life history, endocrinology, and experimental morphology. Doctor Noble is a man who truly cannot be replaced either in the Museum or in science.

We wish to acknowledge the debt which the Museum owes to the Mayor, the Commissioner of Parks, and to other officials of the city administration, without whose support the institution could not have continued its record of progress.

The Work Projects Administration furnished us, for another year, many workers of varied types of training who contributed a large and valuable share in our accomplishments. We are also indebted to numerous persons who, though they remain anonymous, volunteer to assist us, often for the experience but usually simply for the pleasure in the work that they do.

THE SCIENTIFIC DEPARTMENTS

ASTRONOMY AND THE HAYDEN PLANETARIUM

Attendance at the Planetarium in 1940 was:

Paid.....	287,187
Classes free.....	67,159
Total.....	<u>354,346</u>

As in previous years the topics of lectures were changed monthly. Thirty-one performances a week were given, including the daily one o'clock free show for school children. In addition thirteen paid special lectures were given in the Planetarium for the following groups: the U. S. Naval Academy, "N" Club of the U. S. Power Squadron, the Longines-Wittnauer Watch Company, Robertson School Educational Tour, Weems System of Navigation, and the U. S. Naval Reserve Midshipmen's School.

The Weems System of Navigation continued to give courses in dead reckoning (both air and marine), celestial navigation and meteorology, and in addition gave a special five weeks course for Naval Reserve officers about to enter active service.

Scientific and technical staff members, with the assistance of W. P. A. artists and craftsmen, added these improvements to the Planetarium equipment: rainbow, color in the sky, aurora tube for producing the aurora electrically, eclipse projector, sunset and cloud effects, thunderstorm, and thunder and lightning.

The following exhibits were displayed during the year: a series of oil paintings depicting the evolution of the calendar, lent by the World Calendar Association; a fine collection of meteorological instruments, lent by Air Conditioning Utilities Company; a collection of postage stamps of astronomical significance, lent by the Scott Stamp and Coin Company; a solar spectrum in five sections, fifteen feet in total length, photographed in kodachrome by Dr. Dunham at Mt. Wilson, lent by the Fund for Astrophysical Research, Inc.; a ring sundial, lent by Mr. James Stokley; a 525 pound meteorite from southwest Africa, presented by Mr. Lincoln Ellsworth; a central cabin of an Eastern Airlines Transport, and two model Eastern Airlines planes, lent by Eastern Airlines.

Planetarium staff members continued to be regular contributors to *The Sky*, and also were continually called upon to assist in the

preparation of articles and of captions for photographs for leading magazines and newspapers.

Dr. Clyde Fisher and Miss Marian Lockwood published a book entitled "Astronomy," and Mr. Hugh S. Rice continued to make computations, do research on asteroids and planets for almanacs and magazines for publication.

The Book Corner did considerably more business during 1940 than in the previous year, due mainly to the fact that it has become known as headquarters for astronomical books and gifts for the whole country.

A Planetarium expedition was sent to Jacksonville, Florida, to view the annular eclipse of the sun on April 7, and another group observed the transit of Mercury from an airplane on November 11.

The Amateur Astronomers Association, in addition to its bi-monthly meetings, conducted five classes in astronomy and mathematics, open to annual members of the Museum. The telescope-making class, operated jointly by the Hayden Planetarium and the Optical Division of the Amateur Astronomers, had a capacity registration of twenty-four students. Thirty Association members went to St. Augustine, Florida, to see the annular eclipse of April 7, and seventy-five others visited the Cook and Flower Observatories in Pittsburgh.

The Junior Astronomy Club continued its program of lectures by well known scientists and by its own members. Fourteen meetings were held, with an average attendance of 127. About 350 members were added to the club.

GEOLOGY AND MINERALOGY

As an addition to the William Boyce Thompson Collection (purchased from a fund devoted to such additions), the Department acquired the largest topaz crystal in the world, a single well-modified crystal weighing 596 pounds. It is displayed in a specially lighted case in the central space of the Morgan Hall.

With funds supplied by the American Gem and Pearl Company, Dr. Pough rearranged with special lighting Case II of the Morgan Gem Collection featuring the corundum gems.

Through gifts from the Harvard Mineralogical Laboratory, the Department was able to place on display in the Mineral Accession Case five of the twelve new mineral species announced in 1940. These new minerals are represented by type specimens and include Whit-

lockite, so named after the Curator by its describer, Dr. Clifford Frondel, a former research student in the Department.

The Department also acquired an automatic lantern slide projector, the gift of a friend, which displays on a twenty-one by twenty inch screen photographs of such subjects as "The Cutting of Diamonds," "Forms of Water," and "Geologic Formations."

A notable gift consisting of outstanding examples of bead necklaces in lapis lazuli, turquoise, aquamarine, coral, and amber was presented to the Gem Collection by Mrs. Edward C. Harkness.

Dr. Pough published a paper in *The American Mineralogist* on "Willemite Morphology and Paragenesis at Balmat, New York." An article on the progress of mineralogy during the year 1939 was contributed by the Curator to the *New International Year Book* for 1939. The Curator also contributed articles to *Natural History* on "Familiar Symbols in Jade," and "Gods and Immortals in Jade."

In addition to the usual spring and fall popular talks on gems, the Curator addressed the Geology Club of Hunter College on "Water, the Enigmatic Mineral" and the Garden City Hempstead Community Club on "Jade, the Many Colored Jewel of Heaven."

PALAEONTOLOGY

The activity of this Department was directed in 1940, as in the recent past, towards the new museum trend of educational exhibits designed to show principles of evolution and development of life through the ages, and towards filling poorly represented sections in our collection. With these objectives, new series of exhibits were installed and others revised in the Tertiary Mammal Hall. Much was accomplished in the Hall of Geology in the revision of old exhibits and installation of new groups. Two skeletons were prepared and placed in the exhibition halls as open mounts—a Permian reptile, *Pareiasaurus*, from Russia, and a Pliocene aardvark, *Orycteropus*, from the Greek island of Samos.

The expedition to the Big Badlands of South Dakota by Dr. Walter Granger and Mr. Albert Thomson, financed by the Palaeontology Field Fund, secured many choice specimens, especially canids; from Slim Buttes, South Dakota, an extraordinary rodent of the *Paramys* line; and from Montana, a magnificent skull of probably the rarest group of late Cretaceous dinosaurs, a new genus of the Troodontidae.

The personnel of the expedition to Texas financed by the Sinclair Refining Company, Dr. Barnum Brown, Messrs. Erich Schlaikjer and R. T. Bird, collected a series of Cretaceous dinosaurs near the Rio Grande, the southernmost point that dinosaurs have been found in the United States. All are new species, and several specimens will enrich our exhibition halls. The most spectacular exhibit is a large slab of limestone on which is a trail of huge sauropod dinosaur foot-prints, secured through a W. P. A. project near Fort Worth.

Dr. Harold E. Vokes, on an expedition to Syria financed by the Guggenheim Foundation in cooperation with the American University of Beirut, secured a large collection of 100,000 invertebrates (including 3,000 ammonites), the first identifiable fossil flora from this region, and several specimens of dinosaur bones. On account of the war a large part of this collection has not yet been shipped from Syria.

In the laboratory many specimens were prepared for exhibition, study, and storage.

Two *Bulletin* articles and six *Novitates* were published by members of the Department, while nine articles were completed and submitted to these publications. Due chiefly to the congestion in our Museum series, two volumes and ten shorter articles were published elsewhere by members of our staff.

The most important specimens acquired by gift are some rare Triassic reptiles received through the courtesy of Mr. Nicholas Martini, Director of the Department of Public Works, Passaic, New Jersey; a skull, jaws, and partial skeleton of a large rodent from Mr. Kenneth Briggs, Baker, Montana; Pleistocene cave material, including an extinct jaguar, from Dr. W. J. Cameron and Mr. W. E. Michael, Sweetwater, Tennessee. By exchange we received a number of casts of Paleocene mammals from Field Museum in Chicago, and casts of Permian reptiles from Walker Museum, University of Chicago.

One sculptor, three artists, three modelers, and two typists were assigned to this Department by the W. P. A. during the year, and they turned out some very creditable work for our exhibition halls, notable models to scale of typical Jurassic and Cretaceous dinosaurs for diorama groups of those periods. Pen and ink restorations of floras and faunas of several periods, charts, and a very accurate model to scale of the submarine canyon of the Hudson River were also completed by these assistants.

LIVING INVERTEBRATES

In the Hall of Ocean Life substantial progress was made on the Pearl Divers Group. The greater part of the corals has been installed and colored; models of hundreds of fish have been prepared and colored to represent their living appearance; and life-size models of two octopuses have been installed, while a third is in progress. The group has now reached an advanced stage and will probably be on exhibition by April, 1941.

Two new murals, one depicting a battle between a sperm whale and a giant squid, the other a sulphur-bottom whale feeding on hosts of shrimps, were painted by Mr. Joseph Guerry for the east end of the hall under the joint supervision of Curators Anthony and Miner and Dr. Clark.

In the Darwin Hall several new models of jelly-fish were prepared by Mr. Mueller, and substantial progress was made toward installing a new series of illustrated labels in various alcoves.

As outstanding features of research may be mentioned Associate Curator Van Name's investigations in bringing up to date his monograph on land and fresh-water isopods, his study of material for a new ascidian monograph, Mr. John C. Armstrong's important work on the crustacean Caridea and Stomatopoda, and Mr. Armstrong's collaboration with Curator Miner in initiating much needed oceanographic work.

Mr. Armstrong also exercised a curatorial supervision over the collection of mollusks during the year. Curator Miner continued work on his handbook and on the coral collections of the Museum.

More than 15,500 specimens of invertebrates, covering 809 species of which 282 were new, were added, including important types. About 7,000 specimens were also catalogued in the mollusk collections.

The chief accessions to our scientific collections were the Metcalfe Collection of cowries (*Cypraea*) consisting of 8,200 items from all parts of the world; a large collection of 824 identified annulates from Puget Sound comprising fifty species; sixty-seven specimens of identified crustacea of twenty-two species, including thirteen paratypes, from Dr. Fenner A. Chase, Museum of Comparative Zoölogy; a series of mounted rotifers comprising thirteen species, among which were three types and four paratypes, collected by Frank J. Myers; 465 specimens of fresh-water amphipods, including twenty-two cotypes, from Leslie Hubricht of the Missouri Botanical Garden; and 10,000 specimens of identified invertebrates from Bermuda, the Gulf of

California, and Central America, from the New York Zoological Society through Dr. William Beebe.

One of the outstanding features of the year was the acquisition of a forty-two-foot gasoline screw boat through the efforts of Mr. John H. Eden, Jr., a volunteer in the Department, and his family. This will enable the Department to begin oceanographic investigations along the east coast of the United States and perhaps later in the West Indies.

Considerable work has been done on plans for the proposed great relief map of the Atlantic and Pacific Oceans, destined to become the central feature in the Hall of Ocean Life.

The following publications were issued during 1940: "A Revision of the Rotatorian Genera *Brachionus* and *Platyias*" by Elbert H. Ahlstrom, "A Supplement to the American Land and Fresh-water Isopod Crustacea" by Willard G. Van Name, "A New Genus and Two New Species of Polychaetous Annelids from Texas and One New Species from the Philippine Islands" by Aaron L. Treadwell, "Earthworms of New York State" by Henry W. Olson, and "New Species of Caridea from the Bermudas" by J. C. Armstrong.

ENTOMOLOGY

Borrowing a phrase from military science, the outstanding feature of work in this Department during 1940 was "consolidating our gains" in the study collection of insects. The various named lots have almost entirely been amalgamated with the main collection, and the arrangement of the latter has been greatly improved. The unnamed material has also been largely sorted into small groups and made readily available for study.

The only field work was the successful trip by Associate Curator Gertsch in Utah and Arizona, but we received over 37,000 specimens by gifts from approximately 100 different donors, including Mr. Frank Johnson's gift of his carefully selected collection of the beautiful Morpho butterflies of the American tropics. A somewhat unusual feature of the growth of our collections throughout the year is that nearly a third of the specimens received were spiders and related forms, including a number that are of very great scientific interest. As usual, or perhaps rather more than usual, our collections were used by a large number of workers in various fields, and we have over 40,000 specimens out on loan to approximately seventy-five different research men throughout this country and abroad.

During the year twenty-two of our papers were published by the Museum, describing 179 species and subspecies new to science. Owing to the lag in Museum publication this represents scientific work that was done in 1939 or earlier. In addition several members of the Department published elsewhere.

A habitat group, enlarged five times natural size, of a dragon-fly larva catching a mosquito larva by means of its curiously modified lower lip, was completed. Our exhibition of insects and spiders includes more than 3,000 individual items, but many of them are unsatisfactorily illuminated. It is hoped that this may soon be improved, and that desirable replacements and rearrangements may be made.

LIVING AND EXTINCT FISHES

During 1940 the Museum exhibit of New Zealand game fishes, caught by Michael and Helen Lerner, was shown at the New York World's Fair, where it attracted much favorable notice. It was returned and installed in the Fish Hall near the close of the year. The Zane Grey exhibit of big game fishes was rearranged and improved. Better lighting for these and other cases was provided for by the kindness of Mr. Lerner, who also sponsored a synoptic group of Great Barrier Reef (Australia) fishes collected by the Michael Lerner Australia Expedition of 1939.

Continued cooperation with the International Game Fish Association, whose headquarters are at the Museum, enabled Miss LaMonte to prepare an attractive exhibit and chart illustrating records of big game fishing. Our connection with this Association brings to us first-hand information, reports, and actual material on the habits and relationships of marine fishes from many parts of the world which would be impossible to obtain in any other way.

The Michael Lerner Peru Chile Expedition spent from March to July, 1940, on the coast of Peru and the northern (desert) coasts of Chile, continuing field studies previously carried on in Cape Breton, the Bahama Islands, New Zealand, and Australia, on the anatomy, habits, and migrations of the swordfish and marlins. The expedition was led by Mr. Lerner, with Miss LaMonte as scientific leader. Forty specimens of large marlins and swordfish were brought in by Mr. and Mrs. Lerner for study, and a smaller collection of offshore fishes was made. Twenty-eight thousand feet of black and white motion picture film, ten thousand feet of kodachrome motion picture film, and over two thousand still photographs were brought back, showing all

phases of land and water life in the regions covered. The expedition made its first base in Talara, Peru, and its second in Tocopilla, Chile, operating up and down the coasts in the two small fishing launches of the Grace Line. Collections of manta, squid, whale, sea lion, and bird material were also made. Molds, skins, and parts were shipped back for further study and preparation.

A specimen of the large, but little known, pelagic Pacific fish, *Acrotus*, was obtained by purchase, the gift of Miss H. M. Dean, and a life size model is being prepared for exhibition.

Several collections of Carangin and Scombroid fishes from the Bingham Oceanographic Collection, Lerner Expeditions, Mead Johnson Company, and Marineland were studied and reported upon by Mr. J. T. Nichols, who also described several new Chinese fishes from Mr. Dean Sage, Jr., and fresh-water fishes obtained by the Archbold expeditions in New Guinea and Arizona.

Gratifying progress on the Bashford Dean Memorial Volume is evidenced by the publication of Article 7, dealing with the embryology of the frilled shark, by Dr. E. W. Gudger. Dr. B. G. Smith has his article on the embryology of *Heterodontus* about half finished. Dr. Gudger completed his researches on the feeding organs and habits of the whale shark and published five articles dealing with whale sharks and swordfishes, including an extended paper in the *Memoir* series of the Royal Asiatic Society of Bengal.

The Department Bibliography of Fishes now includes about 35,000 entries, which in previous years were compiled by Dr. Gudger and his assistants. During the past year about three-fourths of these were reviewed and reclassified card by card by Dr. Gregory and Miss Wilmann. About 5,000 new titles were added with the aid of two W. P. A. assistants.

The collection of fish skeletons is being rearranged, re-identified, labelled, and re-boxed by Mr. G. M. Conrad. Among fossil fishes, a new Coelacanth fish from the Triassic of New Jersey was presented by Professor Pollister of the Department of Zoology, Columbia University, and described by Mr. Bobb Schaeffer in *Novitates*, while a fossil Holocentrid fish from the Tertiary of Florida was described by Mr. Conrad. Studies on the origin and evolution of the structure and functions of the fins of fishes by Messrs. Gregory, Raven, and Schaeffer are in progress.

HERPETOLOGY

The policy of maintaining temporary exhibits of living reptiles supplementing those in the Hall of Reptiles was continued. Through the generosity of Mr. William H. Woodin, 3rd, a number of live snakes from the Arizona deserts were available for a display of venomous coral snakes and their harmless "mimics." The receipt of a handsome Palestine viper, a typical Old World species and probably the first to be exhibited in America, was shown in contrast to the pit vipers of the New World. The Denis-Roosevelt Asiatic Expedition contributed three grotesque, African zone-tailed lizards, a species which inhabits exceedingly dry regions. These were added to the series of habitat cases in which special adaptations of reptiles are illustrated with living forms. The mounting of a twenty-three foot python under departmental supervision is nearing completion and will be an important addition to the exhibits in the Hall of Reptiles.

"A New Species of Brevicipitid Frog from Madagascar" was published by our late Curator, Dr. G. Kingsley Noble. The description of this amphibian marked the end of a career begun at Harvard University under Dr. Thomas Barbour, with whom Doctor Noble published his first herpetological paper twenty-five years ago. It was fitting that a career which marked him as the outstanding authority on amphibia should close with a description honoring Doctor Barbour.

The initial report on African collections being studied by Mr. C. M. Bogert appeared in the *Bulletin* under the title, "Herpetological Results of the Vernay Angola Expedition." This publication embraces researches dealing with the snakes from more than a dozen African expeditions and lays the ground work for more extended studies of the phylogeny and classification of African colubrid snakes. Dr. F. J. Trembley submitted a tentative manuscript dealing with the South American lizards in the Bassler Collection, and a volunteer, Mr. William Heifetz, completed a study of the fringe-footed sand lizards of the southwestern deserts, the results of which are now in press.

Dr. Harvey Bassler continued work on his rich South American collections and completed identifications of the snakes secured by the Terry-Holden Expedition and those collected by Mr. Raymond M. Gilmore in Brazil while engaged in the quest for animal reservoirs of jungle yellow fever for the Rockefeller Foundation. Tropical

American amphibia were studied by Miss Judy Peterson, whose able assistance has been of great benefit to the Department.

A paper on the fangs of "spitting" cobras was presented at the Toronto meetings of the American Society of Ichthyologists and Herpetologists by Mr. C. M. Bogert. The remarkable changes which have evolved in the fangs of three cobras that spray venom in the eyes of enemies as a protective measure were described, and a more extensive study of cobra fangs is nearing completion for publication.

Although the moving of the entire collection of 60,000 reptiles to more suitable quarters precluded any possibility of field work by the Department, accessions for the year included 700 specimens. Nearly 100 specimens from the American tropics were received from Dr. William Beebe, and Mr. Dean Sage, Jr., contributed important collections from west China. Unique among the accessions was a lizard from the wrappings of the mummy of Wah, who died *circa* 2,010 B. C. Although the specimen was fortuitously preserved nearly 4,000 years ago, it proved identifiable with a species which today inhabits the ruins of Thebes where Wah was entombed.

Cooperation with other institutions included twenty-two loans to fifteen museums and universities, a total of 267 specimens having been lent to various workers.

EXPERIMENTAL BIOLOGY

The untimely death of Dr. G. K. Noble occurred on December 9. The departmental advances listed in this report were all achieved under his brilliant leadership.

In keeping with our plan to tell the story of the physical and psychological bases of animal behavior, nine new exhibits were placed on display in the temporary Hall of Animal Behavior. A large microprojection booth recently installed offers for the first time in any museum an opportunity for study of the micro-organisms living in a drop of water. Five microscopes project upon separate screens greatly enlarged images of living unicellular animals, such as the amoeba, euglena, and paramecium.

In three exhibits live animals have been displayed against backgrounds simulating their native habitat. Various species have been used in succession, and pertinent facts regarding each animal's behavior were presented in accompanying labels. To illustrate learning in the lower mammals we exhibited a large elevated maze upon which fifty trained rats displayed their ability to find their way

to food, following a devious path and avoiding all blind alleys. Accompanying this exhibit was a maze for human subjects by means of which the Museum visitor could compare his own learning ability with that of the rat.

Another new exhibit illustrates the comparative psychologist's method of testing the intelligence of various primates. The brain of the chimpanzee is more highly developed than that of the monkey, and correlated with increased specialization of the higher nervous centers is superior intelligence. Experimental proof for the mental superiority of the chimpanzee over the monkey is shown by displaying the beginning and conclusion of an intelligence test for these animals. The function of protective coloration is explained in a new exhibit displaying live copperhead snakes. The living snakes blend into the background of the exhibit, and the function of such blending is illustrated by a mechanical device in which a model snake is made to appear and disappear alternately.

An exhibit consisting of enlarged cross-sectional models of the human eye and the owl eye explains why the owl can see well at night. A living owl in a natural setting is on display in an adjacent case. A public address system recently installed in the hall makes possible lectures explaining the microvivarium and other exhibits.

In the construction, installation, and maintenance of these new exhibits the assistance of the W. P. A. was of great importance.

In the Laboratory of Experimental Biology investigation of the problems of social and reproductive behavior in vertebrates was continued with the aid of generous support by The Committee for Research on Problems of Sex, National Research Council. Thirteen scientific papers and one book were published from this laboratory in 1940. Dr. Noble published two papers in co-authorship with Mr. Wurm, and one report each with Mr. Greenberg, Mr. Lehrman, and Mrs. Borne. Dr. Beach published one paper, Dr. Etkin two and Dr. Hyman five. In addition there appeared the first volume of Dr. Hyman's authoritative treatise on "The Invertebrates." One report by Dr. Noble and Mr. Wurm, two by Dr. Etkin, and six by Dr. Beach are in press.

Dr. Noble, as visiting professor at New York University, had under his direction seven graduate students from that institution who carried on research problems in the Laboratory of Experimental Biology. One student from Bennington College and one from Sarah Lawrence College conducted research under the direction of Dr.

Beach. Fourteen volunteer research workers in the Laboratory included Drs. Gordon, Castelnovo and Schlaifer, Mrs. Anthony Bliss, Mrs. Newbold Morris, Miss Betty Harriman, Miss Marne Lloyd-Smith, and Mr. Samuel Sloan, III.

ORNITHOLOGY

Research was carried on by all the members of the scientific staff in their special fields as far as routine duties permitted. The results of these studies were, in part, published with special funds or in outside journals, but considerable manuscript prepared during the year is still awaiting publication. Lack of space prevents any review of this fundamental activity. Numerous popular articles appeared in *Natural History* and other periodicals, and lectures and papers before scientific bodies were given on various occasions. Dr. Murphy was elected Honorary President of the National Audubon Society and President of the Long Island Biological Association and received the Cullum Medal from the American Geographical Society. Dr. Chapin was reelected President of the American Ornithologists' Union. Dr. Mayr was reelected Editor of the Linnaean Society of New York.

With additional funds the Whitney South Seas Expedition retained Mr. Lindsay Macmillan in Queensland, Australia, until he was called to the colors toward the close of the year. The Bombay Natural History Society completed its survey in Mysore, India, with our cooperation sponsored by Mr. Suydam Cutting. The collection of birds was studied in England by Mr. Hugh Whistler, who then forwarded our half of the material, all of which arrived safely. Mr. Walter Koelz is in the neighborhood of India with a commission, also sponsored by Mr. Cutting, to collect birds for us. Dr. Rand accompanied Mr. Richard Archbold to Arizona from February to June, collecting some birds and studying certain aspects of bird behavior.

The Snow Mountain (New Guinea) Group in Whitney Memorial Hall, the material collected and presented by Mr. Richard Archbold, was completed and formally opened to the public August 21. Work was started on an Australian Group in the Hall of Birds of the World and was well advanced at the close of the year. Accessory material for four groups for Whitney Memorial Hall was collected in Fiji, New Caledonia, Solomon Islands, and the Barrier Reef by the Fahnestock Expedition under commission by the Museum. Work was seriously interrupted by the loss of the schooner on the Barrier Reef in October.

Several loan exhibitions of ornithological paintings were shown in the Whitney Gallery of Bird Art, comprising work by Mr. Courtenay Brandreth, Dr. George M. Sutton of Cornell University, Mr. Francis Lee Jaques of this Museum, and Mrs. Lavonia Stockelbach whose miniatures of the birds of Shakespeare were still on display at the close of the year.

Work on the Hall of Biology of Birds was intensified late in the year, and the systematic development of the exhibit was undertaken by the entire scientific staff of the Department.

The rearrangement and indexing of the study collections progressed satisfactorily. Approximately 6,000 entries were added to the catalogue of specimens. Accessions for the year totaled over 7,000 specimens. About 1,000 pamphlets were bound and added to the Department files.

As usual, many visiting scientists were given accommodations for work on our collections. In addition a total of 5,140 specimens were sent on loan to other institutions, an increase of twenty-five per cent over any former year. Numerous identifications were made of material submitted from outside sources, and requests for information by letter, telephone, and personal call were voluminous.

Valuable assistance by volunteers Charles K. Nichols and Miss Dorothy Frink is here inadequately acknowledged, as are generous contributions by various friends of the Department. Acknowledgment also is made of important help by W. P. A. workers assigned to this Department who were very useful in various clerical activities and artistic productions in the Hall of Biology of Birds.

MAMMALOGY

Field work was considerably restricted by troubled world conditions. It was unwise to attempt the continuation of Mr. Richard Archbold's exploration in New Guinea, for example, but several parties were able to collect in the Western Hemisphere, and one concluded an assignment in west Africa.

Assistant Curator G. H. H. Tate returned in September from west Africa where, for over a year, he had been collecting chimpanzees, mandrills, and accessories for two groups in the Akeley Hall, donated by Mr. William D. Campbell. He also secured some 200 mammals, including specimens of the rare black forest hog and white-tailed black colobus monkey. During the latter part of his sojourn he was greatly hampered by conditions and restrictions brought on by the war.

Assistant Curator J. E. Hill, assisted by Mrs. Hill and Mr. Peter E. Crowe, collected during part of the summer in Kansas and Colorado, adding some 700 desirable specimens to the collection. This region is on the edge of the area characterized as the "dust bowl" where the ecology is in a very critical condition, and specimens should be secured before it is too late.

Assistant Curator T. D. Carter accompanied Mr. Theodore A. McGraw, who sponsored an expedition into the region about the headwaters of the White River, Alaska. The party was gone from August 6 to October 16 and secured about 100 specimens, including grizzly bear, white sheep, and caribou. This area, the Wrangell Range, has been hitherto unworked by an American Museum party.

Research Associate Richard Archbold has not given up his intention to continue exploration in New Guinea, if and when disturbances created by the war are removed, but sought for projects in the United States to keep his staff occupied during 1940. For some months he maintained a field station near Tucson, Arizona, where studies were made of the local fauna. He also collected materials for three of the smaller habitat groups in the new Hall of North American Mammals, namely, the Cacomistl and Little Spotted Skunk Group in New Mexico, the Jack Rabbit Group in Arizona, and the Cottontail Rabbit Group in New York.

From expeditions, donations, and purchases, some 4,000 specimens were acquired during the year, exclusive of 658 added to the Archbold collection.

The exhibition plans of the Department made more favorable progress than any other activity. During the year the last field work to complete the Akeley Hall of African Mammals was brought to a successful conclusion, and every group for the two floors comprising this hall is now secured. The actual construction of the final groups is going forward rapidly and will be concluded in the near future.

The development of the new Hall of North American Mammals has been rapid and satisfactory. During the past year the large Alaska Moose Group, collected and donated by the late Mr. Wilton Lloyd-Smith, was completed, and several other groups were brought almost to completion. The field studies and collecting are finished for most of the large groups in this hall, and from this point forward the growth of the hall should be unusually rapid for a project of this scope and importance.

Research upon the collections in this Department included identification of material, reports upon collections, and monographs upon groups and areas. The geographical areas receiving the most emphasis during the year were Iran, Honduras, New Guinea, Angola and the Kalahari, Burma, and New Mexico.

Publications for the year include three articles in *Novitates* (Goodwin two, Tate one), articles and book reviews in *Natural History*, and contributions to the *Journal of Mammalogy*. An exhaustive report on the mammals of Angola, prepared by Dr. Hill and awaiting publication for some months, has at last started through the press and will appear in 1941.

COMPARATIVE AND HUMAN ANATOMY

The outstanding accomplishment of the Department in the field of exhibition was the rearrangement and virtual completion of the hall of skeletons of horses and other recent animals, as mounted during the past forty years by Samuel Harmsted Chubb. The climax of the exhibition will be the mounted group of two skeletons showing a Przewalsky horse of the Central Asian plains pursued by a wolf. Mr. Chubb has succeeded in imparting a lifelike quality to the dry bones of his material. The plunging horse glances back in terror at the wolf which snaps at his flanks. The clash of movements imparts the feeling of swift impending death, but the final outcome is left to the interpretation of the onlooker. Considered as a whole this exhibit represents a remarkable fusion of the highest traditions of pictorial art with the data and raw materials of science.

The Government of New Zealand and the University of Adelaide, South Australia, continued to supply this Department with illustrative material (including films of native life and customs, photographs, maps, and geological specimens), augmenting the collections made by Dr. Gregory and Mr. Raven in 1921 and 1939 for a comprehensive exhibit of the two countries. General plans for this exhibit were prepared and approved by the Council and the Administration.

In continuation of reports on the results of the Michael Lerner-American Museum Expedition to New Zealand and Australia. Dr. Gregory published in *Natural History* a study of the native New Zealanders, "An Evolutionist Looks at the Maoris," and joint articles with Mr. Conrad on the geologic-zoogeographic history of New Zealand, and on the world-wide distribution of the marlin. Mr.

Conrad published in the same magazine an article on *Sphenodon*, a "living fossil" of New Zealand.

Dr. Gregory, Mr. Raven, and Mr. Schaeffer read papers before the Palaeontological Society, Vertebrate Section, on different phases of the evolution of the fins and limbs from the earliest fishes to the air-breathing, paddle-finned fishes of the Devonian period, thence upward through the earliest types of four-footed animals to the Primates, including man. A new reconstruction of the skeleton of the fossil fish *Eusthenopteron* was made by Dr. Gregory and Mr. Raven and shown at this meeting. Drs. Gregory and Hellman, continuing the reports of the Gregory-Hellman Expedition to South Africa in 1938, published a paper on the upper dental arch of *Plesianthropus* in the *American Journal of Physical Anthropology*. Mr. Raven reported on the evolution of the locomotor apparatus in the ocean sunfish for the *American Year Book*. As a result of an earlier Lerner expedition to Nova Scotia, Mr. Conrad published a paper in *Novitates* on the relation of liver to body weight in the swordfish. Mathematical studies on body form in relation to streamlining in fishes were made by Mr. Sidney Shapiro and published in *Zoologica*. Studies on the relations between growth, form, and color patterns in marine mollusks were published in *Natural History* by Dr. Gregory.

The Curator gave eleven lectures, Mr. Raven five, and Mr. Conrad two, before university and college groups and scientific societies.

ANTHROPOLOGY

The aim of this Department is to advance knowledge of the natural history of man and to exhibit authentic materials illustrating such knowledge. During 1940 the friends of the Museum offered to present a number of collections, large and small, of which ninety were accepted as of scientific and illustrative value. Expeditions returned three significant archaeological collections. Among the important gifts were a collection of African ethnological objects collected by the famous explorer Henry M. Stanley, presented by Mrs. Louise Scribner Schieffelin; an important collection from the Plains Indians by the estate of De Cost Smith; pottery incense burners from ancient Mexico, by S. K. Lothrop; ethnological specimens from northern Mexico collected by Harry Wright; a North American Indian collection by Mrs. Hans Zinsser; and an archaeological collection by Charles L. Bernheimer.

In the exhibition sections new installations were made in the Races

of Man Hall, Hall of Asiatic Peoples, the Eskimo exhibit, and in the North American Indian exhibits. Among the new dioramas placed during the year are the Snake Dance of the Hopi Indians, Skin Dressing and Acculturation of a Woodland Indian Tribe, and Types of Burial among North American Tribes. A special exhibit showing the spread and origin of the domestic horse was placed in the Plains Indians Hall. Finally, note should be taken of two elaborate exhibits demonstrating hormones and human embryology.

Advance in knowledge of the natural history of man by research in the Museum and by exploration is represented by the following activities:

Dr. Froelich Rainey discovered a new type of ancient people in Alaska, apparently pre-Eskimo. Part of a large village site was excavated, yielding strange implements and ivory carvings unlike any heretofore found in Alaska or in any other part of the world. Naturally this discovery is the most important anthropological event of the year. The project was carried on in cooperation with the University of Alaska and was supported by the Voss Fund. Early in the year Dr. Rainey made an acculturation study of the Eskimo at Point Hope, Alaska, giving special attention to property concepts as affecting the reindeer and whaling industries. A report upon this work will be made to the Territorial Government of Alaska.

The completion of a three-year period of exploration and excavation, financed by the Edward Harkness Fund, in northwestern Mexico by Mr. Gordon Ekholm gives new light upon ancient contacts between the people of that area and those of the Valley of Mexico and of our prehistoric Southwest. For example, the observed prehistoric similarities between ancient Mexico and early Pueblo cultures in the United States did not come by diffusion through northwestern Mexico but directly through central and eastern Mexico.

The compilation of data gathered in Bali and New Guinea during the years 1937-1939 by Dr. Margaret Mead, financed by the South Pacific Exploration Fund, revealed adequate photographic records of some of the processes by which a primitive community conditions its children to the group's way of living. Since this is one of the fundamental processes in the perpetuation of all forms of human society, these new accurately recorded data make a distinct advance in our knowledge of naturalistic human behavior.

During 1939 the Department of Palaeontology discovered artifacts of primitive man near the Black Hills in South Dakota, in apparent

association with fossil animals. During the summer of 1940, therefore, Mr. Junius Bird, financed by the Voss Fund, excavated in this region but found the association of fossils and artifacts was due to re-deposition by water erosion. At the same time a survey of the Black Hills was made by air, followed by trial excavations at promising sites. The result was negative, however, indicating no extensive population of the region by man in prehistoric time. The positive value of this survey is that it eliminates the area from consideration in the search for evidences of early man in America.

ASIATIC EXPLORATION AND RESEARCH

A small exhibit of flags, passports, photographs, and tools, gathered from the equipment of the Central Asiatic Expeditions, was placed in the second floor corridor connecting the Bickmore and African wings. It is planned to enlarge this exhibit by the addition of representative scientific material collected during the ten years of exploration of China and Mongolia by the Expeditions.

Part 2 of Glover M. Allen's "The Mammals of China and Mongolia" was published on September 3, thus completing Volume XI of the final reports of the Expeditions on the natural history of Central Asia. This work is a systematic treatise of more than five hundred living forms of the mammalian fauna of China and Mongolia, based not only on the large and excellent collection made by the Asiatic Expeditions, but upon a careful study of historic specimens and types in the British Museum and valuable material in other institutions in this country.

MUSEUM SERVICES

EDUCATION

The exceptional efficiency developed during 1940 by the members of the Department and their loyalty and devotion to the best interests of the entire Museum made it possible to direct much attention to the development of new ways of interpreting the Museum. This was done without lessening appreciably the continuation of services previously rendered. Many members of the Department not previously engaged in direct contacts with the public cooperated in assignments that made possible a seven-day coverage of many activities, such as guiding, information, announcements, and music, which previously were available on Sundays and holidays in only limited ways.

Significant among the departmental activities during 1940 were the continuation and extension of self-sustaining or self-liquidating activities maintained by small service fees and which otherwise would have to be abandoned, such as the paid guiding service and the distribution of collections, slides, and sound and silent motion pictures to other than public schools and institutions; the establishment, through the generosity of Mr. William D. Campbell, of the Educational Sound System, whereby the early experimentation in music correlation was extended and developed, and new technics of adult education were established; a special study of the possibilities of Museum Extension to Boys' Clubs, made possible by a grant from Mr. William R. Coe; a remarkable increase in the production of distributable materials by reason of a most interested and loyal group of artists and technicians under W. P. A. auspices; and the initiation of a promising experiment in conjunction with the Adult Education Department of Columbia University whereby several members of this Department, enrolled as graduate students, are being directed in their research in the interests of the Museum and the improvement of its services. The significant statistics of departmental service follow:

1. Reached by staff by direct contact

Attendance, lectures and instruction in Museum . . .	259,970
Attendance, lectures and instruction outside Museum	149,441
Attendance and instruction (pupils), Planetarium . . .	67,159
Attendance and instruction, Bear Mountain Trails . .	465,000
Attendance, School Science Fair	26,805
Attendance, music	40,000

Total reached by direct contact 1,008,375

2. Reached by departmental circulation of materials

Motion picture distribution	5,776,938
Lantern slide distribution	8,543,025
Distribution of circulating collections	11,867,711
Total reached by circulation	26,187,674
TOTAL REACHED BY ALL EDUCATION SERVICES . . .	27,196,049

PUBLIC AND PRESS INFORMATION

This Department, in publicizing the Museum, the Hayden Planetarium and *Natural History* through news stories, news features, and magazine articles, obtained a country-wide coverage equal to a minimum of 3,500 standard newspaper columns, or more than 1,000,000 lines, divided as follows: Museum generally, almost 2,000 columns; Hayden Planetarium, over 1,000 columns; *Natural History*, over 500 columns.

In line with the increasing interest on the part of the radio audience in science and education, the Department continued to expand its network activities as follows:

Museum generally: "New Horizons," 30 minutes, 140 stations (CBS), with a classroom and adult audience of over 10,000,000. *Natural History*: "Man and the World," 15 minutes, about 80 stations (NBC), with an audience of 6,000,000. *Natural History* and the Hayden Planetarium: "This Wonderful World," 15 minutes, 100 stations (MBS), with an audience of 3,000,000. Hayden Planetarium: "Exploring Space," 15 minutes, 27 stations (CBS), with an audience of 1,000,000. "New Horizons" is also broadcast in Canada, Hawaii, and the Philippines, and in Spanish and Portuguese in Argentina, Brazil, Chile, Colombia, Cuba, Dominican Republic, Guatemala, Honduras, Mexico, Nicaragua, Panama, Salvador, Uruguay, and Venezuela.

Besides these regular programs, more than twenty-four special events radiocasts dealing with Museum and Planetarium activities were made either as special events features or incorporated in the broadcasts of such widely known commentators as Lowell Thomas, Edwin C. Hill, Gabriel Heatter, Bob Trout, Mary Margaret McBride, Lorraine Sherwood, and Tim Healy.

In promoting Planetarium attendance this Department booked 1,012 paying groups, totaling 40,258 visitors. Of these, 24,483 were

children in school classes. In October the Department inaugurated special Boy and Girl Scout Saturday performances which, up to January, 1941, produced an attendance of 1,167 Boy Scouts and 1,251 Girl Scouts at the Planetarium.

LIBRARY

The routine of acquiring and cataloguing new material proceeded as usual. War conditions drastically curtailed accessions from Europe, thus releasing funds for the purchase of several desirable American items.

It is a pleasure to report that 1940 saw the definite establishment of the Sportsmen's Library and Lounge in a handsome room in the Roosevelt Memorial. These books on big game hunting are the gifts of Ernest Van Vleck and Arthur Vernay and include all the classics on the subject as well as many standard volumes in limited editions. A dictionary catalogue was recently completed and installed.

The transfer to the general collections of the Osborn Biological Library was made this year.

The physical condition of the Library remains a problem. Adjustments made necessary by excess weight in our attic storage space continue. The stock of *Bulletins*, *Memoirs* and *Annual Reports* was moved, and the disposal of the duplicate collection is in process. Shortage of shelf space in all parts of the Library grows more and more serious.

Intensive work on the listing of Museum holdings for the *Union List of Serials* brought this cooperative task very near completion.

Without any expenditure for the additions, over 1,200 cards have been added to our picture file. This material is garnered from magazines and newspapers and secured by gifts from interested individuals.

The volunteer service of Sarah Ann Martin is gratefully acknowledged, as well as W. P. A. help in organizing manuscript material and in the binding of books.

Inter-library loan service was extended to sixty universities, foundations, and museums, and to ten commercial firms.

BOOK SHOP

Gross sales increased from \$23,033.11 in 1939 to \$23,654.69 in 1940. There were 20,411 sales, of which 1,120 were mail orders amounting to \$2,529. Besides representing a steady income, our mail orders make many contacts for the Museum in distant places.

Visitors continue to express appreciation of the attractiveness of the Book Shop and satisfaction at finding a source for popular scientific books, shells, and minerals. We received publicity from various periodicals, for shells particularly.

Caring for holiday and week-end crowds without the aid of a guard is a great problem because of losses by theft.

PRINTING AND PUBLISHING

The addition of two new automatic job presses to the equipment greatly facilitated production, which included 666 pages as well as routine job printing for all departments. Pages included catalogues and lecture booklets, *The Junior Natural History Magazine* (twelve issues), *School Nature League Bulletin* (ten issues and three reprints), and *Annual Reports* of the President and of the Pension Board.

Article 7 of the Bashford Dean Memorial Volume (126 pages) was paged and printed.

Five chapters of Volume 2 of the Proboscidea Memoir were set, and five were paged. All eleven chapters are in type, and of these nine (720 pages) have been paged.

The regular staff was supplemented temporarily by one compositor, and five W. P. A. workers gave valuable assistance.

Anthropological Papers, Bulletin, Novitates, Natural History, and publications issued by the Committee on Popular Publications were sent to outside printers.

SCIENTIFIC PUBLICATIONS

(*Bulletin, Novitates, Anthropological Papers*)

Nine *Bulletin* articles, two *Anthropological Papers*, forty-nine *Novitates*, and three indexes, totaling 1,332 printed pages, 55 plates, and 371 figures, were published in 1940. Two *Bulletin* articles in press, approximately 350 printed pages and 59 illustrations, were carried over for publication in 1941, as well as 41 additional manuscripts from the various departments, totaling 1,602 manuscript pages and 176 illustrations.

POPULAR PUBLICATIONS

(*Handbooks, Guide Leaflets*)

One new *Guide Leaflet*, "The History of the Valley of Mexico" by George C. Vaillant, was issued in 1940. Three *Guide Leaflets* were reprinted—"Pocket Guide to the Exhibits," "Artists and Craftsmen

in Ancient Central America" by George C. Vaillant, and "The Preparation of Birds for Study" by James P. Chapin. The culture area maps of Polynesia and Micronesia-Melanesia were also reprinted.

The Committee continues to care for the stock of its publications and to sell to schools, colleges, clubs and various organizations, individuals, and dealers from all parts of the country.

NATURAL HISTORY Magazine

Natural History ends the year with a total paid circulation of 28,073, the highest in its history. This means that the losses through deaths and resignations were more than replaced, and since this was accomplished on a minimum budget allowance, the work of the Membership Secretary deserves special praise. The renewal rate stands at the unusual figure of approximately eighty-five per cent.

A wholly unprecedented volume of commendatory letters was received, commenting on the increasing educational value and interest of the magazine. The scope of its popular appeal is indicated by a new peak in the number of requests from other periodicals for reprint privilege. Two hundred and six requests of this sort were made during the last twenty issues of the magazine, from periodicals ranging through weekly newspapers of 500,000 circulation to monthly magazines of wide variety, in one of which complete articles from *Natural History* were reprinted under proper terms, with a circulation of over 4,000,000 copies.

THE JUNIOR NATURAL HISTORY MAGAZINE

During 1940 the circulation of *The Junior Natural History Magazine* showed a steady increase, as the renewal rate continued to be excellent, and many new subscriptions were received both from schools and individuals. This magazine continues to be self-sustaining.

CONSTRUCTION, INSTALLATION AND OPERATION

ARTS, PREPARATION AND INSTALLATION

The following five large habitat groups, complete with mounted specimens, painted backgrounds, and floral and geological accessories, were created and installed during the year: in the African Hall, Leopard and Red River Hog; Vulture, Hyena and Jackal; Ostrich and Warthog; in the North American Mammal Hall, Alaskan Moose; in the Whitney Memorial Bird Hall, the New Guinea Group.

In addition three grizzly bears, one brown bear, four caribou, one mountain lion, two chimpanzees, four mandrills, and numerous birds were mounted for the fifteen major groups now under construction.

For the Department of Anthropology several miniature models showing the life and activities of the American Indian were made, and five sculptured models of the horse showing the history of its domestication, and a pictorial map of the world showing its diffusion were also prepared.

In the Hall of Ocean Life murals of the sperm whale and of the sulphur-bottom whale were painted in the two lunettes flanking the entrance.

The routine preparation of plaster casts, tanned and study skins and the cleaning and assembling of osteological material was maintained throughout the year.

Mr. Frederick G. Mason made a field trip in the Adirondack region to collect minor accessories for the North American Hall. Messrs. Bernard F. Chapman and Raymond De Lucia spent a month traveling to Mexico in the Museum trailer to gather group data and sketches for the Jaguar Group, sponsored and financed by Mr. C. V. Whitney. Mr. George E. Petersen spent eight months in the South Seas collecting groups for the Whitney Memorial Bird Hall. Mr. Robert H. Rockwell was released for a month to accompany Mr. Richard K. Mellon on an Alaskan field trip, and Mr. Francis Lee Jaques spent three months painting backgrounds at the Museum of Natural History of the University of Minnesota.

GENERAL SUPERINTENDENT

The General Superintendent reports, in addition to the routine inspection, maintenance, construction, draughting, repair work, guarding, cleaning, and general operating work performed by the

manifold forces under his jurisdiction, the following major activities:

Installation of a public address system throughout the exhibition halls, completion of all construction work in the Whitney building, acceptance of many gift exhibits and materials from World's Fair exhibitors, numerous new exhibits installed, substantial progress on the construction work in the new North American Mammal Hall, and studies and estimates for the remodeling of several exhibition halls.

The attendance records in 1940 were:

General attendance	1,179,091
Lectures, meetings, special exhibits, concerts, etc. . .	403,288
Total (exclusive of the Planetarium)	1,582,379

This is an increase of 24,351 over 1939.

The restaurant was patronized by 50,397 persons, and the cafeteria accommodated 142,547 children during the year.

The Emergency Aid Room gave treatment to 4,402 persons.

REPORT OF THE TREASURER

BUDGETARY FUNDS, 1940

The Budgetary Accounts include all receipts and disbursements of the City Maintenance Account (New York City Tax Levy Budget), General Account (unrestricted funds), and Morris K. Jesup Fund Account (restricted to scientific purposes and not for maintenance).

The Budget as approved for 1940 at the Trustees' meeting on January 15, 1940, and increased during the year, was as follows:

Estimated Disbursements.	\$1,305,415.75	
Increased.....	1,310.43	\$1,306,726.18
Estimated Receipts.....		<u>1,198,991.75</u>
Authorized Deficit.....		<u>\$107,734.43</u>
Actual Condition, December 31, 1940:		
Disbursements.....	\$1,307,785.95	
Receipts.....	<u>1,295,786.24</u>	
Deficit.....		<u>\$11,999.71</u>

The result of all operations during the year showed that while actual disbursements exceeded estimates by \$1,059.77, the receipts were \$96,794.49 in excess of budgeted income. This increase was due mainly to the efforts of the Ten Year Development Program whereby \$70,729.50 was received from friends of the Museum to be applied toward the deficit. In addition, income from Capital Funds applied to the deficit was \$47,375.38 more than the amount included in the budget adopted at the beginning of the year. After taking into consideration other sources of income which varied with the amounts budgeted, the deficit for the year amounted to \$11,999.71. On January 13, 1941, the Trustees authorized a transfer from Capital Funds of an amount sufficient to liquidate this deficit and thus permitted us to balance our accounts as of the close of the year.

SPECIAL FUNDS, 1940

The Special Funds of the Museum, which can be used only for specific purposes, were as follows:

Receipts	
Balance, January 1, 1940.....	\$203,150.51
New Receipts during the year.....	<u>387,325.68</u>
	590,476.19
Disbursements.....	<u>379,384.91</u>
Balance, December 31, 1940.....	<u><u>\$211,091.28</u></u>

SUMMARY OF RECEIPTS AND DISBURSEMENTS FOR ALL PURPOSES, 1940

Receipts

City of New York for Maintenance.....		\$496,772.26
Trustees Funds:		
Balance, January 1, 1940.....	\$288,154.43	
Income from Capital Funds.....	\$611,365.10	
Income from Trust Funds.....	15,295.65	
Membership Fees.....	42,025.00	
Sales, Subscriptions, Fees, Film Rentals, Guiding and Lecture Service,		
Credit Interest on Loans, etc.....	31,485.87	
Contributions of Trustees, Members, Friends, Foundations, etc.....	399,604.87	
Transferred from Capital Funds.....	19,915.07	
Loans.....	8,643.89	1,128,335.45
		<u>1,416,489.88</u>
Total Receipts, Trustees Funds.....		
Total Receipts, All Sources.....		<u>\$1,913,262.14</u>

Disbursements

Administration and Operation.....	\$858,231.30
Scientific and Research.....	542,138.10
Printing, Books and Publications.....	49,143.32
Arts, Preparation and Installation.....	131,395.81
Education.....	101,458.57
Transferred to Capital Funds.....	4,803.76
	<u>1,687,170.86</u>
Total Disbursements.....	
Balance, December 31, 1940.....	<u><u>\$226,091.28</u></u>

Explanation of Balance:

City Maintenance Account	
Capital Fund.....	\$15,000.00
Special Funds Account	
For Specially Designated Purposes.....	211,091.28
	<u>\$226,091.28</u>

FINANCIAL STATEMENT, 1940

BUDGETARY ACCOUNTS

	CITY MAINTENANCE ACCOUNT	GENERAL ACCOUNT	MORRIS K. JESUP FUND ACCOUNT	TOTALS
Receipts				
Balance, January 1, 1940.....	\$15,000.00	\$69,453.92	\$550.00	\$85,003.92
City of New York.....	496,772.26			496,772.26
Income from Capital Funds...		349,123.11	231,116.62	580,239.73
Income from Trust Funds...		15,295.65		15,295.65
Membership Fees.....		42,025.00		42,025.00
Sales, Film Rentals, Guiding and Lecture Service, and Credit Interest on Loans, etc.....		16,884.91	1,856.51	18,741.42
Contributions of Trustees, Members, Friends, Foun- dations, etc.....		71,292.90		71,292.90
Transferred from Capital Funds:				
For rehabilitation of exhi- bition halls.....		1,415.36		1,415.36
For deficit in budgetary operation 1940.....		11,999.71		11,999.71
Total Receipts.....	<u>\$511,772.26</u>	<u>\$577,490.56</u>	<u>\$233,523.13</u>	<u>\$1,322,785.95</u>
Disbursements				
Administration and Operation.	\$466,317.94	\$387,171.34		\$853,489.28
Scientific and Research.....	15,233.00	107,618.60	\$140,850.54	263,702.14
Printing, Books and Publica- tions.....		24,911.66	20,931.66	45,843.32
Arts, Preparation and Installa- tion.....		2,608.87	71,740.93	74,349.80
Education.....	15,221.32	55,180.09		70,401.41
Total Disbursements.	<u>\$496,772.26</u>	<u>\$577,490.56</u>	<u>\$233,523.13</u>	<u>\$1,307,785.95</u>
Balance, December 31, 1940				
Capital Fund.....	15,000.00			15,000.00
	<u>\$511,772.26</u>	<u>\$577,490.56</u>	<u>\$233,523.13</u>	<u>\$1,322,785.95</u>

FINANCIAL STATEMENT, 1940

*SPECIAL FUNDS ACCOUNT

(NOT AVAILABLE FOR BUDGETARY PURPOSES)

Receipts

Balance, January 1, 1940.....	\$203,150.51
Income from Capital Funds.....	31,125.37
Sales, Subscriptions, Fees, Film Rentals, etc.....	12,744.45
Contributions of Trustees, Members, Friends, Foundations, etc.....	328,311.97
Transferred from Capital Funds:	
For Purchase of Specimens.....	6,500.00
Loans.....	8,643.89
Total Receipts.....	<u>\$590,476.19</u>

Disbursements

Administration and Operation.....	\$4,742.02
Scientific and Research.....	278,435.96
Printing, Books and Publications.....	3,300.00
Arts, Preparation and Installation.....	57,046.01
Education.....	31,057.16
Transferred to Capital Funds:	
For Reinvestment.....	4,803.76
Total Disbursements.....	<u>379,384.91</u>

Balance, December 31, 1940

For Specially Designated Purposes.....	211,091.28
	<u>\$590,476.19</u>

*Inter-departmental transfers have been eliminated from receipts and disbursements.

E. ROLAND HARRIMAN, *Treasurer.*

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

THE AMERICAN MUSEUM OF NATURAL HISTORY

CERTIFICATE OF AUDITORS

We have audited the records relating to the cash transactions of The American Museum of Natural History for the year ended December 31, 1940.

Conforming to your usual custom, certain collections to and including February 4, 1941, have been treated as of December 31, 1940, in order to obtain the benefit for the period then ended, of revenue earned during 1940, but which became due and payable on January 2, 1941.

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

(Signed) ADAMS & BECKER

Certified Public Accountants

New York, February 8, 1941.

REPORT OF THE FINANCE COMMITTEE

The Chairman of the Finance Committee reports that there have been received, as additions to the Capital Funds, the following gifts and payments on account of bequests:

Gifts and Bequests:	
Estate of Herman Kappes	\$136,660.28
Estate of Alfred A. Kohn	300.00
Estate of Henry Fairfield Osborn	100.45
Gift of Edward S. Whitney	6,250.00
Membership Fees	1,500.00
	<u>\$144,810.73</u>

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

Receipts

Cash on Hand, January 1, 1940	\$347,939.40
Cash received on account of Gifts, Bequests, and Membership Fees	8,150.45
Proceeds from Sales and Redemptions of Securities, Amortization Payments, etc.	1,750,567.40
Refund on account of Amount Advanced for Foreclosure Costs	270.47
Transferred from Income Accounts for Reinvestment	4,803.76
	<u>\$2,111,731.48</u>

Disbursements

Cost of Securities Purchased	\$1,355,252.44	
Transferred to Income Account for Purchase of Specimens	6,500.00	
Transferred to General Account for Cost of Rehabilitation of Exhibition Halls.	1,415.36	
Transferred to General Account to Liquidate the Deficit in Budgetary Operation dur- ing 1940	11,999.71	1,375,167.51
Balance, December 31, 1940		<u>\$736,563.97</u>

The Capital Funds on December 31, 1940, had a book value of \$14,605,758.48 and a market value of \$13,043,283.96, summarized as follows:

	BOOK VALUE	MARKET VALUE
Cash.....	\$736,563.97	\$736,563.97
Marketable Securities.....	12,013,887.61	11,419,404.49
	<hr/>	<hr/>
Other Investments	12,750,451.58	12,155,968.46
Real Estate.....	1,565,700.13	597,708.73
Invested in Bank Loan.....	259,353.61	259,353.61
Claim against Estate of August		
Kappes.....	30,253.16	30,253.16
	<hr/>	<hr/>
	<u>\$14,605,758.48</u>	<u>\$13,043,283.96</u>

The estimated annual income from our portfolio was \$587,774.26, a yield of 4.02% based on book value and of 4.50% based on market value.

ARTHUR H. BUNKER, *Chairman*

REPORT OF THE SECRETARY—MEMBERSHIP AND PERSONNEL

The membership enrollment reached an all time high in 1940 with the active participation of 25,455 ardent Museum supporters.

An innovation was introduced this year on the occasion of the Twelfth Annual Members' Visiting Day when a field trip was conducted to the Trailside Museum at Bear Mountain, New York, on Friday, May 31. The trip was originally planned for May 28, but inclement weather necessitated postponement, and despite the fact that it rained incessantly on May 31 the 103 Members and guests assembled at the pier voted unanimously to make the trip. Although small in size, the entire group had a thoroughly enjoyable time.

The Membership Department functioned as the circulation agency for *Natural History* and *The Junior Natural History Magazine*. Both publications received more subscribers during the year than ever before.

The Department also assisted the Education Department and the Hayden Planetarium in the promotion of their educational endeavors.

Sincere gratitude is hereby extended to the W. P. A. workers whose labors made possible much of the accomplishments and progress during the year.

The membership enrollment for 1940 was as follows:

Associate Members.....	19,608	Honorary Life Members.....	80
Annual Members.....	3,883	Fellows.....	114
Sustaining Members.....	256	Honorary Fellows.....	15
Corresponding Members.....	26	Patrons.....	229
Supporting Members.....	50	Associate Benefactors.....	66
Contributing Members.....	42	Associate Founders.....	26
Life Members.....	1,030	Benefactors.....	22
Endowment Members.....		8	

THE BOARD OF TRUSTEES

The following officers were reelected at the annual meeting on January 15: President, F. Trubee Davison; First Vice-President, A. Perry Osborn; Second Vice-President, Cleveland E. Dodge; Treasurer, E. Roland Harriman; Secretary, Clarence L. Hay. Trustees of the Class of 1939 were reelected to the Class of 1944: Chauncey J. Hamlin, Suydam Cutting, William Procter, Arthur S. Vernay, A. Hamilton Rice, Frederick H. Osborn, and Robert Earl McConnell.

Changes in several Trustee committees were voted at this meeting:

Executive Committee: Arthur H. Bunker appointed in place of John D. Rockefeller, 3rd.

Finance Committee: Mr. Bunker appointed Chairman in place of E. Roland Harriman who, as Treasurer, continued as a member of the Committee, *ex officio*; S. Sloan Colt appointed a member; A. Perry Osborn and Junius S. Morgan removed.

African Hall and African Collections: William D. Campbell added; Kermit Roosevelt removed.

North American Mammals: Beverley R. Robinson, E. Roland Harriman, H. P. Davison appointed members; Kermit Roosevelt and John D. Rockefeller, 3rd, removed.

New York State Roosevelt Memorial: Major General Frank R. McCoy appointed Chairman in place of A. Perry Osborn who remained a member; Lewis L. Clarke appointed a member; Frank L. Crocker, Robert Earl McConnell, and Richard C. Patterson removed.

North Asiatic Hall: Wilton Lloyd-Smith and Beverley R. Robinson appointed members; F. M. Bailey removed.

Educational Policy: Lewis W. Douglas appointed Chairman; Mrs. Winthrop W. Aldrich, Harold G. Campbell, and Walter A. Jessup appointed members; James Rowland Angell and A. Perry Osborn removed.

The Co-ordinating Committee of General Departmental Committee became simply the *Co-ordinating Committee*. James Rowland Angell and John D. Rockefeller, 3rd, were appointed members of it; Leonard C. Sanford was removed.

A new committee was created, *Australian-New Zealand Exhibits*, with the following personnel: Chauncey J. Hamlin, Chairman; Lincoln Ellsworth; Michael Lerner; William K. Gregory; Roy Chapman Andrews.

The General Departmental Committee of the Trustees and the Committee on Participation in 1939 New York World's Fair were voted out of existence.

Hawkins, Delafield and Longfellow were appointed Counsel in place of Lewis L. Delafield.

At the meeting of the Board of Trustees on May 6 a resolution was adopted expressing the sorrow of the Board at the death of Wilton Lloyd-Smith on February 29. Harold Benjamin Clark was elected a Trustee in the Class of 1940 to fill this vacancy, and Malcolm P. Aldrich was appointed a member of the Executive Committee in place of Mr. Lloyd-Smith.

The Executive Committee, at its regular meeting on June 20, accepted the resignation of Clarence L. Hay from the Co-ordinating

Committee, appointed Cleveland E. Dodge, Robert Earll McConnell, and A. Perry Osborn to this Committee, and confirmed the appointment by the President of Richard K. Mellon as a member of the North American Mammals Committee.

At the regular Executive Committee meeting on October 17 Richard Archbold was appointed a member of the special committee on the Whitney Wing. The appointment of George C. Vaillant as Secretary of the Co-ordinating Committee for one year from July 1, 1940, was confirmed. Dr. Vaillant was relieved of his duties as Associate Curator of Mexican Archaeology during this period.

THE ADMINISTRATIVE AND SCIENTIFIC STAFFS

The Board of Trustees on January 15 approved the appointment of Harold R. Worsnop as Investments Secretary; Addie H. Summerson as Assistant Executive Secretary; Judy L. Peterson as Research Associate in the Department of Herpetology; George G. Goodwin as Associate Curator, and Raymond M. Gilmore as Research Associate, in the Department of Mammalogy. It also voted the discontinuance of Charles E. Hadley and R. E. Bowen as Research Associates, and Katharine K. Aplington as Staff Assistant, in the Department of Experimental Biology; and *The Sky* magazine, with its personnel.

At the spring meeting of the Board, May 6, a resolution of deep regret was adopted on the death on March 28 of Albert R. Brand, Associate in Ornithology. Arthur L. Draper's resignation as Assistant Curator in the Department of Astronomy and the Hayden Planetarium, with the privilege of reinstatement within six months from June 1, 1940, the date of resignation, was approved, as was the temporary appointment of James Stokley as Associate Lecturer in the same Department. The Board also approved the discontinuance of William J. Morden as Field Associate in the Department of Mammalogy as of February 28, 1940, and of Gladys L. Pratt as Associate in Education as of May 15, 1940.

The establishment of a Department of Micropalaeontology (as a section of the existing Department of Palaeontology), with Brooks F. Ellis Curator on half time and Angelina Messina Associate Curator on full time, was approved at the regular meeting of the Executive Committee, June 20, but this action was not to take effect until the President was satisfied that adequate funds were subscribed to insure the proper distribution of the original catalogue, and the financing of

the necessary personnel and equipment to provide suitable continuation service for at least one year.

A resolution of appreciation of the services of Charles C. Groff, Mechanical Superintendent, who died on September 18, was passed by the Executive Committee on October 17. The Committee on this date also appointed Otto H. Haas Research Associate in Palaeontology for approximately one year, beginning October 1, 1940. The Emergency Committee in Aid of Displaced Foreign Scholars voted a grant to the Museum to support the research project to be carried on by Dr. Haas. The resignation of R. E. Blackwelder from his post as Assistant Curator of Coleoptera, as of August 15, was accepted.

The Director announced to the Board on November 12 the appointment of Victor William Ronfeldt as Mechanical Superintendent, the appointment to take effect on that day.

ADMINISTRATION OF THE YEAR 1940

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First Vice-President

A. PERRY OSBORN

Second Vice-President

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Treasurer

E. ROLAND HARRIMAN

Secretary

CLARENCE L. HAY

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DANIEL E. POMEROY

CORNELIUS V. WHITNEY

H. RIVINGTON PYNE

H. B. CLARK

S. SLOAN COLT

Class of 1941

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E. ROLAND HARRIMAN

CLEVELAND E. DODGE

JOHN D. ROCKEFELLER, 3RD

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LINCOLN ELLSWORTH

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MAYOR OF THE CITY OF NEW YORK

JOSEPH D. MCGOLDRICK

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ROBERT MOSES

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(The President is an *ex-officio* member of all Committees)

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 CLARENCE L. HAY
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Treasurer, ex officio
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LEONARD C. SANFORD WILLIAM PROCTER

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North Asiatic Hall

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CLYDE FISHER*

*Member of the Scientific Staff.

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*Member of the Scientific Staff.

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H. E. VOKES, Ph.D., Assistant Curator of Invertebrate Palaeontology
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CHARLES C. MOOK, Ph.D., Research Associate
OTTO H. HAAS, Ph.D., LL.D., Research Associate in Palaeontology

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FRANK J. MYERS, Research Associate in Rotifera
HORACE W. STUNKARD, Ph.D., Research Associate in Parasitology
A. L. TREADWELL, Ph.D., Sc.D., Research Associate in Annulata
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CYRIL F. DOS PASSOS, LL.B., Research Associate in Lepidoptera
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ERNST MAYR, Ph.D., Associate Curator of the Whitney-Rothschild
Collections
CHARLES E. O'BRIEN, Assistant Curator
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HISTORY

PRESIDENCY OF JOHN DAVID WOLFE, 1869-1872.

1869 Museum incorporated. Constitution adopted as drafted by Joseph H. Choate.

1870 First home secured, the Arsenal, Central Park.

1871 The City of New York appropriated \$700,000 for building. (Section I.)

PRESIDENCY OF ROBERT L. STUART, 1872-1881.

1874 Cornerstone of first section of building laid by President Ulysses S. Grant.

1878 Contract adopted between Trustees and Department of Parks, as drawn up by Andrew H. Green and Joseph H. Choate.

1880 Educational work with the schools inaugurated by Professor Albert S. Bickmore.

PRESIDENCY OF MORRIS K. JESUP, 1881-1908.

1892 Museum opened to the public on Sundays.

1887—1905 The City of New York appropriated \$4,218,820.94 for eight new building sections, II-VIII, and XV.

1907 Museum opened free to the public every day in the year.

1908—1917 Mr. and Mrs. Jesup bequeathed \$6,000,000 to the Museum.

PRESIDENCY OF HENRY FAIRFIELD OSBORN, 1908-1933.

1908 Constitution amended making the Mayor, the Comptroller and the President of the Department of Parks, *ex-officio* members of the Board of Trustees.

1921 Greater New York Charter amended, placing the Museum on the same basis as Public Schools with respect to Corporate Stock Appropriations, by Chapter 618 of the Laws of 1921, State of New York.

1921—1925 The City of New York appropriated \$2,233,800 for new sections, IX-XI, and equipment and alterations of old sections.

1924 The State of New York provided for the Theodore Roosevelt Memorial (Educational). Cost \$3,500,000. (Original Chapter 615 Laws of 1924.) (Building Section XII.)

1929 Appropriation of \$3,550,000 by the City of New York for construction of African Wing, Power Plant and Service Building, and Whitney Wing. (Sections XIII, XVII and XIX.)

Contribution of \$750,000 by Harry Payne Whitney for one-half cost of Whitney Wing. (Section XIX.)

1932 Completion of the African Wing. (Section XIII.)

1933 Completion of the Whitney Wing. (Section XIX.)

PRESIDENCY OF F. TRUBEE DAVISON, 1933—

1934 Contribution of \$150,000 by Charles Hayden for purchase of Zeiss Projection Planetarium and Copernican Planetarium.

The American Museum of Natural History Planetarium Authority erecting Planetarium Building with funds (\$650,000) secured through loan from the Reconstruction Finance Corporation. (Section XVIII.)

1935 Opening of the Hayden Planetarium. (Section XVIII.)

1936 Dedication of the Theodore Roosevelt Memorial. (Section XII.)

CAPITAL FUND

The Capital Fund was established in 1884. It now amounts to \$14,605,758.48 (book value). The Trustees especially desire to insure the permanent growth and welfare of the Museum through an increase of the General Endowment Fund. The additional sum of \$10,000,000 is needed at present.

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