

THE AMERICAN MUSEUM OF NATURAL HISTORY

EIGHTY-THIRD ANNUAL REPORT
JULY, 1951, THROUGH JUNE, 1952

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THE CITY OF NEW YORK
1952

EIGHTY-THIRD 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*

THE twelve-month period ending June 30, 1952, completed my first full year as President of the American Museum of Natural History. During this period, the Trustees received and approved for adoption the recommendations made by the management firm of Cresap, McCormick and Paget in their exhaustive study of our organization. The changes made during the year have been accepted in good spirit by the staff, and cooperation has been excellent, despite the fact that the rearrangement of responsibilities inevitably created certain disappointments for a few individuals.

During the year we received \$138,303 in private contributions for our scientific and educational work, almost exactly the same sum as in the previous twelve-month period. It is interesting to review our progress in obtaining private support (exclusive of bequests and foundation gifts) since 1937 when the Museum Contributors Program was started. In the first year, we received \$20,400 from 24 individuals. From 1938 to 1943, the number of donors ranged from 750 to 1000, and the yearly gifts totaled from \$75,000 to \$102,000. From 1944 to 1952, we have welcomed many more individuals as contributors, the numbers increasing from 1100 to a high of 2100 and averaging above 1900 for the last two years. During the last eight years, our contributions have run between

\$120,000 and \$170,000. It is obvious that this broadened base of gifts from private individuals has become of vital importance, for taxation has placed the so-called "patron" in a class as extinct as the dinosaur. We can no longer look to a small number of wealthy people to carry a major portion of the cost of our scientific program.

In the twelve-month period just ended, the Women's Committee of the Museum Contributors Program was ably headed by Mrs. Paul E. Peabody, who has consented to continue as Chairman for the coming year. Mr. August Belmont concluded two years of excellent work as Chairman of the Men's Committee and has been succeeded by Mr. C. DeWolf Gibson. The instructive and amusing newsletter entitled "Museum Memo" written by John O'Reilly is receiving an enthusiastic welcome by all those who participate in the Contributors Program.

We are actively seeking an increase in our list of annual members, who subscribe \$15 and receive therefor the privileges of attendance at lectures and special exhibitions, as well as a subscription to *Natural History Magazine*.

The condition of our endowment funds continues to improve, owing partially to new capital gifts but more importantly to the excellent management of our security account by the Finance Committee. Careful attention to our substantial position in common stocks during this era of inflation has been well rewarded, as evidenced by the record. Ten years ago, our endowment funds were valued at market in round figures at \$12,100,000 as against \$19,400,000 on July 1, 1952, the latter figure representing an increase of \$900,000 over the previous year after providing for a transfer of \$150,000 to meet our operating deficit.

Despite the increase in income from our own funds and the City of New York, and despite the adoption of recommendations for greater operating efficiency by the Cresap firm, we continue to operate at a deficit and con-

sequently must look to other sources to make ends meet. Your officers are actively pressing all means of obtaining revenue from the avenues opened up by motion pictures and by radio and television programs.

It was of great interest to observe that the British Labor Party in July attacked the present Conservative Government for partially closing national museums and art galleries in order to save relatively small amounts of money. We believe that, regardless of which party is in office in our own city, state, or national governments, it is now a widely recognized and supported public policy that economy at the expense of independent institutions such as this Museum would be penny-wise, reflecting no credit on the cultural heritage of our western civilization. A recent publication of the National Planning Association, edited by Beardsley Ruml, has an excellent chapter devoted to the subject of museums written by Laurence Vail Coleman. I quote the opening paragraph herewith: "Museums are enduring institutions in a world of things that shift and pass away. If given support they develop. In the absence of support they hold fast doggedly, waiting for a chance to respond to better times. This tenacity, which makes these institutions good investments in their way, can be explained by the fact that museums are founded on treasured physical assets—their collections of worthy and often unique things. Museum collections tend to increase in value, meaning, and importance with the passing of time. It is no accident that many of the great individual fortunes of yesterday are now perpetuated in museums and museum holdings."

The nation's new position of world leadership offers us the challenge of creating a program to help our friends who are doing similar work in less fortunate areas of the world. One of the most effective ways of aiding would be to create a scholarship program, from which we would benefit as well as the scholar. We hope to interest friends who would make it

possible for us to allot funds for foreign graduate students, who could learn as they were helping in some of our research. This matter is currently receiving our active consideration.

The long steel strike again delayed the start on our new library building, although work is now scheduled to begin in December. Architect's plans have been drawn up for a modern auditorium and are out for bids.

Progress on our new exhibition hall program will be reported on in the following pages by Director Parr. Substantial support has been received and is still being sought for the beautiful new Hall of North American Forests.

It is satisfactory to report that our buildings are being placed in better physical condition than has been the case for a long time. Many of our older halls and rooms have been painted and rearranged to produce more cheerful and efficient working spaces. After operating our own power plant for over half a century, we have entered negotiations, now far advanced, for terminating this inefficient operation and for purchasing electricity and steam from the Consolidated Edison system. Although a substantial capital expenditure will be required to effect this conversion (which should be completed in 1953), very large annual savings can be realized.

For the first time in the Museum's history, two women members were elected to our Board of Trustees—President Millicent McIntosh of Barnard College and Mrs. Richard Derby, daughter of the late Theodore Roosevelt, whose memory is honored in the Roosevelt Memorial. Other new members of the Board are Mr. John Olin, who brings us further representation from the Middle West, and Mr. Jules R. Timmins, the first representative from Canada; and, *ex-officio*, Mr. Francis Cormier, replacing Mr. William Latham, representing Park Commissioner Robert Moses. During the year, we were saddened by the loss of loyal and generous Trustees in the deaths of Mr. Beverley R. Robinson and Mr. George M. Moffett. The record of their long period

of service will be a continued inspiration to those of us who constitute the present Board.

In concluding the President's brief section of this report, I give as my opinion that it would be overly optimistic to expect that the Museum could operate without a deficit until such time as at least \$5,000,000 have been added to our capital funds. Our objective, therefore, should be to see that this is achieved in the not too distant future. We must go forward solidifying our scientific gains and increasing our usefulness to the public in the years to come.

Alexander M. White

THE MUSEUM EXPLORES THE WORLD

REPORT OF THE DIRECTOR

A. E. Parr

IN the days when more than half of the world of land and seas was totally or essentially unknown to western man, explorers, seafarers, and other travelers kept a steadily growing stream of peculiar and exciting objects flowing back to their home ports, as souvenirs of their adventures and illustrations of their tales, tall and otherwise. It soon became necessary to furnish common repositories for large parts of these growing collections and to create a body of knowledge for their classification, interpretation, and appraisal in order to separate the dross from the gold and to bring order out of chaos. Private societies were formed, and governments sometimes took an active part, even in the early stages. So natural history museums, and the curatorial profession, were born in the adventurous tradition of exploration and made this tradition their own.

Starting as by-products of exploration, the museums soon became the centers and sources of the very kind of activities from which they themselves had sprung. The task of increasing our knowledge of the world around us through active exploration of all its parts is one of the oldest, and remains one of the first, duties of the natural history museums.

In the last annual report an attempt was made to outline the scope of the Museum's present-day functions in education and research, of the methods and objectives pursued in its work, and of the logic that has governed the evolution of its program in recent times. To achieve a better understanding of what the Museum stands for in the modern world of science and education, it was necessary to give special emphasis

to the newer and therefore less widely known and understood aspects of Museum activities. In the present report we shall devote our main attention to the manner in which the Museum continues to discharge its oldest obligation, that of exploring the unknown, a task that will never be finished so long as the world keeps on changing and our knowledge remains incomplete and without finality.

In the early days the tasks of exploration were, in a sense, simpler. There were totally unknown parts of the world to be discovered. Almost anything the traveler might see and bring back with him would be new to his people and to western science, even to the knowledge of the locations of land and sea, mountains and plains.

Exploration tended to take the form of long voyages and circumnavigations of the globe, with brief stops for observations and collecting everywhere but with no long halts for a thorough study of nature or people anywhere. This tradition remained predominant up to the last half of the last century, and produced some of the most valuable collections now found in museums. But as the world became better known, the hop-skip-and-jump method of exploration, which could yield only the most obvious observations and the most easily secured specimens, began to show diminishing returns. We are no longer exploring totally unknown parts of the world; we are exploring to complete our knowledge of what is only superficially and incompletely known. Each expedition is usually planned for the purpose of securing very specific types of information and material from a strictly limited area, in which the party will spend a long time. The word "expedition," with its romantic associations with the idea of distant and long voyages, is increasingly replaced by such words as "survey" or simply "field work" to describe the manner in which the task of exploration is carried forward today.

When exploration in width had given us a superficial knowledge of the world, and exploration in depth began, it

was, in many respects, almost a new start, and there was as much to be discovered at home as there was abroad. To say that you can explore in your own backyard has become trite by repetition, but it is none the less a true and very significant statement of fact.

When we speak of the Museum's activities in exploration today we are therefore thinking not only of expeditions to New Guinea, but also of studies at Bear Mountain and in northern New Jersey, surveys in the Bahamas, or field work in Long Island Sound, in New Mexico, or in Mississippi. Although the Museum almost every year also sends expeditions to distant continents, by far the greater part of its exploratory effort is spent within the Western Hemisphere, and particularly within North America and adjacent islands and seas. However, the extent to which this over-all picture also holds true within each of the many disciplines of natural history and anthropology differs from subject to subject, depending upon the state of knowledge in each. It may be of interest to review briefly what has been done by the Museum since the end of the war made the resumption of normal exploratory activities possible.

The Department of Anthropology may actually be regarded as a division of the Museum combining three departments with separate but related objectives. *Physical Anthropology* concerns itself with the evolution, anatomy, and functioning of man as a biological organism. *Ethnology* deals with the material cultures of the living peoples of the world, their ways of life, their inventions and utensils, the organization of their societies, and so on. *Archaeology* devotes itself to the discovery and interpretation of the buried evidence of past civilizations.

Usually the objectives of the three departments of anthropological activities require separate explorations for each. But sometimes the purposes of all can be advanced within the program of a single expedition, particularly when it concerns

a region of which our general knowledge is still very slight. This was true of the two expeditions to Afghanistan conducted by Walter A. Fairservis, Jr., in 1949 and in 1950-1951.

The excavations and *archaeological* surveys of these expeditions have been instrumental in determining the order of human cultures in these regions from a pre-ceramic, hunting and gathering society to an elaborate agricultural civilization. The peculiar character of some of these ancient cultures is demonstrated by the number of objects which illustrate influences from Mesopotamia as well as from India.

In an effort to compile data of use in comparing modern village life with that of ancient times, a number of *ethnological* surveys were carried on. One very important result of this work was the discovery of the tendency for modern villagers to build on the same plots as those used by the prehistoric farmers, or very near by. Rarely was a site discovered which did not have a Moslem village close by. The inference is that a way of life has changed very little since 3000 B.C.

The expedition also added substantially to our knowledge of *physical anthropology* by measurements, photographs, and blood-typing of several thousand representatives of the varied populations of Pakistan and Afghanistan, including the Brahui, Hazara, Pathan, Tajik, Uzbek, Turkoman, and other tribes.

Field work specifically devoted to *physical anthropology* was carried out by Rupert I. Murrill on Ponape in Micronesia, during 1946-1947, with a study of the physical character and constitution of the racially mixed groups inhabiting this island.

In 1947 Harry L. Shapiro organized a biological and cultural survey of Puerto Rico with the cooperation of the Social Science Research Center of the University of Puerto Rico. With the field assistance of three graduate students from Columbia University, a year was spent gathering data on the physical status of the Puerto Rican population, includ-

ing information on physical development, environmental effects, racial factors, blood types and analyses, parasites, and various other problems.

In 1949 Dr. Shapiro visited New Zealand and was able to make some studies on the native population, which complemented some of his previous investigations of other sections of the Polynesian people.

During 1945-1946, Preston Holder undertook an *ethnological* field study of the hostile Motilone Indians of Colombia, financed by the Colombian Petroleum Company. Although the hostility of the tribe made close contact and observation impossible, valuable experience and knowledge were gained.

In the same year Colonel and Mrs. William J. Morden, accompanied by Kepler Lewis, led an expedition to South Africa, Rhodesia, Belgian Congo, Tanganyika Territory, and Kenya Colony. Large ethnological collections, including valuable material not previously represented in the Museum, color films of the Turkana, Suk, and related peoples, and data for an ethnological report were brought back to the Museum.

The value of undertaking such ethnological collecting as that carried out by the Morden expedition at this time cannot be overemphasized. As the manufactured products and the production methods of western civilization penetrate more and more widely, they gradually replace the products of native crafts and modify styles and ways of life. Often the crafts themselves are forgotten and the artifacts they have left behind as evidence of the original culture will soon disappear and be lost to science, unless they are quickly collected over the next few decades and properly preserved for future study. This is also in a high degree true of ceremonial and religious objects and the records of original rituals, which give way to the penetration of the Christian and other major religions. These processes have been greatly accelerated by the wide contacts between western man and previously isolated peoples brought about by the last world war. The task of collecting

the objects and observing the ways of life before they disappear or change completely is therefore more urgent than ever before. The Museum needs all the assistance it can get in this effort from interested travelers and others.

In the summer of 1951, Margaret Mead spent three months in Australia to survey the possibilities of combining research on Australian aborigines and on contemporary Australian cultures with comparisons with the early American colonial stage of civilization and culture contact.

On a visit to Costa Rica, in the spring of 1952, to install a North American Indian exhibit in the Museo Nacional, Harry Tschopik, Jr., found opportunity to make a brief field study of contemporary rural communities (Indian, Mestizo, Negro, and White) and also to make a collection of ethnological and archaeological objects.

In *archaeology* the efforts of the Department of Anthropology are concentrated upon the prehistory of the New World, in which it has outstanding collections, and a long tradition of leadership to uphold. Only when special opportunities present themselves, as in the case of the Fairervis expeditions, is the program extended to other continents.

During 1945-1946 Helge Larsen made collections and studies on Amaknak Island, in the Aleutians, where he found indications of two successive cultures with good evidence of some relationship to the Ipiutak culture at Point Hope, Alaska.

In the following year Junius B. Bird and James A. Ford were both separately engaged in archaeological surveys in Peru, Mr. Bird concerning himself with the oldest remains, Mr. Ford with the somewhat later cultures. In the course of this work Mr. Bird succeeded in bringing to light evidence of the oldest human inhabitation so far discovered in coastal Peru, dating from about 2500 B.C., as determined by Carbon 14 analysis. These early inhabitants had developed an agricultural civilization and knew how to make textiles but had not learned to create pottery from clay. There is some

suggestion that now extinct mammals, such as South American elephants, may still have lived at the time of these first human communities.

Gordon F. Ekholm spent the first half of 1947 in Vera Cruz, Mexico, exploring the remains of a period and a region which have been largely neglected in the previous studies of the marvelous antiquities of Mexico. In the spring of 1950 Dr. Ekholm participated in an archaeological survey on the Caribbean coast of Honduras and British Honduras and on adjacent islands. The results have thrown new light upon the antiquity of a little-known region and upon the extension of prehistoric civilization through Central America.

Since 1946 James A. Ford has concentrated his field work upon the early archaeology of the North American Indians of the Mississippi Valley, working in Mississippi in 1950 and in Texas and Louisiana in 1952. Among the results of these investigations is the discovery of artificial earthworks, six to ten feet high, consisting of six concentric octagons, of which the outer one has a diameter of about three-quarters of a mile. Dr. Ford was also able to demonstrate the entirely man-made nature of a 70-foot high, T-shaped mound, which seems to be oriented with definite reference to north and south, east and west. These impressive structures were probably of a ceremonial significance and use and were created by Indians who would appear to have lived before 1500 B.C. and had not yet learned the making of pottery. Another point of interest revealed by this work is the fact that all the Indian mounds of the region, although they may be far from the rivers today, are actually arranged along ancient channels of the Mississippi and its tributaries.

During 1951-1952 the Department of Anthropology co-operated with Columbia University and the State University of Montana in sponsoring an archaeological field project in Montana. Flint weapons of three early cultures, including the Folsom and Yuma cultures, were uncovered.

The Queeny African Expedition of 1950 was financed and undertaken by Edgar Monsanto Queeny primarily for the benefit of the Museum's activities in public education. But the documentary film records in sound and color, both of native life and of the wild life of Africa, which were brought back from this expedition are of such outstanding quality and interest to science and public alike that they may find their proper mention here, before we turn from the subject of anthropological explorations to field work in the zoological sciences. The major emphasis was placed upon the efforts to secure a record of the anthropology and of the birds and mammals of some of the central East African areas least disturbed by civilization. Approximately 120,000 feet of film were exposed. From this rich material four films have already been completed for public showing. "Latuko," an interesting documentary record of the daily life of the Latuko natives of the Anglo-Egyptian Sudan, has already been shown in many theaters in the United States and has proved of great interest to the public. Another full-length feature, "Wakamba," with magnificent scenes of native and animal life in the Wakamba country of Kenya, is ready to be shown. "Wanderobo" presents the unusual story of how the honey-guide bird leads the natives to the trees in which beehives are hidden, thereby benefiting from the remnants of what the natives dig out but the birds themselves cannot reach. "Baganda Music" is a short educational film dealing with native music in Uganda.

In the field activities of the biological departments of the Museum, from mammals to the lowest invertebrates, an interesting geographic pattern of exploration is noted. The warm-blooded animals, birds and mammals, have always been subjects of great public interest and of great practical concern to hunters and farmers, and to many others. They are, by comparison with the rest of the animal kingdom, generally quite large and therefore more likely to cause attention when

caught or observed, and the number of their species is small compared with the myriad species of insects and lower forms of life. Even in the new phase of intensive, rather than extensive, exploration of nature, our knowledge of these higher forms of life on home territory is so relatively far advanced that our Departments of Mammals and of Birds still continue to find their most challenging tasks beyond distant horizons, while the other zoological departments concentrate their efforts upon the northern half of the Western Hemisphere.

During the years since the last world war, the Department of Mammals has sent several expeditions into the field for the exploration of the faunas of Africa and Australia.

In 1946 Harold E. Anthony accompanied Arthur S. Vernay on the Vernay Nyasaland Expedition, which was intended to fill the gap in our collections and records of the African fauna left between the material previously gathered farther to the south by the earlier Vernay Zambezi Expedition and work done farther to the north, in Kenya and Tanganyika, by other expeditions. The endeavor was eminently successful and brought back a large collection of mammals (873) and a sizable collection of reptiles from an area which had not previously been represented in the Museum. A very large botanical collection was also obtained by Leonard J. Brass.

The Rutherford African Expedition, headed by Mr. and Mrs. Hugo Rutherford, accompanied by T. Donald Carter, spent most of 1946 in Kenya making observations and collecting 550 specimens of the mammals of that colony.

The Archbold Cape York (Australia) Expedition of 1948 was one of a continuing series of research projects organized and financed by Richard Archbold with the objective of studying the fauna and flora of Australia and New Guinea. Under the leadership of L. J. Brass, who was accompanied by G. H. H. Tate and H. M. Van Deusen of the Museum and G. M. Tate of the Archbold Laboratories, an intensive survey

was made of the fauna of the tip and eastern side of the Cape York Peninsula. This undertaking, probably better equipped than any previously entering the Cape York region, was able to show that a substantial part of the mammal fauna, particularly that inhabiting the rain-forest hills of the eastern side of the cape, came south from New Guinea across the Torres Strait to the north, while the mammals of the plains on the western part of the Peninsula were not only purely Australian but had also passed northward across the Torres Strait and invaded the open grasslands of southern New Guinea from the south. It was thus shown that the Peninsula had served, perhaps for a very long period of time, as the bridge across which members of the Papuan and Australian faunas had moved in both directions. Among the physical results of the work were collections including 1500 specimens of mammals, large numbers of other vertebrates, important invertebrate material, and an unusually fine botanical collection. The value of the expedition was further increased by the fact that it gave opportunity for G. H. H. Tate to make a very satisfactory reconnaissance of the fauna of Queensland, Australia, before and after the work at Cape York.

Within the Western Hemisphere the Bancroft Expedition of 1952, undertaken by Thomas M. Bancroft accompanied by T. Donald Carter, added valuable information to our knowledge of the mammals of North America, particularly with regard to a peculiar race of white-footed mouse that is found on one of the islands off Vancouver.

Another kind of field work, for which the services of the Museum's mammalogists and ornithologists are often called upon, is connected with the problems of conservation of the wild life of our own country and its possessions. A project of this sort was the Friedman-Anthony Alaska Expedition of 1948, undertaken at the request of the Director of the National Park Service, for the purpose of making observations related to the proper protection of some of our most famous and cherished

big game, as well as other four-legged inhabitants of our northernmost territory, of great interest both to science and to the public.

Expeditions of a third type conducted by the Department of Mammals are sent out for the particular purpose of obtaining material for new habitat groups for public display. Since the department's objective has been the completion of the new Hall of North American Mammals, these expeditions have, since the war, all been confined to North America. Each expedition of this sort consists of a task force of artists and other experts, with a very specific objective, such as securing the specimens and field observations for a Black Bear Group from Florida. During the period 1946-1952, the department sent out seven such task forces to collect exhibition material from California, Oregon, Florida, Michigan, New Hampshire, the Gaspé Peninsula of Quebec, and the Okefenokee Swamp in Georgia.

Like the Department of Mammals, the Department of Birds also devotes a great deal of its field work to distant regions. But while a rich mammal fauna usually requires a quite large and not too isolated land area for its existence, birds extend their distribution freely even to the smallest oceanic islands. Unlike the mammalogists, the ornithologists are therefore as interested in the small-island faunas as in the faunas of the largest islands and the continents. This difference is reflected in the geographic distribution of the field work of the two departments.

The Department of Birds has long maintained a leading position in the study of the birds of the Pacific islands and of oceanic birds. Even while a member of the armed forces in the Pacific, Dean Amadon found opportunity to do valuable field work in the Philippines and Hawaii in his spare time and thus to make a good start towards several important contributions to ornithology subsequently published by him.

In 1947-1948 E. Thomas Gilliard also made studies and

collections of the birds of the Philippines. Mr. Gilliard's field work has since been concentrated in New Guinea, which he visited in 1948 and 1950 and where he again returned in the early spring of 1952 by cooperative arrangement with Armand Denis. This work not only has added substantially to our knowledge and collections of the birds of these little-known areas but has also provided material for the completion of the splendid exhibits in the Whitney Hall of Oceanic Birds and served to secure thoroughly documented motion pictures of the behavior of birds, particularly the birds of paradise, equally fascinating to science and to the general public.

In 1945 Robert C. Murphy visited the Perlas Islands in the Gulf of Panama at the invitation of the Chemical Warfare Service, bringing back many specimens as well as much information supplementing the findings of the Askoy Expedition of 1941.

In the Atlantic, the Department of Birds has done interesting field work in the Bahamas in association with the Lerner Marine Laboratory at Bimini. Charles Vaurie visited these islands in 1951, accompanied by his wife, and Ernst Mayr spent some time there in 1952 testing principles of evolution and classification.

A minor expedition that proved of world-wide popular interest was Dr. and Mrs. Murphy's visit to Bermuda in 1951, which led to the discovery of the breeding grounds of the cahow, a historic seabird that had generally been thought to be extinct. So far as is known, only two living cahows had previously been seen throughout three centuries. As a result of this rediscovery, the Bermuda Government has now taken steps towards the protection and restoration of this interesting bird.

The department has also concerned itself with the study of bird life on Gull Island, in Long Island Sound, which is now the property of the Museum under the supervision of Richard Pough, Co-ordinator of Conservation.

Although island faunas have played a major role as objectives of the field work of the bird department, the department's activities in exploration have by no means been limited to such localities.

Walter Koelz, of Ann Arbor, Michigan, has been collecting birds in Persia and parts of India at intervals since 1945, under an arrangement whereby half of the collections will go to this Museum. The collections already exceed 30,000 specimens.

Resident collectors in several parts of Australia have been employed to secure specimens needed for Ernst Mayr's work on a revision of the birds of Australia.

Robert C. Murphy visited New Zealand in 1947-1948 and again in 1949. The special object of the first trip was to make studies and obtain the necessary specimens for the Snares Island and Lake Brunner exhibits in Whitney Memorial Hall. Most notable among the results of the second trip were the skeletons of moas and other large fossil birds assigned to this Museum in recognition of Dr. Murphy's participation in the work of excavation. As a consequence, the Museum now has the world's best collection of moas outside New Zealand.

William H. Phelps and his son, W. H. Phelps, Jr., have for many years carried on a well-organized investigation of the birds of Venezuela, from which the Museum has benefited by exchange of specimens, by the deposition of types in our collection, and in other ways.

In 1946-1948, and again in 1952, Dean Amadon participated in zoological explorations in Mexico. Charles Vaurie made a small but extremely useful collection of French birds for the Museum in 1951.

Although it receives collections from all parts of the world, the Department of Amphibians and Reptiles has for a number of years confined its own field work to the United States, Mexico, and the West Indies. Since 1944 data have been accumulating in connection with one of the department's

major projects, which may be traced back to work initiated in the Colorado Desert of California in 1938. This project has for its purpose a study of the relationship between the reptiles and their environment, particularly in regard to the temperature tolerance and requirements and to the geographic distribution of these animals. In 1944 Charles M. Bogert, together with Edwin H. Colbert of the Department of Geology and Paleontology, spent some time at the Archbold Biological Station in Florida, studying the temperature tolerance of alligators and collecting specimens and body temperature records of lizards. The results showed that, although the lizards are supposed to be "cold blooded," which has been taken to mean that they should have the temperature of their environment, two distantly related species living side by side are able to maintain quite different body temperatures by adjustments in their behavior. In the following year Mr. Bogert made similar studies at the Boyce Thompson Southwestern Arboretum in Arizona, which added the further information that different but closely related species living far apart and in totally different environments, such as Florida and Arizona, maintain virtually identical body temperatures. In other words, body temperature may be a systematic character of the species even among so-called "cold-blooded" vertebrates. In 1946 the study of this phenomenon was further pursued during field work in Mexico, combined with general explorations of the Mexican reptile fauna, which also led to the discovery of various new species. In 1947 additional investigations were made in Mexico, and in California, Arizona, and New Mexico. Up to this point the field work had been limited to temperate and subtropical regions. In 1948 it was extended to the tropics, when Mr. Bogert was invited to visit the Panamerican Agricultural School maintained by the United Fruit Company in Honduras. In 1950 studies were made at the Lerner Marine Laboratory at Bimini, Bahamas.

During the summer of 1951 the desirability of investigating

conditions at higher elevations led to the selection of the extinct volcano of ZinantecatI in Mexico as a site of operations. Although the volcano rises to more than 15,000 feet, reptiles and amphibians were found to have their upper limit at about 12,500 feet. Reptiles at this high elevation were found to have body temperatures appreciably higher than the temperatures of their environment, which points to the existence of adaptive modifications that permit them to absorb the heat from the sun at a vastly accelerated rate compared with the reptiles from warmer regions.

In the course of the development of this project the observations have also been extended to amphibians, and Mr. Bogert's investigations have also been advanced by the cooperation of field parties working in other regions. In 1950 Mr. and Mrs. M. Hecht contributed observations from Jamaica, British West Indies, where they, together with members of the staff of the Museum of Comparative Zoölogy of Harvard College, were making collections of both fossil and living amphibians and reptiles. On his visit to New Zealand during the same year Robert C. Murphy, of the Department of Birds, was instrumental in obtaining valuable records of the body temperature of the tuatara (*Sphenodon*), a "living fossil," in its native habitat, through the kind cooperation of Mr. William Dawbin. Mr. Dawbin's observations indicate that this primitive reptile is active at temperatures far below those tolerated by any other reptile that has been tested. This discovery may prove of great interest for our understanding of the evolution of the reptiles, and of the "warm-blooded" birds and mammals as well.

The results of this project so far indicate that among the amphibians the salamanders exercise virtually no control of their body temperatures, while some, but not very accurate, control is exercised by the toads. But all reptiles, while abroad and active, are able to maintain a body temperature that is characteristic of the species regardless of region, time of year, sex, or size.

Among other explorations conducted by the Department of Amphibians and Reptiles, it may be mentioned that James A. Oliver, in 1947, made a survey of the fauna of Bimini in the Bahamas. Surveys in Virginia were undertaken by Mr. Bogert in 1948 and 1949. The studies by Mr. and Mrs. Hecht in Jamaica, in 1950, have already been mentioned. In 1951 they made investigations of amphibians at the Archbold Biological Station in Florida. In the spring of 1952 E. R. Dunn left for Panama and Barro Colorado Island to continue his studies of the fauna there, together with his wife; and John A. Moore left for Australia, aided by a Fulbright Fellowship, to carry out ecological and embryological studies of amphibians.

Since the establishment of the Lerner Marine Laboratory of our Museum at Bimini the Department of Fishes and Aquatic Biology has in a large measure concentrated its field work at this station, with substantial aid from the American Cancer Society, the Damon Runyon Memorial Fund, and the United States Public Health Service for the study of various aspects of the growth and development of fishes, which forms part of the field research program. The investigations at the Lerner Laboratory were reviewed in the last annual report. However, the department's activities in the field have not been limited to this locality.

In 1946 the department sent the last expedition to Mexico in continuation of the investigations on the blind cave fishes and other cave fauna conducted by Dr. Charles M. Breder, Jr.

In 1951 and again in 1952, William S. Glazier, at his own expense, made notably successful field trips to Andros Island in the Bahamas for the purpose of developing satisfactory methods for under-water photography of motion pictures in color.

In 1950 John C. Armstrong made an expedition to the Bahamas, on his own vessel, supported by a grant from the Office of Naval Research. With the study of physical ocean-

ography as its primary objective, the expedition also made valuable collections of marine invertebrates and collaborated with another field party, under Norman D. Newell of the Department of Geology and Paleontology, which did research in the Bahamas at the same time.

Francesca R. La Monte made two trips to the Pacific coast of Mexico, in 1948 and 1949, for her study of the Pacific marlins.

Dr. Breder has also continued his experiments and observations on fishes in northern New Jersey.

Since the war the Department of Insects and Spiders has added almost half a million specimens to its collections, through field work within the Western Hemisphere. These explorations form part of a definite program for the study of the interrelationships of the insect and spider faunas of the United States, Mexico, and Central and South America.

Through the support of the late Mr. Frank Johnson, the department was able to send John Pallister to Peru for nine months in 1946-1947. As a result the Museum now has one of the finest collections of Peruvian insects to be found anywhere. The support of Mr. Johnson also enabled Dr. and Mrs. Charles Vaurie to make very important collections in Guatemala in 1947.

One of the major phases of the over-all program is the study of the interrelationship between the faunas of the United States and Mexico. In 1946 the department was able to purchase a major collection of Mexican insects and to have Mr. Pallister make large additional collections in that country, again through the generosity of Mr. Johnson.

The David Rockefeller Mexican Expedition of 1947, under the leadership of Mont A. Cazier, collected almost 100,000 insects and spiders from the north central states of Mexico. A number of scientific papers based upon this material have already been published.

In 1948 Dr. Cazier made a 21,000-mile trip through 38 of

the United States in quest of tiger beetles, which form the subject of a long-continued investigation that is expected to give results of great interest to the general student of evolution and classification as well as the entomological specialist. Dr. and Mrs. Vaurie visited the southwestern states in 1948, the central and northwestern states, and southern Canada in 1949, for the same purpose.

In 1949 Willis J. Gertsch made extremely valuable collections of spiders from high altitudes in the Rocky Mountains. Dr. Gertsch also collected in Ontario in 1946 and 1948, and did field work in Mexico, together with Dr. Cazier, in 1950 and again in 1951 and 1952.

Most of the members of the staff of the Department of Insects and Spiders visited the Lerner Marine Laboratory at Bimini at various times in 1950 and 1951, securing much valuable information from their observations of the local insect fauna.

In the Department of Animal Behavior T. C. Schneirla has organized a long series of field expeditions since the war, conducting most of them himself. The object of these undertakings is the study of the behavior of the army ants, and many of the results have already received considerable popular attention. These piratical ants carry out their great raids by day and shift their headquarters by night, at intervals of surprising regularity, alternating between a nomadic and a stationary way of life. These cycles, which repeat themselves approximately every 35 days, are based upon the appearance of great new broods of "workers" among the ants. In the field work the stops and wanderings of the colonies have been studied continuously for up to four and a half months, and a colony identified by the markings of its queen in December, 1947, was found again, with the same marked queen, in the spring of 1952. The regions visited since the war in the course of these investigations include: the Tehuantepec region of Mexico (1944-1945), Barro Colorado Island in the Panama

Canal Zone (1946-1947, 1948, 1949, and 1952), and the New York Zoological Society's Tropical Research Station in Trinidad (1950). The field work has been financed by the National Research Council, the John Simon Guggenheim Memorial Foundation, the Office of Naval Research, and the American Philosophical Society.

Lester R. Aronson spent considerable time at the Lerner Marine Laboratory on Bimini in both 1950 and 1951, and also at the Marine Studios in Florida, engaged upon the field study of the behavior of various kinds of fish. Eugenie Clark spent six months of 1949 in the Palau Islands studying the biology and systematics of the fishes. In 1950-1951 she spent nine months at the Marine Biological Station at Ghardaqa in Egypt making similar investigations there.

In 1946 A. P. Blair visited Mexico to gather observations on the behavior and ecology of the frogs and toads of that country.

In the Department of Geology and Paleontology, the field program of George Gaylord Simpson has, since the end of the war, been directed towards a comprehensive and detailed survey of the Paleocene and Eocene sediments of the San Juan Basin in New Mexico. Work has been carried on during every summer since 1946 and has also included the exploration of adjacent regions, especially in Colorado. The fine material obtained from these explorations and excavations has added greatly to the Museum's collections and to our knowledge of the early mammals of North America.

Edwin H. Colbert has concentrated particularly upon the Triassic of the Southwest during the years since 1945. There are two reasons for the selection of this geological period as the subject for study. The Museum's collections are rather weak in material from the Triassic, and, secondly, the Triassic was a period of special importance in the history of the lower forms of four-legged vertebrates. Field work has been going on every year since 1946, resulting in the acquisition of

excellent material, notably a series of complete skeletons of primitive dinosaurs.

Bobb Schaeffer's investigations concerning the origin and evolution of the bony fishes have involved explorations and collecting in the Triassic sediments of New Jersey and the southwestern states, as well as in the Cretaceous and Eocene beds of Wyoming, Colorado, Kansas, and Utah.

A large grant from the Humble Oil and Refining Company enabled Norman D. Newell to carry on a four-year program of research in the Sierra Diablo Mountains of west Texas, devoted in large part to a study of fossil coral reefs of Permian age. To help in the interpretation of the conditions of the geological past, Dr. Newell also conducted two expeditions to the Bahamas in 1950 and 1951, for the study of a living coral reef, and in the spring of 1952 he left for the South Pacific to take charge of similar field work there. Dr. Newell also made collections in Peru in 1947 with the support of the oil industry.

In the summer of 1952 Otto H. Haas resumed field work in Montana, where he had also collected earlier, in search of the fossil ammonites.

Frederick H. Pough has observed the birth and development of Parícutín, the new volcano that arose in Mexico some years ago, and has made several trips to the region to study the volcano and make an excellent color motion picture record of its development. In 1949 Dr. Pough spent some time visiting various mineral localities in the United States.

In concluding this survey of the Museum's activities in exploration since the second world war, one can only say that, if it has taken too long to cover the ground, it is only because the activities themselves are so varied and so extensive that it would be impossible to attempt to present the picture of what goes on by a short list of selected events. The Museum is not four walls surrounding a cloistered life; it is the heart of a system circulating throughout the world.

THE YEAR 1951-1952

With the passage of the years, the new functions that develop in a large and progressive institution tend to attach themselves more or less at random throughout the organization, according to the point of first contact, rather than by an over-all plan—as barnacles settle on the bottom of a ship with no regard for the shape of the hull, until the lines are hidden, the speed is lost, and it is time to careen. Such a stage must be reached at intervals in all enduring institutions. It had been reached by our Museum when the management survey instituted by President White was undertaken by the firm of Cresap, McCormick and Paget in the fall of 1951. Before the end of that year the firm had submitted its first report and general recommendations to the President. By February the recommendations had been acted upon by the Management Board, and the actual reorganization could begin.

When the current budget (1952-1953) was passed upon by the Management Board, the savings had already reached a rate of about \$66,000 per year. At the time of writing this report, an annual rate of over \$120,000 has been attained, and it is safe to predict that the ultimate annual savings at the end of the two-year period allowed for the completion of this task will exceed \$150,000 by a substantial amount. The fact that these savings are in large part absorbed by mounting costs beyond the control of the Museum—such as the new cost of living bonus which required an increase in expenditures from private funds of \$57,000 per year in order to conform with action taken by the City of New York—is unfortunate but makes the economies achieved as a result of the improvements in organization and efficiency all the more welcome at this difficult time.

When economies of such magnitude are reported they might perhaps give our friends cause for alarm that the Museum's services and functions might have been impaired. The very opposite is true. The reorganization has been

almost entirely limited to operation, maintenance, business administration, production units such as the Department of Exhibition, and many production and business functions previously managed by the Department of Education. In spite of the economies, all these operations are now, through greater efficiency, actually giving more and better services both to the Museum and to the public. As a simple illustration, one might mention that the cleaning of office, laboratory, and public spaces, which previously was one of our most serious problems, can now be done more often and more thoroughly than it has been done for decades, if ever.

For these fine results the Museum is deeply indebted to the splendid spirit of cooperation of the entire Museum personnel, to the firm of Cresap, McCormick and Paget for its excellent advice, and to the new members of our organization for the knowledge, judgment, and initiative they have brought to bear upon their tasks.

Among the outstanding features of the reorganization is the combination, under a new Assistant Director for Program Administration, M. F. Harty, of immediate administrative responsibility for plant management with the responsibility for coordinating and expediting the execution of the Museum's exhibition program as developed by the staff, the Director, and the Board. Thus, under the new organizational setup, plant management, which includes heating and lighting, repairs and installation, custody of the building, and architectural design, is now coordinated with the work of exhibition and other art departments. Previously these functions had fallen within two separate divisions, so that while, for instance, the tasks of doing the carpentry, electrical, and other mechanical work connected with new exhibits and other new installations fell to one division, the tasks of planning, designing, and developing the specifications for this work were the duties of an entirely different division.

Within the division of Program Administration there

have, of course, been further improvements of organization and physical arrangement. For example, the layout of all the mechanical workshops has been completely overhauled, with the installation of a consolidated stock room that will permit complete inventory control of all materials used and needed.

Of particular interest was the appointment of Miss Katharine Beneker as Chief of the Department of Exhibition, the first woman to occupy this position in the history of the Museum.

Another important feature of the reorganization is the creation of the position of Manager of Special Activities under the Assistant Director for Business Administration. In this position Charles J. O'Connor now has charge of the Membership Office, of the business management and distribution of all Museum publications for the general public, of the Museum Shop, of films, of the Museum's own radio and television activities, of the cafeterias, and of several other service functions.

To remove the vexing problem of recurring deficits, the operation of the Museum's restaurant services has been transferred to an outside contractor. It is anticipated that this will substantially benefit our future budgets, and it seems proper that this new arrangement should be mentioned here, although it was not actually put into effect until after the end of the year here reported upon.

Many of the functions now placed under the Manager of Special Activities, such as films, lantern slides, the children's cafeteria, etc., were previously administered by the Department of Education. Extensive reorganization of this department was therefore also required. A Department of Public Instruction, under the chairmanship of John R. Saunders, was set up to continue all the Museum's functions in the direct teaching of classes and other organized groups and in other educational activities, while the production of physical materials for the department's teaching needs and similar

requirements will be supplied by the various units under the Manager of Special Activities and by the Department of Exhibition.

A matter of major importance in the administration of the Museum was the appointment of Harold E. Anthony as Deputy Director, on the recommendation of the Director. Dr. Anthony's assistance has been invaluable in helping to steer the Museum through the difficult period of reorganization.

EXHIBITION









The progress of the exhibition program was marked by the opening of the new Hall of Invertebrates, occupying the gallery of the Hall of Ocean Life, in February, 1952. By improved lighting, color treatment, and arrangement this new installation serves to bring out the full beauty of the Museum's fine collection of scientifically accurate models, which had previously been less advantageously shown in the area now being converted into the new Hall of North American Forests. Many new models were also added so that the hall now passes in review the whole sequence of invertebrate life from Crustacea and mollusks down to the smallest microscopic life of sea and fresh water, with their intricate and beautiful structure magnified and reproduced in glass.

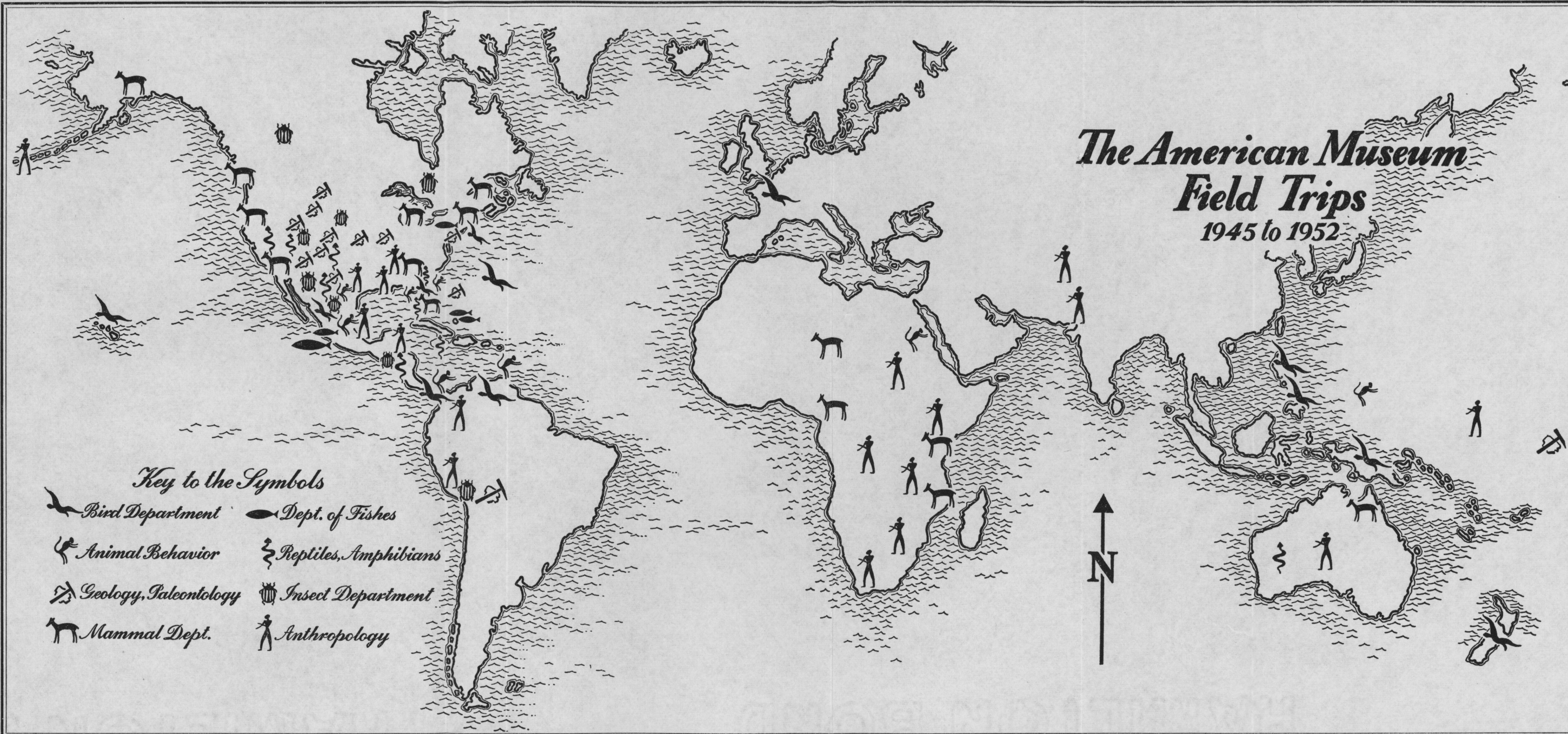
The last three groups in the Whitney Memorial Hall of Oceanic Birds were brought so near to completion that they could be left open to public view. At the end of the year only the final installation of some of the specimens of birds was awaiting the return of Mr. Gilliard from his field work in New Guinea.

In the North American Mammal Hall the lynx group and the porcupine and fisher group were completed, and the western gray squirrel group was nearly finished. Material for the raccoon group was collected from the Okefenokee Swamp in Georgia, and arrangements were made for field

The American Museum Field Trips 1945 to 1952

Key to the Symbols

 Bird Department	 Dept. of Fishes
 Animal Behavior	 Reptiles, Amphibians
 Geology, Paleontology	 Insect Department
 Mammal Dept.	 Anthropology



parties to collect for the two remaining groups during the summer of 1952.

The major project of the Department of Exhibition is now the Hall of North American Forests. Great progress was made on the larger groups. The New Hampshire group, the maple sugar group, and the group showing the southern forest of the eastern seaboard are virtually completed. The background painting of a large exhibit showing the magnificent forest of the Olympic Peninsula on the West Coast was finished, and the tree trunks were put in place. Work on other groups has also been started.

On the fourth floor the structural work for a new hall of paleontology, to deal with the earliest age of mammals and with general principles of evolution, was nearly finished. The rearrangement, relighting, and redecoration of the Jurassic Hall, with the largest fossil reptiles, and the installation of a new alcove for fossil fishes, were well under way at the end of the year.

Additional models have also been made for the Felix M. Warburg Memorial Hall to give more ample illustrations of the development of man's inventions for dealing with the land.

With the opening of the "Men of the Montaña" in the fall of 1951 the Museum passed a major milestone in the development of its temporary exhibition program. This exhibit, based upon a magnificent collection presented by the Munitalp Foundation, deals with the peoples of the rain forests of eastern Peru, showing the objects of their material culture as the tools and ornaments of a way of living and not merely as the products of their arts and their craftsmanship. With the sounds of the jungle as background effect, achieved by recordings, and with new methods of illumination, arrangement, and decorative treatment the experience provided by "Men of the Montaña" has been as useful to the Museum as it has been pleasing to the public.

RESEARCH

The volume of research, and of publications resulting from research, has continued on a most satisfactory level, with a quality of contents in which the Museum can take pride. Since the last annual report made a rather extensive survey of the research program carried forward by the Museum, we may postpone till another year a reëxamination and restatement of the continuing projects, and mention only a few items that may be regarded as news of the year here reported upon.

It is of interest to note that Gordon F. Ekholm, of the Department of Anthropology, during the past year devoted a good part of his research efforts to comparative studies of Asiatic and American art forms for the purpose of analyzing the question of possible Asiatic influences upon early native American cultures. This involved problem has not previously been investigated objectively, although it is of great importance for our knowledge of life in America before Columbus. Dr. Ekholm has been able to demonstrate that some twenty art motifs, which make their appearance in Central America at about 700 A.D. and shortly thereafter, are similar to Buddhist and Hindu motifs found in India, Cambodia, and Indonesia, which suggests that voyages across the Pacific occurred at this time.

Ernst Mayr, of the Department of Birds, jointly with E. G. Linsley and R. L. Usinger, completed and delivered to the publishers the manuscript of a book on the "Principles and Methods of Systematic Zoology" that may confidently be expected to become a standby for all investigators in the field of classification of the animal kingdom.

"The Pheasants of the World" by Jean Delacour, Research Associate of the Department of Birds, is a splendid quarto volume, published in 1951, that may be perused with equal pleasure by scientists and by the general public.

Some of the anatomical discoveries made by Research

Associates of the Department of Amphibians and Reptiles may be found interesting and amusing. E. R. Dunn, together with H. W. Parker, Head Keeper of Zoology at the British Museum and Corresponding Member of our own, discovered the presence of special teeth in the embryos of the tropical limbless amphibians (caecilians) which permit the unborn young to get nourishment from the tissues of the parent, making it unnecessary for these animals to form the placenta (afterbirth) through which most mammals and a few reptiles provide prenatal sustenance for their offspring.

Egg-eating snakes have a very special problem. If the eggs are broken as they are picked up between the jaws and passed into the mouth, the poor snakes will merely mess up their faces, without getting any food in their stomach. On the other hand, it would be very uncomfortable for the snake to have to crawl around on a belly-full of whole eggs. In his work on egg-eating snakes of the genus *Elaphe* Carl Gans made the novel and unexpected discovery that the ventral bony processes of some of the vertebrae of the neck actually penetrate through the wall of the gullet, where they serve to crack the eggs on their way from mouth to stomach, after they have been swallowed whole and unbroken.

In his studies of the behavior of mouth-breeding fishes, that is, fishes that keep the eggs in their mouth for hatching, Lester R. Aronson made the interesting discovery that, in addition to protecting the eggs from being eaten by larger enemies, the mouth of the parent also reduces bacterial infection of the eggs to a minimum. Outside the mouth the mortality of the eggs through microbe action is nearly one hundred per cent. It is indicated that the churning of the eggs in the mouth of the parent gives them a continued washing and also that special bactericidal glands may possibly play a part.

T. C. Schneirla and his assistants, investigating the behavior of cats, have found that these animals have no instinctive

“know how” concerning what to do when they give birth to their young. The mother cat merely reacts in a simple way to the things that happen to come to her attention, which may be a mess on the floor rather than the newborn offspring, and the kitten does not seem to inspire in her any instinctive sense of special duties that need to be looked after.

George Gaylord Simpson, of the Department of Geology and Paleontology, spent the year in the preparation of manuscripts for three books. A popular summary of paleontology and a technical work on “Major Features of Evolution” were both in press at the end of the year, and the manuscript for a general text on biology was well advanced.

Further references to research and its results will be found in the survey of the Museum’s activities in exploration at the beginning of this report and in the report for last year.

EDUCATION AND THE PUBLIC

The Department of Public Instruction (previously the Department of Education) provided 217,484 student hours of instruction for classes attending the Platoon Program. Other programs for special organizations were enjoyed by 38,059 individuals, and indoor trails worked by the pupils themselves were followed by 12,675 young people. Special features, including the dance and lecture programs, had a total attendance of 48,236, and about 75,000 visitors received unscheduled individual services and guidance. Circulating loan exhibits, lantern slides, and motion pictures had a recorded attendance of 16,374,500.

Between July 1, 1951, and June 30, 1952, the Museum received 2,231,001 visitors in its exhibition halls and for its lectures and special events, representing an increase of nearly 130,000 since the year before.

THE PLANETARIUM

The increase in paid attendance at the Planetarium, from 356,733 in 1950–1951 to 458,057 in 1951–1952, was pro-

portionately even more substantial and encouraging than the healthy increase already reported for the Museum itself. A similar increase was also noted in the free attendance by the armed forces, and educational groups, so that total attendance at the Planetarium increased by 28 per cent, from 389,869 to 497,941.

A plan for the improvement of the exhibits shown in the halls of the Planetarium surrounding the dome was developed and approved, and work is now in progress towards the installation of new exhibits which will present astronomical phenomena in a striking and realistic manner through the use of fluorescent colors. The zodiacal constellation figures in the Hall of the Sun (Copernican Room) have also been done over in luminous paint. This has added greatly to the appearance of the hall and to the effectiveness of the figures for teaching purposes. A large star chart showing the changing positions of the sun, moon, and planets with the days and the seasons has been installed on the second floor.

In accordance with its function of keeping the public informed on past and recent advances in astronomy and the allied sciences, the Planetarium last year sponsored the First Annual Symposium on Space Travel. Participating in the Symposium were outstanding leaders in these fields, including Dr. Fred L. Whipple, Chairman of the Department of Astronomy of Harvard University, Professor Heinz Haber of the Department of Space Medicine, USAF School of Aviation Medicine, and Mr. Oscar Schachter, Deputy Director in the United Nations. Guests attending the meeting included prominent leaders in the fields of aviation, engineering, astronomy, medicine, geophysics, electronics, and international law. The success of this event was such that plans were immediately formulated for a second symposium to be held in October, 1952.

The Planetarium also continued its special courses on various aspects of navigation and astronomy, with a total attendance of 4679 students of all ages.

THE AMERICAN MUSEUM
BALANCE

June 30

ASSETS:

Endowment and other funds:				
Cash			\$	266,857.44
Investments (Notes 1 and 2):				
Marketable securities:	At Market Quotations	Book Amounts		
Bonds	\$ 7,302,231.34	\$ 7,323,484.32		
Preferred stocks	2,914,025.00	2,890,928.59		
Common stocks	8,881,597.25	5,946,461.34		
	<u>\$19,097,853.59</u>	<u>16,160,874.25</u>		
Other investments (market quotations not readily available):				
Real estate mortgages, bonds and stocks		76,593.75		
Promissory notes (unsecured)		<u>33,253.16</u>		
		<u>109,846.91</u>	<u>16,270,721.16</u>	\$16,537,578.60
Investment in The American Museum of Natural History Planetarium Authority, at cost (Note 3):				
Bonds (\$570,000 face amount)			425,000.00	
Promissory notes			<u>50,000.00</u>	475,000.00
Current funds:				
Cash			577,635.31	
Temporary investments (Note 1):	At Market Quotations	Book Amounts		
U. S. Government bonds	\$ 569,654.67	573,000.00		
Common stock	<u>8,550.00</u>	<u>10,000.00</u>	583,000.00	
Accounts receivable			153,371.03	
Inventories, principally publications			72,435.99	
Prepaid expenses and deferred charges			<u>55,244.34</u>	1,441,686.67
Agency funds:				
Pension funds:				
Cash			84,643.51	
Investments, at cost:	At Market Quotations	Book Amounts		
Bonds	\$ 2,469,529.06	2,482,450.83		
Preferred stocks	605,993.75	616,016.61		
Common stocks	<u>757,206.25</u>	<u>625,299.58</u>		
	<u>\$ 3,832,729.06</u>	<u>3,723,767.02</u>		
Real estate mortgages		5,820.56	3,729,587.58	
Loans receivable			102.00	
Accounts receivable			<u>1,008.62</u>	3,815,341.71
Total assets				<u>\$22,269,606.98</u>

The accompanying notes are an integral part of this balance sheet.

OF NATURAL HISTORY HEET

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FUNDS AND LIABILITIES:

Endowment and other funds:

Endowment funds, income available for:

Restricted purposes	\$7,975,739.04	
Unrestricted purposes	<u>4,245,890.57</u>	\$12,221,629.61

Funds functioning as endowment, both principal and income available for:

Restricted purposes	330,234.37	
Unrestricted purposes		
(Notes 2 and 4)	<u>3,985,714.62</u>	<u>4,315,948.99</u> \$16,537,578.60

Funds invested in the indebtedness of The American Museum of Natural History Planetarium Authority (Note 3)

475,000.00

Current funds:

General funds:

Accounts payable, payroll taxes withheld, etc.	66,687.97	
Deferred income consisting of unearned dues and subscriptions, etc.	<u>145,440.29</u>	212,128.26
Less, Deficit		<u>150,553.36</u>
		61,574.90

Appropriated funds available for:

Promotion and development of Museum enterprises	47,551.79	
Exhibition hall rehabilitation	<u>774,060.10</u>	821,611.89

Special funds:

Contributions from donors, restricted endowment income, etc. (net of overdrafts amounting to \$35,784.75)	<u>558,499.88</u>	1,441,686.67
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Agency funds:

Pension funds		<u>3,815,341.71</u>
Total funds and liabilities		<u>\$22,269,606.98</u>

STATEMENT OF ENDOWMENT AND OTHER FUNDS

for the year ended June 30, 1952

Balance, June 30, 1951		\$15,961,185.45
Additions:		
Gifts and bequests	\$223,829.12	
Net profit on sales of investments	464,651.17	
Transfer from special funds	16,000.00	
Collection from Planetarium Authority on account of principal of promissory notes		
	<u>22,545.62</u>	<u>727,025.91</u>
		16,688,211.36
Deductions:		
Transfers to general funds:		
For architects' services	46,809.56	
For custodian fee, etc.	7,991.94	
To dispose of operating deficits, general funds and cafeteria, for the year ended June 30, 1951		
	<u>95,831.26</u>	<u>150,632.76</u>
Balance, June 30, 1952		<u><u>\$16,537,578.60</u></u>

The accompanying notes are an integral part of this statement.

STATEMENT OF GENERAL FUNDS

for the year ended June 30, 1952

Income:

Appropriations from the City of New York	\$1,097,280.04	
Income from endowment and other funds	751,815.99	
Income from Planetarium Authority and temporary investments	48,092.75	
Portion of royalties from mining properties (Note 2)	50,000.00	
Income from outside trusts and foundations	47,394.92	
Income from bequests pending settlement	3,953.51	
Contributions of trustees, members and friends	133,039.52	
Membership dues	50,885.00	
Sales and services	108,204.68	
Other income	3,484.98	\$2,294,151.39
Museum enterprises:		
Natural History Magazine	212,592.79	
Junior Natural History Magazine	102,806.15	
Man and Nature Publications	25,303.15	
Natural History Book Club	10,419.31	
Museum Shop	103,018.41	
Museum Cafeteria	118,497.84	572,637.65
		<u>2,866,789.04</u>

Expenses:

Administrative and general	\$621,199.55	
Care and use of collections, supervision of exhibitions, scientific publications and library	603,244.15	
Preparation of exhibitions	41,821.27	
Education	327,463.73	
Operation and maintenance of physical plant	905,777.55	2,499,506.25

Museum enterprises:

Natural History Magazine	213,104.82	
Junior Natural History Magazine	111,561.94	
Man and Nature Publications	24,740.32	
Natural History Book Club	8,866.71	
Museum Shop	91,865.05	
Museum Cafeteria	119,876.24	570,015.08
Excess of expenses		<u>3,069,521.33</u>
		202,732.29

Transfers from unrestricted funds functioning as endowment, to cover architects' services, custodian fee, etc., included above in administrative and general expenses

54,801.50

Less, Transfer to appropriated fund available for promotion and development of Museum enterprises

2,622.57

52,178.93
150,553.36

Deficit, general funds and cafeteria, June 30, 1951

95,831.26

Less, Transfer from unrestricted funds functioning as endowment

95,831.26

Deficit, June 30, 1952

\$ 150,553.36

The accompanying notes are an integral part of this statement.

STATEMENT OF APPROPRIATED FUNDS

for the year ended June 30, 1952

	Available For		
	Promotion and Development of Museum Enterprises	Museum Building Program	Exhibition Hall Rehabilitation
Balances, June 30, 1951	\$44,929.22	\$250,000.00	\$835,766.35
Transfer from general funds, representing excess of income of Museum enterprises	2,622.57		
	47,551.79	250,000.00	835,766.35
Transfers to special funds		250,000.00	61,706.25
Balances, June 30, 1952	<u>\$47,551.79</u>	<u>—</u>	<u>\$774,060.10</u>

STATEMENT OF SPECIAL FUNDS

for the year ended June 30, 1952

Balance, June 30, 1951 (less \$22,280.77 overdrafts included in accounts receivable at that date)		\$ 501,970.88
Income:		
Income from endowment and other funds	\$ 69,848.69	
Income from temporary investments	3,667.50	
Contributions of trustees, members and friends	374,609.70	
Sales and services	92,780.07	
Other income	3,453.10	544,359.06
		<u>1,046,329.94</u>
Expenditures:		
Administrative and general	43,722.31	
Care and use of collections, supervision of exhibitions, scientific publications and library	394,527.36	
Preparation of exhibitions	3,799.92	
Education	15,692.03	
Exhibition hall rehabilitation	18,322.70	
	<u>476,064.32</u>	
Appropriated funds:		
Exhibition hall rehabilitation	57,471.99	
Museum Building Program	250,000.00	783,536.31
		<u>262,793.63</u>
Transfers from appropriated funds:		
Exhibition hall rehabilitation (including \$4,234.26 in respect of prior year's expenditures)	61,706.25	
Museum Building Program	250,000.00	
	<u>311,706.25</u>	
Less, Transfer to funds functioning as endowment	16,000.00	295,706.25
Balance (net of overdrafts amounting to \$35,784.75), June 30, 1952		<u>\$ 558,499.88</u>

STATEMENT OF PENSION FUNDS

for the year ended June 30, 1952

Balance, June 30, 1951		\$3,597,742.00
Income:		
Contributions by subscribing members	\$ 98,902.52	
Contributions by trustees and others	120,122.00	
Income from investments	128,142.70	
Net profit on sales of investments	<u>31,009.69</u>	378,176.91
		<u>3,975,918.91</u>
Expenditures:		
Payments to members and beneficiaries:		
Pension allowances	120,769.72	
Death benefits	610.79	
Refunds of contributions and interest thereon	<u>35,782.96</u>	
	157,163.47	
Custodian fees, etc.	<u>3,413.73</u>	160,577.20
Balance, June 30, 1952		<u><u>\$3,815,341.71</u></u>

NOTES TO FINANCIAL STATEMENTS

1. The land, buildings and equipment utilized by the Museum are either owned by the City of New York or were charged off at the time of purchase and, therefore, are not reflected in the balance sheet. Also, no valuation of exhibits, collections, library, etc., has been established for balance sheet purposes.

Investments are recorded at cost in respect of those purchased and at market valuations at the dates of acquisition, probate court valuations or valuations established by the trustees in respect of those acquired by gift, bequest or otherwise.

2. The Museum owns an interest in certain mining properties acquired through a bequest. No valuation had been recorded on the books for the interest in these properties and, therefore, it is not reflected in the balance sheet. However, the Museum receives royalties from this source and such royalties are recorded, when received, as additions to unrestricted funds functioning as endowment (as bequests) or to current general funds. Royalties received during the current fiscal year aggregated \$122,788.68 of which \$50,000.00 was credited to general funds.
3. The Planetarium Authority is operated under the supervision of the Museum's management and its corporate charter continues only until all its liabilities, including all its bonds (\$570,000 face amount), have been paid in full or have otherwise been discharged. At that time, title to its real property passes to the City of New York to be maintained and operated in the same manner as other city property occupied by the Museum and title to its personal property passes to the Museum for its corporate purposes. Its real property, including donated land carried at no value, is stated in the Planetarium Authority's balance sheet at a cost of \$569,209.64 (provision for depreciation is considered unnecessary because of the nature of the ownership of the property). At June 30, 1952, other net assets of the Authority, before consideration of its bonded debt and its liability on advances from the Museum, amounted to \$98,393.71, including \$36,936.96 equipment at cost, less depreciation. Its income for the year ended June 30, 1952, before interest on its bonds and debt to the Museum and before \$5,682.48 provision for depreciation on its equipment, amounted to \$54,282.60. During the year the Authority paid \$10,125.00 on the Museum's investment in the Authority's bonds and \$22,478.62 interest accumulated on advances. These amounts were credited by the Museum to general fund income. In addition, the Authority paid \$22,545.62 on account of principal of the advances, thereby reducing this indebtedness to \$50,000.00 at June 30, 1952.
4. Unrestricted funds in the amount of \$800,000 have been conditionally appropriated for the construction of additional buildings subject to appropriation of a like sum by the City of New York.

LYBRAND, ROSS BROS. & MONTGOMERY

Certified Public Accountants

To the Board of Trustees,
The American Museum of Natural History,
New York, N. Y.

We have examined the balance sheet of THE AMERICAN MUSEUM of NATURAL HISTORY as of June 30, 1952 and the related statements of funds for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and related statements of funds present fairly the financial position of the Museum at June 30, 1952 and the results of its operations for the year then ended, on a basis consistent with that of the preceding year.

Lybrand, Ross Bros. & Montgomery

New York, September 15, 1952.

THE AMERICAN MUSEUM
PLANETARIUM
BALANCE SHEET

June 30, 1925

ASSETS:

Cash in bank and on hand	\$ 53,047.08
Accounts receivable	390.45
Inventory of publications	11,020.80
	<u>64,458.33</u>

Land, building and equipment at cost, less reserves
for depreciation:

	<u>Assets</u>	<u>Reserves</u>	
Land (donated by the City of New York)	—		
Building	\$569,209.64	(Note)	
Plant equipment, machinery and tools	70,221.75	\$ 35,269.86	
Furniture and fixtures	38,870.07	36,887.00	
Zeiss planetarium instrument	126,433.73	126,432.73	
Copernican planetarium instrument	30,435.54	30,434.54	
	<u>\$835,170.73</u>	<u>\$229,024.13</u>	606,146.60
Prepaid insurance			2,175.82

\$672,780.75

7 NATURAL HISTORY

AUTHORITY

HEET

52

LIABILITIES:

Accounts payable		\$ 5,177.40
4½ % Refunding Serial Revenue Bonds and interest thereon (held by The American Museum of Natural History):		
Interest:		
Unpaid coupons, past due	\$223,290.00	
Interest accrued on bonds not yet due	1,522.50	
Interest accrued on past due unpaid bonds	100,087.50	
	<u>324,900.00</u>	
Less, Payments on account (\$10,125 per annum)	40,500.00	284,400.00
Principal:		
Past due	367,000.00	
Due May 1, 1953	29,000.00	
Due in annual instalments from May 1, 1954 to May 1, 1959	<u>174,000.00</u>	<u>570,000.00</u>
		859,577.40
Advances from The American Museum of Natural History (interest at 2½ % per annum paid through June 30, 1952)		<u>50,000.00</u>
		909,577.40
Deferred income consisting of special funds, contributions, etc.		1,432.68

CONTRIBUTED CAPITAL AND DEFICIT*:

Contributed capital, June 30, 1952:			
Charles Hayden	\$156,869.27		
Charles Hayden Foundation	<u>130,924.55</u>	287,793.82	
Deficit*, June 30, 1952, as annexed		<u>526,023.15*</u>	238,229.33*
			<u>\$672,780.75</u>

Note: The Authority's corporate charter terminates when all its liabilities, including its bonds, have been paid in full or have otherwise been discharged. At that time title to its real property and to its personal property passes to the City of New York and to The American Museum of Natural History, respectively. Because of the nature of the ownership of the property, provision for depreciation of the building is considered unnecessary.

STATEMENT OF INCOME AND DEFICIT

for the year ended June 30, 1952

Income:			
Admission fees less allowances and commissions		\$200,206.86	
Fees from special courses and lectures		7,374.51	
Net income from publications (as annexed)		7,485.95	
Miscellaneous rentals, commissions, etc.		1,326.74	\$216,394.06
Operating expenses:			
Salaries:			
Scientific and lecturing	\$25,677.37		
Technical	15,202.19		
Operating	43,923.95		
Heating, lighting and ventilation	6,259.66		
	<u>\$91,063.17</u>		
Other:			
Technical supplies, etc.	\$ 6,524.24		
Maintenance	6,417.42		
Cleaning	4,118.59		
Heating, lighting and ventilation	9,532.08		
Special improvements and renovations	7,986.20		
	<u>\$34,578.53</u>	125,641.70	
Administrative expenses:			
Salaries:			
Box office	\$ 9,856.77		
Financial	4,250.00		
	<u>\$14,106.77</u>		
Other:			
Pension fund	\$ 4,005.37		
Group life, health and hospital insurance	1,310.34		
Social security taxes	1,325.48		
Workmen's compensation insurance	1,543.07		
Insurance, other	739.37		
Telephone service	1,700.00		
Auditing	400.00		
General and miscellaneous	2,315.01		
	<u>\$13,338.64</u>	27,445.41	
Publicity, salaries and expenses		9,024.35	
Total operating, administrative and other expenses			162,111.46
Income before interest and depreciation			<u>54,282.60</u>
Interest expense:			
On 4½ % Refunding Serial Revenue Bonds:			
Coupons due November 1, 1951 and May 1, 1952	8,700.00		
Accrued on bonds not yet due	1,522.50		
Accrued on past due bonds	15,427.50		
On advances from The American Museum of Natural History	1,843.85		
	<u>27,493.85</u>		
Income before provision for depreciation			26,788.75
Provision for depreciation (see note to accompanying balance sheet)			5,682.48
Net income for the year ended June 30, 1952			<u>21,106.27</u>
Deficit*, June 30, 1951			547,129.42*
Deficit*, June 30, 1952			<u>\$526,023.15*</u>

STATEMENT OF INCOME FROM PUBLICATIONS

for the year ended June 30, 1952

Net Sales	\$41,924.25	
Cost of sales	<u>26,323.14</u>	
Gross profit on sales		\$15,601.11
Sales booth expenses:		
Salaries	7,142.57	
Other expenses	<u>972.59</u>	8,115.16
Net income		<u>\$ 7,485.95</u>

LYBRAND, ROSS BROS. & MONTGOMERY

Certified Public Accountants

The Members of The American Museum of
Natural History Planetarium Authority,
New York, N. Y.

We have examined the balance sheet of THE AMERICAN MUSEUM of NATURAL HISTORY PLANETARIUM AUTHORITY as of June 30, 1952 and the related statement of income and deficit for the year then ended. Our examination was made in accordance with generally accepted auditing standards, and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying balance sheet and related statement of income and deficit present fairly the financial position of the Authority at June 30, 1952 and the results of its operations for the year then ended, on a basis consistent with that of the preceding year.

Lybrand, Ross Bros. & Montgomery

New York, September 15, 1952.

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