THE AMERICAN MUSEUM OF NATURAL HISTORY

EIGHTY-NINTH ANNUAL REPORT
JULY, 1957, THROUGH JUNE, 1958

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THE CITY OF NEW YORK
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EIGHTY-NINTH 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

A major event in the eighty-ninth year of the Museum was the opening of the Hall of North American Forests. The acclaim with which this new exhibit is being received bears testimony to the Museum's special competence in the presentation of the natural sciences. Once again a superb interpretation of man's natural environment has been achieved through the blending of science and artistic ingenuity.

The problems of creating exhibits in a natural history museum are often unique and always complex. They involve at once imagination and unswerving commitment to fact, responsiveness to new ideas and fidelity to fundamental knowledge, and the capacity for both vast concepts and minute detail.

The task is never-ending. Science signifies change, and the museum that interprets the natural sciences can never stand still. As new frontiers of science are opened, new exhibits must be developed, and existing displays must be brought up to date.

At the same time advances in technology make possible new methods of design, construction, and lighting. These must be explored and introduced where desirable to assure the most effective communication between the museum and its public. Adding to the complexity of the problem is the recurrent need to replace once-great displays the usefulness of which

has been seriously impaired by wear and tear. The ravages of passing time compete with the demands of the future, and the Museum's exhibition program struggles constantly to maintain balance.

To understand current needs it is useful to sketch very briefly the evolution of the exhibition program through the years. In the formative period, exhibit construction was based on random collecting and accidents of discovery. Display of acquisitions in rows of single cases was considered adequate. Later years saw the construction of great halls, each carefully planned and based on a significant central theme. Now, in a natural progression, the Museum has begun the development of interrelated halls, each hall significant individually, but each further enriched by development of a continuous theme.

Thus, the Felix M. Warburg Memorial Hall depicting the ecology of an area near New York leads naturally into the newly opened hall that depicts the forest communities of the whole continent. Similarly, the Hall of the Biology of Man, now in process, represents the first in a series of five interrelated halls devoted to the study of mankind.

In the following section Director Parr looks ahead to the exhibits planned for the future and explains how they will be related to the great halls of the past and of the present.

To have achieved preëminence in the visual interpretation of the natural sciences is a monumental accomplishment. To maintain that preëminence is a monumental task for which the American Museum of Natural History needs the generous support and interest of individuals, foundations, and business organizations. It is the obligation of this Museum to serve the community. It is the responsibility of the community to help maintain these services.

This Museum is a source of personal enrichment for each visitor. It holds a significant place in the life of New York, a city committed to cultural growth. As a long-time resident of Manhattan's West Side the Museum welcomes the newest

evidence of that growth, its future neighbor, the Lincoln Square Center for the Performing Arts. The same farsighted vision of public-spirited citizens which is making that Center a reality has given birth to many of the city's major institutions. The same farsightedness is needed to assure their continuing vitality.

For the twelve-month period ending June 30, 1958, the combined sources of income of the Museum, consisting of appropriations from the City, income from endowment, donations, memberships, the shop, magazines, and other activities, fell $90,606.26 short of meeting the Museum's operating costs of $3,790,460. This deficit was made up by drawing on the unrestricted capital funds, an exigency we view with concern.

During the past year, our two committees, led by Mrs. Richard Derby and Mr. George A. Percy, raised $176,708 in contributions from 2229 individuals. The endowment fund had a market value on July 1, 1958, of $28,721,010, as compared with $27,781,075 at the end of the previous year. The Pension Fund at the end of our fiscal period had a market value of $6,169,022.

Alexander M. White

Alexander M. White (left), President of the Museum, and Albert E. Parr, Director, survey progress in the Hall of North American Forests before its completion. The exhibit shown is the Olympic Rain Forest group

WHAT, WHEN, WHY, AND HOW IN EXHIBITION

A. E. Parr, Director

Some hands may be quicker that the eye, but the mind is always faster than the quickest hand. In a natural history museum our thoughts race so far ahead of the painstaking work of creating what our minds have already seen that the long wait between dream and reality may seem a frustrating burden upon our spirit. Sometimes it pays to look back to see how far we have come in order to renew our confidence in where we are going.

When the new Hall of North American Forests was opened to the public in the spring of 1958 it brought us the second step forward in the execution of a new exhibition program first announced in 1947. We are about ready for the third, which is to be the installation of the Hall of the Biology of Man, that has long been in preparation. When baby takes a single stride it may still be a premature accident. When it lifts its foot for the third step you know that the youngster is walking. And we know today that our "new" program is slowly but surely on its way. Let us retrace its course from the past towards the future.

Through more than half a century the American Museum of Natural History has held a position of leadership in the presentation of nature as it exists on its own, undisturbed by man. We like to speak of it as virgin nature, in frank though unconscious self-appraisal of our human species as the only beast in nature with our ability and inclination to violate all we touch. The generosity of our friends and the artistry of our staff have brought our presentation of virgin nature, in such famous halls as those of African Mammals, Oceanic Birds, or North American Mammals, to a level of perfection perhaps never likely to be surpassed. It will always be part of our program to carry this splendid tradition forward. While this is being written a mem-

ber of our staff is visiting Japan to collect material for another habitat group for our Birds of the World series, and work is in progress on similar exhibits dealing with important smaller mammals of North America that did not find their place among the larger exhibits in the North American Mammal Hall. The "new" program, which is now more than a decade old, is in no way a replacement for, but rather a supplementation of, the program that already existed previously.

The need to supplement the habitat group, with its inspiring presentation of the beauty and the fascinating interrelationships of undisturbed nature, has several reasons. In some respects the habitat group, when offered by itself alone, places too great demands upon the public. The educational method of the habitat group is indirect. It is one of the outstanding virtues of this form of presentation that it does not pre-digest the evidence. It makes a total reconstruction of a scene or event in nature in which the effects of many natural laws and scientific principles are implicit, and from which it is possible for a penetrating mind to draw many conclusions and gain many new insights. By the same token the habitat group also offers abundant opportunities for those not versed in scientific deduction to overlook or misunderstand the messages implicit in the exhibits. In fact a habitat group sometimes seems to challenge the casual visitor to draw, from replicas of the same kind of evidence, the same conclusions that it may have taken science decades to reach from a study of the originals in nature. The label or the lecture has therefore always been an essential adjunct of the habitat group, relied upon in an exceptional degree to bring out all the lessons implicit in the exhibit. But with full recognition of the merits of Guide-a-phone or printed word, the judgment still holds that a museum should not be labels or lectures illustrated by exhibits. The virtue and opportunity, and therefore the duty, of the museum lie in the use of the third dimension for visual demonstrations that no other type of educational institution, or medium, is equipped to offer.

The new program therefore called for an increased emphasis upon displays of objects or segments of nature removed from their natural surroundings and placed in an artificial arrangement derived from a consideration of some particular natural law so as to give an explicit visual demonstration of its meaning and significance. By an unfortunate choice of words it has become customary to speak of such exhibits as "educational," as though there were other exhibits that had nothing to teach. The only true difference is one between visually explicit and direct, or visually implicit and indirect, methods of teaching by means of exhibits. Let us therefore speak of "implicit," or perhaps better, informative, versus "explicit" or explanatory types of display instead of "educational" exhibits and others.

Generally speaking the explanatory exhibit can never have the dramatic impact of that which carries its message implicitly in a "total recall" of nature. But it can have great esthetic as well as intellectual appeal in a more quiet key. It is the task of our designers and preparators to see that it does. And even the explanatory exhibit is infinitely more dramatic than the labels that try to make explicit what is only implied in the visual contents of other displays. It is actually the label and not the informative exhibit that the new program proposed to replace, to the extent possible with explanatory demonstrations in three dimensions. The aim is exhibits explained by exhibits in interrelated series, rather than exhibits explained by labels. Both the Warburg Memorial Hall and the Hall of North American Forests give illustrations of this blending of informative habitat groups with explanatory exhibits in the over-all presentation of their subjects.

But the increased use of the explicit method of visual demonstration is only a minor feature of the new program. Its major point of departure lies in the injection of man and his works into our presentation of nature. Man is here to stay, at least as long as museums do, and his impact upon his environment throughout the world has become so powerful and all-pervading

that it can no longer be disregarded by any individual or institution undertaking to teach a knowledge of nature.

The traditional exhibits of undisturbed nature and of human life, illustrated chiefly by the finer artifacts of different material cultures, have a great function to perform in our educational system. But the story they tell is not complete. It fails to bring man and nature together, omitting all mention of what lies between the two. It is the chief purpose of the new program to supply this missing chapter of an otherwise well-told tale.

Within our museum premises the program has its centers and starting point at the Seventy-seventh Street lobby on the first floor. To the west of this lobby the biological and cultural history of man and of his adjustment to the opportunities, conditions, and limitations of his environment will be spread on the record of our exhibits. To the east we shall deal with nature as the environment of man, whether marked or unmarked by his influence.

Of this series to the east the Hall of North American Forests is the second unit to be completed. The Felix M. Warburg Memorial Hall of Ecology, opened in 1951, was the first. In the Warburg Memorial Hall we introduce the concept of nature as a whole functioning as the environment of man, influencing his activities and modified by his actions. A nearby and familiar landscape in Dutchess County has been chosen as the model. The geological processes that molded the landscape and endowed it with the basic ingredients of rich or poor land are briefly reviewed. Life in and on the ground is related to the nature of the soil, and the most elementary principles involved in good or bad use of the land are illustrated. The Warburg Memorial Hall ends with an exhibit showing how the local forests yielded to human settlement, and how the margins of human settlement later had to yield to the environment's response to the settler's first "conquest" of nature. At this point the new Hall of North American Forests takes over, illustrating the more important types of forests by habitat groups, with ex-

planatory exhibits demonstrating the broad principles governing the life of and in the forests, and the relationship of forests to man. Cutting by man and harvesting by nature, reforestation and natural propagation, food cycles, natural enemies, relationships to soils and to climates, and many similar subjects are touched upon.

In dealing with the forests, we have, of course, been dealing with many aspects of botany; not only with the botany of trees, but also with herbaceous plants of the ground cover, and with general botanical principles. The next logical element in this sequence of exhibits is therefore a Hall of Botany. It is not planned that this should be a very large hall. Merely that it should be sufficient to explain the terms and principles to which we make unexplained references, or which we take for granted elsewhere. Any visitor to our museum will know what extensive use we must make of botanical material and knowledge in order to create a natural habitat setting for our zoological exhibits. In fact, it might well be said that our animal groups are more botanical than zoological. But, since they are primarily designed to illustrate other subjects, these exhibits do not, by themselves, suffice to create the understanding of plants and their biology that is essential for an understanding of nature as a whole. The proposed Hall of Botany may therefore be viewed as a centralized explanatory exhibit that will supplement and make more useful the numerous informative displays of botany that are already dispersed through our halls. A brief review of the botanical system will enable our visitors to recognize what we are talking about when we speak of a composite or an umbellifer. Various mechanisms by which plants adapt themselves to different environments will be explained. Their methods of reproduction and dispersal, and their relationships to the animal world, will be illustrated. These relationships are strongly focused upon insects, both as destructive enemies and as helpful aids of pollination and in other ways. Before we come to the end of the Hall of Botany we will therefore have had to take

up the subject of entomology as it relates to the life of the plants, and in our next hall we propose to continue the presentation, with the insects themselves as the chief objects of our attention. This new Hall of Insects on the first floor will replace the one now on the third, which contains many fine items but has long been in need of a complete reinstallation.

To make room for the Botany and Insect Halls in the first floor sequence of exhibits it is planned to increase the capacity of our Hall of Ocean Life by structural alterations that will enable us to consolidate all our exhibits of aquatic life in a single area. This will release the space now occupied by the Hall of Fishes, at the same time as it will result in a better coordinated and more effective presentation of life in the waters.

By this time we have probably looked far enough into the future in the east. Let us therefore return to the west side of the Seventy-seventh Street lobby, where a new Hall of the Biology of Man, facing the Warburg Memorial Hall on the environment of man, will form the first link in a chain of halls trying to lay a foundation for an understanding of man himself, by himself and as a product of his environment. The entire concept of this series was first developed by Harry L. Shapiro, Chairman of the Department of Anthropology, more than twelve years ago.

The Hall of the Biology of Man is now nearing completion as the third unit to be installed under the new program. The hall will start with a brief exposition of the evolution of man and of the physical characters that distinguish him from all other living beings. The form and functions of the human body, of its individual organs and of its organ systems, will be analyzed and explained in the main section of the hall. This will be followed by a short introduction to the biological problems and conditions created by the fact that man is a social and not a solitary organism, preferring to live in crowds instead of roaming alone.

After having dealt with the biological functions of the human

body, the Museum hopes to continue with a series of additional new halls pursuing the subject of man in the following order: First, a discussion of the fundamentals of human behavior and their relationship to glands, sensory organs, nervous system, and external conditions. Next, an analysis of the basic principles involved in the extremely important process of learning. By our treatment of these subjects we will then have laid the foundations for an exposition of man as a social being.

Exhibits will be installed to demonstrate such subjects as the methods and paraphernalia used by various civilizations in order to develop, in the young, the mental attitudes and physical responses required of the adult members of the particular type of society to which the individuals belong. An attempt will be made to explain the different prestige patterns characteristic of different cultural traditions or different stages in cultural development, according to the relative respect and powers which society confers upon such groups as its warriors, its scholars, or its traders, upon the aged and the wise, or the young and inventive, upon male or female, and upon other classifications of the individuals. Other exhibits will be concerned with the functions of parents and the division of labor between mates, with the basic units used in the organization of different kinds of societies, such as family or tribe or sexually segregated groups, and with other topics.

The treatment of man as a social being is to be followed by another new hall dealing with the origins and spread of material culture, that is, of tools and technologies, housing, clothing, transportation, agriculture and animal husbandry, language and writing, ornamentation, ceremonial practices, and art. Through such lessons on the universality of the basic building stones of any modern material culture, however different the social structure in which they are used, we shall not only contribute to an increased factual knowledge and understanding but also to an increased appreciation of the contributions made by the whole world to the things enjoyed in any part of the world today.

Having shown the general principles governing man's evolution and existence as a social being and a bearer of culture, we shall proceed to apply these principles to an exposition of the origins and evolution of our own nation and our own civilization in an exhibit we think of as the Epic of America. We shall attempt to weigh and to demonstrate the importance of the principal factors that have helped to make us what we are today.

Our nation grew by what it did to the nature of the continent. Forests were cleared for fields. Prairies were ploughed for crops. Game was hunted for meat and for fur. Minerals were mined for our industries. We plan to show the nature of our continent as it was before the white man arrived, and the resources it held in stock for his arrival. We will show how the American Indian had adjusted his ways of life to the environment, and the wisdom of much that he had learned and handed down to the new settlers. We will remind our visitors that the new inhabitants did not only suffer the antagonism of those whose territory they invaded, but also benefited from the experiences of those who were here already, in ways that were often essential to the survival of the newcomers. We shall trace the cultural and biological origins of the American people, and show the contributions that divers traditions, attitudes, and skills have made towards the development of our nation. We shall show how the country was changed by human activity, and how the nature of the land, in its turn, influenced the direction of human effort at various times. In short, we shall try to explain to ourselves our own culture and our own country as they are today.

Apart from the educational contents of its subject matter, the new program also adds to the Museum's services in another way. It brings our message home to our visitors. When we deal with nature as the environment of man, with the biology of the human body, or with the growth of our own nation and its culture, we address ourselves to the explanation of everyday

experience. It is a peculiarity of our human species that the experiences we are able to understand and relate to other experiences give us far more pleasure than we receive from the unexplained sights and events that merely leave isolated impressions upon our minds and our memories. The pleasure of being able to recognize a dragonfly larva in the horrid little monster seen in a pond adds very real enjoyment to the occasion, whether or not there is any rational reason that it should. The better we understand our national experience the more we are able to enjoy our own contact with it in daily life. And a better understanding of ourselves and of our own country opens the door for a better understanding of other people and other places. It is part of the purpose of the new program to form a bridge between the daily experience and concerns of our visitors and all the new experiences the Museum has to offer through all its exhibits, new and old.

The program here restated has not in any way monopolized the Museum's efforts in exhibition. A reinstallation of our paleontological exhibits was inaugurated at the same time. The Fossil Fish Alcove, the Jurassic or Brontosaur Hall, and the Cretaceous or Tyrannosaur Hall have all been remodeled and improved. The fourth hall in this series is now in process of final installation. The Hall of Oil Geology was conceived, and born within the period since the new program was adopted. So was the "Men of the Montaña" exhibit. The Hall of North American Mammals was completed, and an extension of this subject is now under way. The first part of the Sanford Hall of Bird Biology was planned, executed, and opened to the public. The rest of this hall is now being installed. And there have been many other exhibition activities too numerous to list.

Exhibition on a scale as large and as diversified as that of the American Museum of Natural History requires a faith in the educational mission of such an institution, and a support for its efforts, that place great demands both upon the staff and upon the friends of the museum.

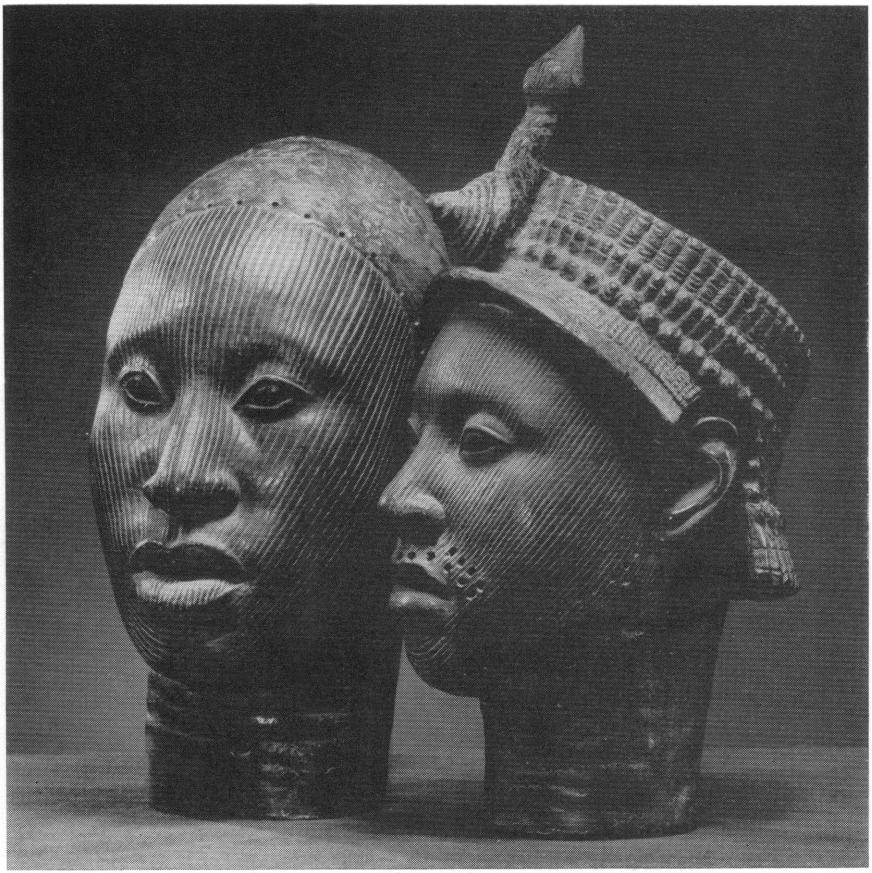
THE YEAR 1957-1958

DEPARTMENT OF ANTHROPOLOGY

One of the major activities concerning the Department of Anthropology is the projected new Hall of the Biology of Man. Harry L. Shapiro, Chairman, has devoted a great deal of time to the general supervision of the hall, and progress has been excellent. The exhibits for the center section of the hall are virtually completed, and plans for the other two sections are well advanced. New exhibition techniques, including a process of plastic infiltration that preserves actual organic material, are being used.

Dr. Shapiro, in addition to his work with exhibition, has been able to give some time to the processing of the archeological and osteological collections which he gathered in the the Marquesas Islands during the summer of 1956. The results of carbon-14 tests made on this material indicate that the islands were inhabited as early as two centuries before Christ, the earliest date yet discovered for Polynesia. It was previously thought that the Marquesas were originally settled around 1200 A.D. Excavations continued in 1957 by Robert Suggs have also yielded the first prehistoric pottery found in Polynesia.

Margaret Mead spent December and January in Bali, with photographer Ken Heyman, making extensive motion picture and still photographic records, tape recordings, and reëvaluations of the community, activities, and individuals that she had studied on her first Balinese expedition in 1936–1939. As a result she hopes to learn more about the processes of cultural change with specific reference to the transformations of adult behavior during rapid social change. She will relate her findings on this trip with the results of six field expeditions made to Bali since 1925. Dr. Mead is also involved in research on



Casts of eleven sculptured heads from the sacred African city of Ife were shown at the Museum in December. The originals are considered national treasures of the Nigerian government, and the casts were made expressly for the Museum by the British Museum, with the cooperation of the Oni of Ife

identity formation in individuals in different types of cultures as a process essential to political change. For this project she is utilizing materials gathered in Israel and in Indonesia during the last few years.

Gordon F. Ekholm began the study and analysis of the great quantity of potsherds, bricks, and other materials from his excavations made at Comalcalco, Mexico, in the previous two years, in preparation for a monograph covering work done there.

James A. Ford spent the months of March through May in Arkansas on an excavation for the National Park Service. He searched for and located the Quapaw Indian village of Osotouy, where, in 1686, the French explorer Henri Tonti established the first European post in the Mississippi Valley south of St. Louis. Approximately 1000 feet of stratigraphic trench was dug; 23 burials were found, one accompanied by glass beads, and one house was found. From an archeological point of view, the identification of the Quapaw culture is of particular interest. For many years ethnologists have postulated that the Siouan-speaking tribe had moved into the Lower Mississippi from the northwest. The material culture confirms that interpretation, for it is more similar to the Oneoti culture of the Missouri River Valley than it is to the cultures of the neighboring Lower Mississippi Valley tribes.

Junius B. Bird reports that he has devoted considerable attention to the largest and most valuable single acquisition of South American archeological material from the Paracas Cavernas culture of Peru, hitherto represented in the Museum only by several fragmentary examples. This collection, consisting of about 800 items plus a series of decorated sherds, was acquired jointly with the Textile Museum of Washington, and as is not true for most Peruvian collections, the records of association and the site data of many items have been preserved.

Robert L. Carneiro, in his first year at the Museum, has prepared a monograph on the culture of the Kuikuru Indians of central Brazil and has begun collecting the material for a Mu-

seum *Handbook* on the Indians of lowland tropical South America. Dr. Carneiro, in preparation for ethnographic field work in the Montaña in Peru, has compiled a base map of that region, to be circulated among persons with a first-hand knowledge of the area who might contribute data on tribal locations and conditions.

DEPARTMENT OF MAMMALS

The Department of Mammals reluctantly recorded the retirement in April, 1958, of Harold E. Anthony, Chairman. Dr. Anthony, who had served on the Museum staff for 47 years, assumed the department chairmanship in 1942. His leadership was the key factor in the creation of the Hall of North American Mammals, and he acted as scientific adviser for the exhibitions in the Akeley Hall of African Mammals, the Vernay-Faunthorpe Hall of South Asiatic Mammals, and the Hall of Ocean Life. On his retirement, he was appointed Curator Emeritus of Mammals.

Plans for the extension of the Hall of North American Mammals were completed during the year, and preparations were begun for the collection of fifteen groups of small mammals to be installed in the corridor adjoining the west entrance to the hall. This expansion, which is being made possible through the generosity of Mr. and Mrs. Robert D. Sterling, will constitute a significant advance towards comprehensive exhibit coverage of the mammals of this continent.

Research activities in the department continued to emphasize faunal studies and revisions of major taxonomic groups throughout the world, Richard G. Van Gelder, Acting Chairman, reports. Particularly significant among the 2821 specimens acquired in the twelve-month period were 320 specimens of East African mammals collected by the Ward-Loomis East African Expedition on which T. Donald Carter represented the department. These additions will help substantially to fill the gaps in the collection of African mammals.

Mr. Carter, in addition to his expedition work, continued his identification of African mammals to be installed in the general collection, and was instrumental in obtaining some mammal specimens for the new Hall of North American Forests.

Research was begun by Dr. Van Gelder on the large quantity of material he collected on the 1957 Puritan-American Museum of Natural History Expedition to Western Mexico. Early results indicate that a new subgenus and a new species of bat, as well as new distribution records of mammals from the eastern Pacific, are represented. Dr. Van Gelder also started a study of the physiological and ecological differences between desert and boreal mammals at the Southwestern Research Station in Arizona. His extensive manuscript on a revision of the spotted skunks (genus *Spilogale)* was in the final stages of completion at the end of the year.

George G. Goodwin, continuing his work on material from Mexico and central America, did further research on the mammals of Oaxaca. He also began a project, in collaboration with Arthur Greenhall, on the bats of Trinidad and Tobago Islands which, in addition to taxonomic studies, will include investigations into the habits and relationships of these animals. In connection with this work, they assisted the Department of Agriculture of Trinidad in its campaign against recent outbreaks of rabies in bats on the two islands.

Study of the Archbold Collections continued, with considerable progress made in the identification and cataloguing of mammal specimens from the Fifth Archbold Expedition to New Guinea. Hobart M. Van Deusen devoted the major portion of his time to research on this material and to other mammals of the New Guinea area and tropical Australia. Leonard J. Brass advanced almost to completion his report on the Fifth Archbold Expedition to New Guinea, and plans were initiated for the sixth collecting venture in that area in the spring and summer of 1959.

Reclassification of the spotted skunks by Richard G. Van Gelder was the first comprehensive study of this genus in over 50 years

The survey of squirrels of the Indo-Malayan region, begun by the late George H. H. Tate and continued by Joseph Curtis Moore, was expanded by Dr. Moore to include a world-wide classification of the squirrel family on a tribe and subfamily level, with the use of a previously unknown cranial characteristic.

ARCHBOLD BIOLOGICAL STATION

The Archbold Biological Station at Lake Placid, Florida, continued to serve the needs of visiting scientists in diverse fields of study. Projects carried on at the Station during the year ranged from research on the roles of voice in the behavior of frogs to study of the current political and cultural affairs of the Seminole Indians. Especially noteworthy was the progress reported by Lawrence R. Penner of the University of Connecticut on his studies of the biological aspects of avian schistosomiasis as well as on other problems involving parasitism in wildlife. Research on butterfly genetics was pursued by Charles M. Remington and Roger W. Pease of the Josiah Willard Gibbs Laboratories, Yale University. Other investigations undertaken at the Station were concerned with salt metabolism in marine birds; behavior of woodpeckers; the taxonomic significance of the egg-white protein of birds; relationships between the sand scrub and long-leaf pine and turkey-oak communities in Florida; and the distribution of wolf spiders in relation to the distribution of sand scrub. Richard Archbold completed his collaboration in observing and collecting trap nests for solitary, wood-nesting wasps, for the research of Karl V. Krombein, United States National Museum. Mr. Archbold also collaborated in Dr. Penner's work on parasitology by developing improved equipment for the examination and study of mollusks.

DEPARTMENT OF BIRDS

Dean Amadon, Chairman, conducted field work in Kenya, Tanganyika, Northern Rhodesia, and the Belgian Congo from June 1 to August 15, one of the results of which was the addition of a considerable number of rare birds to the collections of the department. Also during this period he participated in the Pan-African Ornithological Congress at Victoria Falls, Rhodesia. He continued studies for the "Check-list of Birds of the World" begun by the late James L. Peters; collaborated with a committee of the American Ornithologists' Union in a new edition of "Check-list of North American Birds"; and completed a study of two families of Australian birds. During the year Dr. Amadon was elected a fellow of the Linnean Society of New York.

In February and March E. Thomas Gilliard made studies for the Museum and the National Geographic Society of a wild-living population of birds of paradise which had been introduced onto the island of Little Tobago, near Trinidad, nearly 50 years ago. He was able to secure invaluable photographic studies of these birds and also observed and photographed a number of South American birds in Venezuela. Dr. Gilliard completed a new work, "Living Birds of the World." He was the recipient of an honorary Sc.D. from Wagner College, New York.

Charles Vaurie completed the first volume of a two-part distributional check-list of the birds of Eurasia, "The Birds of the Palearctic Fauna," and also prepared the text on several families for the "Check-list of the Birds of the World."

In his first year at the Museum Wesley E. Lanyon completed a study of two species of American wrens the relationships of which had long been in question. This comparative study, carried out at the Southwestern Research Station, employed, among other methods, the spectroscopic analysis of the birds' songs. He presented his findings at the XII International Ornithological Congress in Helsinki in June, 1958.

Dr. Lanyon also began work on a three-year investigation into the still puzzling interrelationships of the flycatchers of the genus *Myiarchus*. In this study he will be aided by Colonel and Mrs. D. S. McChesney. The sixth floor laboratories have been reactivated for Dr. Lanyon's use, and the department is indebted to W. C. Conway, Jr., Curator of Birds at the New York Zoological Society, for his cooperation in the designing of the sixth floor aviary.

Robert Cushman Murphy, Lamont Curator Emeritus, continued his studies of the petrels and was also very active in investigations of the effects on wildlife of the wholesale use of insecticide sprays.

James P. Chapin, Associate Curator Emeritus, returned to this country after four years of research in the Belgian Congo, bringing with him a large and valuable collection of specimens for the Museum, including a new species of honey-guide which he described during the year. Before leaving Africa, Dr. Chapin presented a paper on the life history of a sunbird at the Pan-African Ornithological Congress.

A selected group of the paintings and drawings by Louis Agassiz Fuertes that belong to the Museum was put on exhibit in the Corner Gallery and was subsequently lent for exhibit to the New York State Museum in Albany and the Rochester Museum of Arts and Sciences. The department is indebted to Mrs. W. Allston Flagg who volunteered her time to catalogue and arrange the Museum's entire collection of 300 Fuertes.

Eugene Eisenmann, a Research Associate in the department, was elected editor of the *Auk*, the publication of the American Ornithologists' Union.

DEPARTMENT OF AMPHIBIANS AND REPTILES

Charles M. Bogert, Chairman of the Department of Amphibians and Reptiles, reports progress on a number of research projects, most notably this year on his investigations into the

significance of the sounds made by frogs and toads.

The role played by calls in the mating activities of frogs and toads, the nature and extent of variation in the sounds produced by individual species, and the reasons for these differences within a species (environmental or genetic) are among the problems Mr. Bogert has been studying. With the help of several colleagues, he has gathered taped recordings from the eastern, south-central, and western United States and from western and central Mexico. The recordings have been supplemented by "sonograms," which are graphic representations of the sounds made by means of an electronic device.

Mr. Bogert has already discovered the existence of unsuspected species, and he has also been able to identify intermediate calls as being produced by hybrid creatures rather than by one of the parent species as was originally thought when they were heard in the field. In addition, the experiments have provided the first real proof that toad vocalizations do serve to attract both males and females to the breeding site. An analysis of these findings is presented in the detailed booklet which accompanies a long-playing record, "Sounds of North American Frogs," made from Mr. Bogert's field tapes. The record was released for distribution early in 1958 by Folkways Records and Service Corporation.

Work continues on the study of thermoregulation in reptiles, with efforts being greatly aided by the receipt of five live iguanas made available by the New York Zoological Society. The iguanas have been kept alive in cages designed to supply sources of radiant heat as a substitute for natural solar radiation.

A study of the osteological characters of several genera belonging to one group of American snakes resulted in findings that reveal close evolutionary relationships between American and Asiatic snakes, in contrast to the fact that the African snakes appear to have evolved independently. Mr.

Bogert has noted with some interest the existence, in one Mexican species, of pronounced differences in the vertebrae of males from those of females. Sexual differences in the spines of snakes previously had not been thought to exist, and this discovery may have significant implications concerning the validity of extinct snake species that are presently known solely from their vertebrae.

An effort is being made within the department to obtain a reliable estimate of the number of species of reptiles now living. The last comprehensive treatment appeared more than half a century ago.

Among the projects completed this year by Richard G. Zweifel, Assistant Curator, is his study of the distribution and taxonomy of lizards of the genus *Cnemidophorus* in western Mexico. Lizards of this genus have been in a state of greater taxonomic confusion than any other group of reptiles in North America. He also finished research on a genus of tree frog from New Guinea as part of the long-term study of the herpetofauna of New Guinea undertaken by the department, as well as a paper on some of the insular reptiles and amphibians of Baja California based on specimens collected during the 1957 Puritan-American Museum of Natural History Expedition to Western Mexico.

During the summer of 1957, Dr. Zweifel initiated a program of research on embryonic adaptation to temperature in frogs and toads. As most of the information that exists concerns creatures of moist and tropical areas, Dr. Zweifel is concentrating his attention on arid and subtropical species, with most of the work being done in the vicinity of the Southwestern Research Station in Arizona. The project will continue during the summers of 1958 and 1960, largely under the sponsorship of the National Science Foundation.

John A. Moore, Research Associate, is working towards completion of the first comprehensive account of the frogs of Australia.

Roger Conant, Research Associate, completed his "Field Guide to the Reptiles and Amphibians," which is to be published in the autumn of 1958.

The work of Samuel B. McDowell, Research Associate, on the morphology of the head in turtles and frogs may lead to the revision of frog family classification and has already resulted in the discovery of a previously undescribed mechanism in turtles that regulates the closure of the Eustachian tube.

The entire department has been greatly aided in its researches this year by the accession of a record number of specimens, the greatest annual increment since the establishment of herpetological research at the Museum. Although the acquisition of large numbers of specimens is not necessarily a desired goal in itself, there has existed a real need for statistically adequate samples for much of the systematic study in progress.

The largest contributions have come from Albert Schwartz of Albright College in Reading, Pennsylvania, who has been studying frogs in Cuba on a National Science Foundation grant administered through the American Museum. Among the specimens received from him are several new species and subspecies of frogs, snakes, and lizards which he has described.

Mr. Conant donated the nearly 400 specimens used in the preparation of his field guide, and from Frazer Walsh of Bolivia have come 50 live toads and lizards. Robert Zeller, a geologist who has been working in southwestern New Mexico, sent 50 live snakes from this relatively little-known region, including two Mexican ridge-nosed rattlesnakes (*Crotalus willardi silus*) not previously known to occur in the United States. All in all, the number of specimens comes to a staggering total of nearly 5000.

DEPARTMENT OF FISHES AND AQUATIC BIOLOGY

Scientists in the Department of Fishes and Aquatic Biology were able to devote the major portion of their time to a variety

of continuing and multiphased research projects. Charles M. Breder, Jr., Chairman, reports that consequently the year was a productive one in the preparation of scientific publications. Dr. Breder made substantial progress on his monograph on the reproductive habits of fishes and extended nearly to completion a report of his studies on social groupings in fishes. The latter project, which required further field studies on the Gulf Coast of Florida as well as at the New Jersey State Hatchery, is closely related to investigations into the significance of the pineal gland in recent fishes. In addition, data pertinent to his studies on organic symmetry were obtained for further development.

Studies on the metabolism of marine fishes were continued by Vladimir Walters with the support of the Office of Naval Research. The project has been greatly facilitated by the acquisition of some elaborate equipment developed by the Goodyear Aircraft Corporation. The devices, consisting of two "water tunnels," will make possible a critical study of fish metabolism and locomotion.

Several department members, including Paul Zahl, Phyllis H. Cahn, and Dr. Walters, were involved in continuing studies on the Sargassum fish. Dr. Cahn, who was appointed Research Fellow during the year, has been particularly concerned with certain features of the embryology of this fish in relation to her work on the development of different types of fish eggs. A study on the influence of environment on the pigmentation of the Sargassum fish, undertaken by Dr. Breder and Mary Lou Campbell, was in press at the end of the year.

Good progress was made in the study of cave *Mollienisia* through experimental work carried on by Lisa Hamilton. Interesting differences were determined in the reactions to light between these fishes and the cave fish *Astyanax,* which had been studied earlier. Francesca R. LaMonte continued her studies on the speared fishes, in which she received excellent cooperation from the University of Miami, the Bingham

A school of black mullets on the Gulf Coast of Florida was among the groups of fishes studied by Charles M. Breder, Jr.

Oceanographic Laboratory, and the Scripps Oceanographic Institution.

Research involving invertebrates was substantially advanced on several widely divergent fronts. William K. Emerson completed one phase of his work on the late Pleistocene mollusks of Baja California and prepared to extend this study by the use of quantitative geochemical means. Dorothy E. Bliss was able to accelerate her work on the ecology of land crabs through the addition of an assistant and of necessary equipment made possible by the support of the National Science Foundation. Her investigations were concerned chiefly with the control by the neurosecretory system of growth and water metabolism, as well as of locomotor activity.

In collaboration with the Department of Exhibition, some initial work was done by Dr. Bliss in preparation for a temporary exhibit on crustaceans commonly used for food.

Libbie H. Hyman completed her work on the fifth volume of her extensive treatise, "The Invertebrates," and devoted a minor part of her time to the taxonomy of free-living flatworms. Studies on the taxonomy and life histories of parasites were continued by Horace W. Stunkard.

John T. Nichols continued to concern himself with curatorial activities on fishes. Principal addition to the collection during the year was an interesting series of fishes from Rumania donated by P. Banarescu of the Institutul de Cercetari Piscicole, Bucharest. Dr. Emerson's instigation of a simplified method of cataloguing the mollusks will greatly facilitate the processing of a large quantity of material, including the mollusk collection from the Puritan-American Museum of Natural History Expedition to Western Mexico reported upon last year.

LERNER MARINE LABORATORY

The Lerner Marine Laboratory at Bimini, Bahamas, British West Indies, reported the initiation or continuation of a

The "Wild Goose," 41-foot, diesel-powered cruiser of the Lerner Marine Laboratory at Bimini, British West Indies, was used by visiting scientists for the collection of marine specimens

number of interesting research projects. Forty-four visiting scientists used the facilities of the Laboratory for periods ranging from a few days to eleven weeks. Their projects included studies in such diverse fields as the ecology and behavior of the pearl fish, calcium carbonate sedimentation on the Great Bahama Bank, and cell division physiology in early cleavages of sea urchin eggs. Paul Zahl of the Haskins Laboratories, and the Department of Fishes and Aquatic Biology of the Museum, continued his investigations into the relationships between algal symbionts and marine invertebrates, and Ross Nigrelli of the New York Aquarium did further work on toxicity and antibiotics in marine fauna. Biochemical studies on gorgonians and echinoderms were pursued by L. Ciereszko of the University of Oklahoma. Materials collected for other projects being undertaken in part at the Laboratory included live breeding coral, octopus specimens for study of their reproductive systems, and large game fishes for certain biochemical and biophysical tests in connection with the continuing studies of workers from the Retina Foundation of Harvard University.

DEPARTMENT OF INSECTS AND SPIDERS

The most notable event during the year in the Department of Insects and Spiders was the acquisition of the Alfred Kinsey collection of the gall-making wasps of the family Cynipidae. The collection, numbering approximately 7,607,000 specimens, is by far the largest collection of cynipids in the world. As a result of this acquisition the number of specimens of insects and spiders in the collection of the department has more than doubled and now approaches 12,000,000.

The major portion of Mont Cazier's time has been spent at the Southwestern Research Station of which he is director. C. Howard Curran, Acting Chairman of the Department in Dr. Cazier's absence, has continued his studies of the family Mydaidae and the genus *Microdon* of the family Syrphidae

and has also worked on the biology and control of insects and plant pests at Bear Mountain.

Willis J. Gertsch has completed the revision of the spider family Dictynidae and a revision of the family Hypochilidae, in addition to four other papers for *American Museum Novitates*. Dr. Gertsch and Raymond Forster of New Zealand spent two weeks of successful collecting of spiders in Florida.

Frederick H. Rindge has continued work on the geometrid moth genus *Glaucina*. During the study of the geometrids as a whole, new species have been discovered, descriptions of which have appeared from time to time. Also Dr. and Mrs. Rindge spent about six weeks collecting in Colorado and returned with about 5500 insects, mostly moths, from this important area.

SOUTHWESTERN RESEARCH STATION

In its third year of operation, the Station played host to 142 scientists and specialists. They included representatives of 26 different colleges and universities, four museums, one governmental agency, and two research foundations located in nineteen states. These people were engaged in 31 different fields of activity, including botany, entomology, herpetology, ornithology, mammalogy, ecology, geology, genetics, animal behavior, plant pathology, paleontology, bacteriology, and others.

Because of the large numbers of requests for space, it has been necessary to enlarge the dining accommodations. Through an addition to the dining room, 80 people can now be seated at one time. A membership program begun during the year has already brought in 75 memberships, and plans for increasing this number are now being formulated.

DEPARTMENT OF ANIMAL BEHAVIOR

The reproductive habits of fish and the effects of hormones, how animals react to situations of stress, why and how fishes

school and birds migrate, and the significance of the sounds made by underwater creatures are among the projects which concerned the Department of Animal Behavior during the past year.

The effects on subsequent mating and parental behavior brought about by the removal of the testes vary with different animals. In primates and man, for example, sexual patterns may persist for a long time, but several investigators had found that with fish the result is a rapid loss of sexual activity. When, some years ago, experiments with jewel fish seemed to show just the opposite (normal spawning and parental behavior persisting long after the removal of the gonads), the question raised was how thoroughly this delicate operation had been performed. Lester R. Aronson, Chairman, with the assistance of Harold Silverman and Allan Scharf and supported by a grant from the Committee for Research in Problems of Sex of the National Research Council, has been working on experiments to check these findings. Working with males of a cichlid fish *(Aquidens latifrons)* he discovered that mating activity did continue for some time after removal of the testes and in some cases even increased. This study, when completed, is expected to have considerable bearing on the more general questions concerning the function of hormones in this whole area of behavior.

Theodore C. Schneirla, with Ethel Tobach, G. Turkowitz, Renee Fuller, and Rochelle Wortis, began in September the first part of a long-term project supported by the National Institutes of Mental Health to investigate the effect of early environment on the reactions of an animal to situations of stress in later life. Two strains of rats were tested as to their suitability as subjects, and work was started on the development of experimental techniques. A cage was designed which can be used to modify the physical environment in carefully controlled ways. In the early stages of their development, one group of animals will be subjected to an unstable physical

Theodore C. Schneirla and Ethel Tobach work with specially designed laboratory equipment on a long-term project investigating the effect of early environment on the ability of an animal to react to stress in later life. Rats are used as the experimental animals in this phase of the project, which is supported by the National Institutes of Mental Health

environment, another group to an unstable social environment, and a third group will act as a control. When they have passed through the weaning stage, they will be subjected to a series of stressful situations. These tests are designed to evaluate the quantitative and qualitative effects of tensions in adulthood on animals differently prepared in early life.

Helmut E. Adler continued his researches into the visual capacities of birds, with the support of a grant from the Friedman Foundation. Working with John Dalland, Arthur Snapper, and William Ayres, Dr. Adler conducted quantitative studies on starlings to determine their range of sensitivity to color, adaptation to dark, and their visual acuity. He is currently in the process of constructing an apparatus that will measure the accuracy of time judgments in birds. Dr. Adler's investigations are directed towards an understanding of the means by which birds accomplish the feat of migration.

Schooling behavior in fish is a basic social phenomenon, but the events that lead fish into this stage are not clearly understood. An experimental project was begun by Evelyn Shaw in which the schooling of young acaras *(Aquidens latifrons)* is being analyzed. One preliminary finding suggests that light intensity is an influencing factor, and attempts are being made to determine the critical intensities at which the young fish begin to school. At the same time, embryos are being reared in isolation to see if the lack of social contact influences their initial schooling behavior. Dr. Shaw worked from June to September at the Marine Biological Laboratory at Woods Hole on a fellowship from the Office of Naval Research, and her work is also being supported by a National Science Foundation grant.

Arlene Tucker, with a renewal of her fellowship from the National Institutes of Mental Health, studied the mating behavior of various species of poeciliid fishes. These fish reproduce by means of internal fertilization and, with the exception of one species, bear live young. In order to effect this,

the group has developed special genital structures and behavior. The aim of the study is to discover what correlation exists between these specialized structures and sexual behavior patterns, and, wherever found, to indicate how these came about in the evolution of the group.

Despite the many studies made of the sounds produced by undersea animals, little is known of the significance of these sounds. William Tavolga recorded underwater sounds made by fishes of the family Gobiidae and Blenniidae at several locations in Florida. The low-pitched grunts produced by certain tidal-zone fishes were found to be closely related to prespawning or "courtship" behavior. Only males make these sounds and only in the presence of females. When played back, the recorded sounds attracted both males and females to the source of the sound, although the females responded only when another animal was nearby. Artificial sounds also attracted the fish, so long as the pitch and duration of the imitations were close to those of the natural sounds.

Jay S. Rosenblatt was awarded a post-doctoral research fellowship by the National Institutes of Mental Health for studies on development of behavior in kittens.

DEPARTMENT OF GEOLOGY AND PALEONTOLOGY

George Gaylord Simpson, who had served as Chairman of the department since 1944, resigned his administrative duties in order to gain more time for research and curatorial tasks. Edwin H. Colbert was appointed Chairman in his place.

Exhibition work in the department included the completion of the semicircular case in the new Hall of the Giant Sloth, concerned with the nature, collection, and interpretation of fossils. This display is now the largest single exhibition case in the Museum. Another exhibit in this hall, on the origin of mammals, is also awaiting installation. Exhibits on Mesozoic mammals and on the marsupials are progressing and should

be finished by the end of the current year, while other units in the hall are in various stages of development. The laboratory force of the department is working on the specimens for these exhibits as rapidly as circumstances permit. All this work has been carried on under the direct supervision of Bobb Schaeffer and Mary B. Patsuris.

During the latter part of the summer of 1957 exhibits in the northwest corner of the Hall of the Giant Sloth that illustrate the evolution of those groups of reptiles that survived beyond the age of dinosaurs were completed. This section of the hall forms a connection between the Tyrannosaur Hall, which displays the last of the great dinosaurs, and the succeeding mammal halls, which illustrate the evolution of the mammals after the extinction of the dinosaurs.

The year 1957–1958 marked the end of a three-summer biogeological investigation of the Great Bahama Bank area sponsored by the Department of Geology and Paleontology under the direction of Norman D. Newell. The project was based at the Museum's Lerner Marine Laboratory on Bimini, British West Indies, and included studies of the biotic zonation and ecology of the area and the completion of a regional organism community map of the Great Bahama Bank. A comprehensive report on the results of the survey will be published by Dr. Newell and John Imbrie in the near future.

Other field investigations included an extensive expedition to Southeast Asia, Australia, and New Zealand by Brian H. Mason. He represented the Museum at the Pacific Science Congress held in Bangkok during the fall and was able to see and collect from a number of places of geological interest in Thailand. In the Southern Alps of New Zealand he mapped a previously uncharted area of several hundred square miles and made comprehensive collections of minerals and rocks.

At the Museum, research on several long-range projects was continued. Dr. Simpson worked on his report on his expedition to the Juruá River in Brazil. In addition, he devoted time

to the writing of two chapters for, and the editing of, the symposium on "Behavior and Evolution" sponsored by the Society for the Study of Evolution and the American Society of Psychologists. Dr. Colbert gave much of his attention to the study of Triassic and other Mesozoic amphibians and reptiles. Among other projects, he devoted some time to a study of Cretaceous dinosaurs and other reptiles from the Big Bend region of Texas. This fauna is important in that it will relate the dinosaurs of late Cretaceous age, now found in the southern part of the United States, to the well-known groups found in Canada and the northern United States.

Dr. Schaeffer has almost completed the compilation of data for a faunistic and paleoecologic analysis of the Mesozoic fish faunas of the world and will begin analysis of the data shortly. In addition he has begun a study of all the known actinopterygian fishes from the continental upper Triassic of the western United States, including specimens from Texas, New Mexico, Utah, and Colorado. Preliminary investigation indicates close resemblance to certain elements in the lower Triassic of South Africa.

Donald F. Squires brought back a group of living corals from the waters off Bimini Island, as part of his research on various coral fauna, and succeeded in keeping them alive for a month in an elaborate system of aquaria, pumps, aerators, and thermostats. This experiment, the first time these corals had ever been kept alive outside the tropics, enabled Dr. Squires to make valuable observations about the feeding habits of the animals and their reactions to light and dark.

Dr. Simpson was elected a Foreign Member of the Royal Society of London and also was the recipient of the Darwin-Wallace Commemorative Medal of the Linnean Society of London. Dr. Colbert was elected President of the Society for the Study of Evolution.

DEPARTMENT OF MICROPALEONTOLOGY

Work on the Long Island Sound Project, an ecological study of the sediments and micro-organisms in the Sound, was continued during the year by the Department of Micropaleontology with the cooperation of New York University. Brooks F. Ellis, Chairman of the Department and director of the project, reports that the acquisition of the "Sea Owl," a 105-foot, diesel-powered yacht, from the United States Army Corps of Engineers, has aided the survey considerably. The yacht, which serves as the base of operations, accommodates a crew of eight and a scientific staff of seven. Berthed at the United States Merchant Marine Academy at Kings Point, it is manned by officers and cadets from the Academy. Through the generosity of a group of geophysicists in Houston, Texas, extensive geophysical equipment has been added to the ship's apparatus, and it is planned that the scope of the survey will be broadened accordingly.

The last set of the department's "Catalogue of Foraminifera" of 58 volumes was issued during the year. The catalogue, the result of 30 years of study by members of the department, has been sent to countries in every part of the world. With the exhaustion of this edition, it was decided to issue a microfilm edition of the work, and the first microfilm copies will soon be ready for distribution.

Work on special problems submitted by oil companies increased during the year. As part of this program, research progressed on a study of microforaminifera for the Carter Oil Company of Tulsa, Oklahoma. The objectives of this study are to determine the nature of these very small Foraminifera, to study their ecology, and to determine whether or not they are of practical stratigraphic importance. Work during the past year has revealed the fact that some of them are merely the embryonic, chitinous linings of normal-sized forms or represent a hitherto unknown stage of the life cycle of these

Joseph Kaplan (left), eminent physicist and Chairman of the United States National Committee for the International Geophysical Year, was one of nine leading scientists who took part in a special symposium on the International Geophysical Year presented by the American Museum-Hayden Planetarium. The program was designed to disseminate to the public up-to-date information on the eighteen-month international scientific effort. Other participants included authorities on nuclear energy, rockets and satellites, cosmic radiation, exploration of the upper atmosphere, and other aspects of research for the International Geophysical Year. Joseph M. Chamberlain (right), Planetarium Chairman, served as symposium coordinator

protozoans. The efforts of the department are now being directed towards determining whether they are size variants or indeed a new stage of the life cycle. This work has been carried on under the direction of Dr. Ellis and Angelina Messina.

In its fourth year of publication the quarterly *Micropaleontology,* which is edited by Miss Messina, reached 1100 subscribers. The enthusiastic reception of this journal and the fine quality and increased number of papers submitted for publication during the year have caused the department to make plans for enlarging the size.

DEPARTMENT OF ASTRONOMY AND THE AMERICAN MUSEUM-HAYDEN PLANETARIUM

The American Museum-Hayden Planetarium, for 23 years the focal point in the City of popular interest in astronomy and space, was prepared for the tremendous increase of interest generated by the arrival of the earth satellite era, Joseph M. Chamberlain, Chairman, reports. The man-made moon was represented in the Planetarium's popular presentation for the summer of 1957 and was featured in its special symposium on the International Geophysical Year in September, just a few weeks before the Sputnik I launching. A temporary exhibit on Project Vanguard, opened in September, was later followed by a Naval Research Laboratory exhibit on the same subject.

In response to the virtual deluge of requests for satellite information that followed the first successful launching in October, the Planetarium immediately organized a series of five evening lectures titled "Artificial Earth Satellites." The course, the first of its kind to be offered in the New York area, was designed to familiarize laymen with the development of programs on artificial earth satellites, the reasons for launching satellites, the types of orbits and methods of achieving them, and the design and operation of satellite-launching rockets. The

lectures were repeated in the spring with a total attendance for both series of 460—a record for any Planetarium course in one fiscal year.

In November a mechanized display was set up in the Planetarium to show the paths of current artificial satellites in orbit. This exhibit, which included timetables on satellite visibility in the metropolitan area, was kept up to date throughout the winter and spring. In order to make current information on satellites available to the Museum public, a larger temporary exhibit was prepared and installed in the Roosevelt Memorial Building in cooperation with the Department of Exhibition.

Throughout this period, Planetarium staff members were called upon to give considerable service to the press, television, and radio in clarifying and interpreting satellite data.

The strengthening of educational services continued with the extension of the cooperative program begun last year with New York University. For the first time a descriptive astronomy course was offered for credit in both the School of Education and the Liberal Arts College of the University. Plans were made to add a graduate course for teachers to the 1958 fall program.

The radio astronomy research project, to which K. L. Franklin was to have devoted the major portion of his time, was delayed by pressures resulting from earth satellite activity. Considerable progress was made, however, in developing and testing the electronic system that will be installed at the observing site.

In connection with the astro-geodetic survey in the Canadian Arctic, begun two years ago through a contract with the Western Electric Company for the Air Force, Mr. Chamberlain again visited installations along the Distant Early Warning line to check on the orientation of communications antennae.

Temporary exhibits, in addition to those on satellites mentioned above, included "Plant Life On Mars," constructed for the International Flower Show and later exhibited at the Plane-

tarium. An unusual solar-powered machine, designed by Charles Eames for the Aluminum Company of America, was also on temporary display.

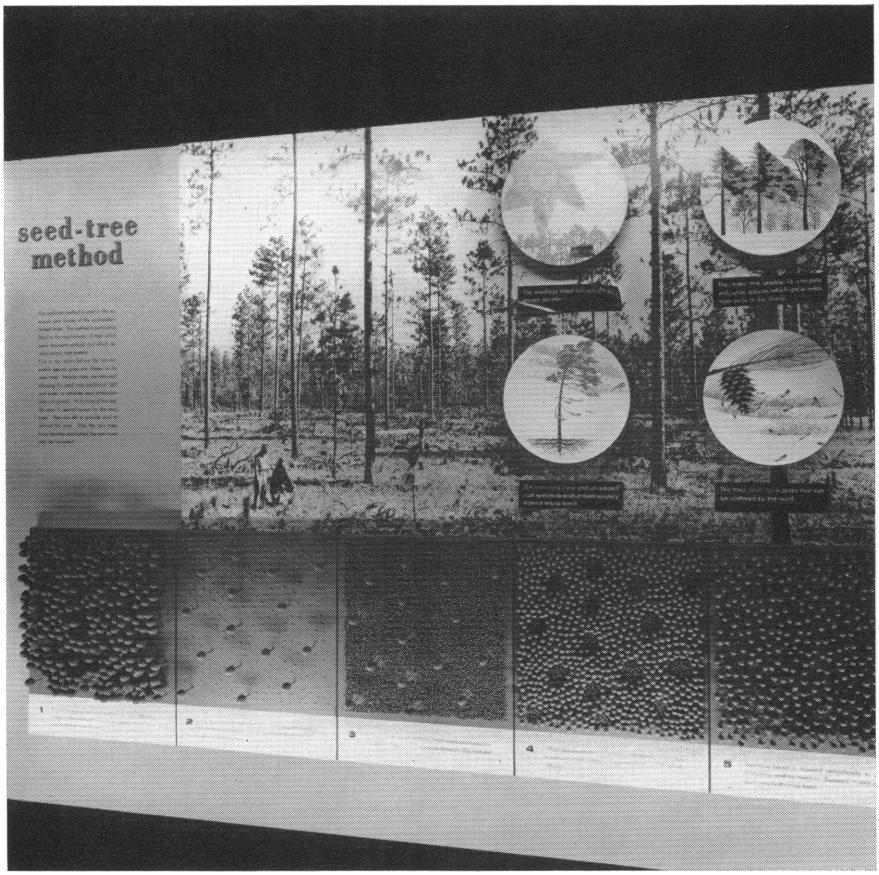
Major improvements in the electrical and electronic equipment in the Sky Theater, including the installation of a new control console and three new projector systems, afforded greater flexibility and effectiveness than ever before in the popular presentation.

Attendance for the twelve-month period was almost 618,000, an increase of approximately 10,000 over the previous fiscal year.

DEPARTMENT OF VEGETATION STUDIES

Jack McCormick, in charge of Vegetation Studies, reports that the major portion of his time was devoted to supervising the completion of the Hall of North American Forests. The new hall, opened on May 14, presents a comprehensive treatment of the forests of this continent. The variety of forest communities from central Canada to Southern Arizona is represented in twelve habitat groups, while additional exhibits are concerned with forest soils and soil life, forest insects and diseases, natural harvest, man's harvesting of the forest, and related topics. The completion of this project marked the culmination of work that was begun by Henry K. Svenson and continued by Richard Pough. Dr. McCormick completed the manuscript of a book, "The Living Forest," based on the Hall of North American Forests, for publication by Harper and Brothers.

A three-year study of the vegetation of the Chiricahua Mountains, Arizona, was initiated by Dr. McCormick with the support of the National Science Foundation. Dr. McCormick also reported progress on the long-range "Vegetation of the Americas" project.



One of the lumbering methods depicted in a three-panel exhibit in the new Hall of North American Forests is the seed-tree method, usually employed in the case of pine trees. Selected seed-trees are left standing, while all surrounding trees are cut to enable young seedlings to grow in full sunlight. When the young trees have achieved sufficient growth, the seed-trees are cut

DEPARTMENT OF PUBLIC INSTRUCTION

The educational services reached a total of 15,994,092 contacts last year, an increase of 557,034 over the previous year. Of that number, 9,934,669 were made by the Department of Public Instruction, reports Department Chairman John R. Saunders, and the rest fell within the provinces of the Membership Office, Guest Services, the Film Library, and the Slide Library.

Under the daily supervision of Marguerite R. Ross, Supervising Instructor, the "World We Live In" program for city school children, grades 3 to 9, reached 1740 classes in 522 schools. The department is deeply indebted to Mrs. Oscar Straus, II, for her devoted help in cataloguing and arranging, with Senior Instructor Catherine Pessino, the entire collection of teaching materials.

Two specialized programs designed to stimulate vocational interest in science were again offered to selected biology students from 37 high schools. One consisted of study tours of the research laboratories of the Museum; the other program involved a study and discussion of the paleontological exhibits. Each program was offered once a week for 20 weeks under the direction of Lois J. Hussey, Assistant Chairman.

Because of an enthusiastic reception the previous year, the special mineralogy course was again made possible by an anonymous donor. Twenty top science students from 20 different high schools participated in fifteen two-hour laboratory sessions on Saturdays and two all-day field trips under the instruction of Christopher Schuberth. Of the 20, all completed the course successfully, and seventeen expressed an interest in further, more advanced work in the field.

The Adult Education Programs under the supervision of C. Bruce Hunter presented twelve different college-accredited courses to a total of 430 persons. This number is the maximum that can be accommodated by the present teaching staff, and several hundred applicants had to be turned down. Four new

A practical lesson on life in Latin America is given to a visiting school group by Marjorie L. McKenzie of the Department of Public Instruction as part of the "World We Live In" program

courses were introduced: "Empires in the Far East," "Techniques of Miniature Dioramas," "Environments of North America," and "Wild Plants of the Northeast."

The Nurse Education Program was greatly enlarged, and 27 classes were held in which a total of 822 nurses-in-training from sixteen hospitals participated, as compared with 465 the year before. The reaction has been enthusiastic.

Last summer six members of the department initiated a series of projects at the Vacation Camp for the Blind in Spring Valley, New York, an organization that accommodates 800 campers each summer. The participation of the Museum included the identification of flora on the camp grounds, the collection and preparation of local flora and fauna for a small camp museum, the blazing of a nature trail through the more heavily wooded areas, and the preparation of a recording of nature sounds. This cooperative venture will be continued during the 1958 season.

A series of Planetarium programs was arranged by Marguerite Newgarden for members of the Adult Student Council under the joint sponsorship of the Museum and the Board of Education and was attended by a capacity audience of 2938 persons.

Farida A. Wiley, Honorary Associate in Natural Science Education, presented her two popular courses (one for nature counselors and youth leaders, the other on local birds, plants, and animals). The total attendance was 1324.

The Peter Van Gerbig Natural Science Center for Young People is fast becoming known as a model operation in its field. The increasing number of foreign and domestic educators and youth workers who visit the Center to study its work is indicative of the status it has attained since its opening less than four years ago. The number of class groups receiving instruction increased considerably, and an average of 3500 visitors have been clocked into the Center almost every month since its opening. Each new season brings a new, appropriate exhibit, and last

year a sound system was installed that can be used with either earphones or a loudspeaker to transmit animal sounds and nature songs and stories. A full-time teacher, Judith Zanger, assisted Mrs. Martin Goldwasser during the year, and the Center is greatly appreciative of the work of Mrs. Agnes North who volunteered her full-time services to the accessioning, carding, and numbering of all the books in the Center's growing library. Under the direction of Miss Hussey, the Center is constantly planning new ways of encouraging young visitors in their natural history interests and projects.

A total of 8500 loans to four hundred schools and other educational organizations throughout the community was made by the Circulating Exhibits Division under the direction of Carlton Beil. In addition to the preparation of 20 new exhibits and the renovation of 200 others by exhibit technician George Crawbuck, a major project was the complete restoration of the doll collection of the department through the skillful cooperation of the Doll Collectors' Guild of New York.

DEPARTMENT OF EXHIBITION AND CONSTRUCTION

Gordon R. Reekie, General Manager of Exhibition and Construction, reports that the completion of the Hall of North American Forests was the major concern of the Department of Exhibition during the year. This involved work on many exhibits: "Forest Soils"; "Forest Protection"; "Forest Insects"; "How Nature Harvests"; "The Forest Community"; "Stories a Stump Can Tell"; the murals "River-bottom to Hilltop" and "Weather in the Forest"; "The Life of the Forest Floor"; "How to Use Wood"; "Forest Tree Diseases"; and the "Piñon Juniper" and "Redwood Forest" habitat groups. In addition, groups completed some time ago were thoroughly cleaned, and many of them were repaired and augmented in preparation for the opening in May.

At the end of the year, the largest single exhibition case in

the Museum, the exhibit of fossils in the Hall of the Giant Sloth, was completed. Over 50 feet long, the display is not only informative but arresting and colorful as well. Two other cases in this hall were also finished during the year. Work continued on the Hall of the Biology of Man, and the Lanman Memorial Alcove in the Sanford Bird Hall was about 60 per cent completed.

Of the temporary exhibits shown during the period, outstanding was "Animals in Sculpture," the work of Rhys Caparn, Tom Hardy, and Jane Wasey. This marked the first time that three-dimensional material had been featured in the gallery, and the success of the exhibit suggests that more ambitious use of this area is destined for the future. Other Corner Gallery shows were "Pre-Columbian Objects," photographs by Lee Boltin; "Pup, Cub, and Kitten," photographs by William Vandivert; "Tunis to Capetown," a photographic journey by Emil Schulthess; and an exhibit of field sketches by Louis Agassiz Fuertes.

In the first floor Roosevelt Memorial lobby, two very successful exhibits were mounted: "Portrait Sculpture from Africa —the Mysterious and Little Known Art of Ife," and "Satellite: First Step In Space." The latter was prepared in collaboration with the Planetarium and was the first time that the Museum itself had displayed a "Planetarium-slanted" exhibit. Conceived immediately after the launching of the first Sputnik, this exhibit has been outstandingly popular. Also in the first floor of the Roosevelt Memorial building was an exhibit to celebrate the Theodore Roosevelt Centennial.

In the Planning Department an important activity centered around the reconstruction of the auditorium; the work appeared to be going ahead smoothly by the end of the year.

In the Department of Graphic Arts, a considerable increase in material designed for Membership and *Natural History* magazine promotion was the most notable feature of the year. This and the revision of the *General Guide* were major projects.

Plants and animals that have become adapted to the arid conditions of the desert are shown in the Giant Cactus Forest group in the Hall of North American Forests

In addition, scientific illustration was in considerable demand, with the Department of Anthropology requiring 1300 hours of work, and the Department of Mammals, 970 hours.

The design and production of *Curator,* the Museum's new quarterly, has been the responsibility of the General Manager of Exhibition and Construction.

On August 13, 1957, James Perry Wilson retired after 23 years of painting the backgrounds of some of the finest habitat groups in the Museum. His contribution to the fame of the Museum, and his perfectionism as an interpretative artist, will not soon be forgotten.

SCIENTIFIC PUBLICATIONS

Ruth Tyler, Editor of Scientific Publications, reports the production of the following: eighteen articles in the *Bulletin of the American Museum of Natural History,* totaling 1430 printed pages, and 56 numbers of *American Museum Novitates,* with a total of 936 pages, in addition to the James Arthur Lecture for 1956 (24 pages) and the usual indexes for completed volumes of the *Bulletin* and *Anthropological Papers* and other miscellaneous indexes (for two departments) and publication lists.

NATURAL HISTORY MAGAZINE

Natural History Editor John Purcell reports that the *Sky Reporter,* discontinued as a separate publication, became a regular department of *Natural History* magazine with the June-July issue. The *Sky Reporter* section will be devoted primarily to the interests of amateur stargazers, but the magazine will also continue to feature broader articles in the field of astronomy. Henry M. Neely, the editor of *Sky Reporter* since its inception, is now a regular contributor to *Natural History.*

In the past, there has been no issue of the magazine between the June and September numbers. This year a June-July issue of

64 pages, as opposed to the usual monthly issue of 56 pages, was published, to be followed by an August-September issue, also of 64 pages.

During the year, subscription renewals were notably higher than the previous year. Paid circulation reached 79,832 by the end of the fiscal year, exclusive of the 7179 *Sky Reporter* subscribers who will receive *Natural History* from June through November.

JUNIOR NATURAL HISTORY MAGAZINE

During the past year *Junior Natural History Magazine* has continued to bring to its readers facts and adventures about wildlife in all parts of the world. It has also inaugurated a program of informative material, both editorial and pictorial, to correlate with the growing importance of social studies in the schools. In addition, more emphasis has been given to articles dealing with the space age and the part boys and girls will play in its field. The coming year is planned to include articles aimed at promoting a better understanding of other peoples, stimulating the thinking started in schools, and evaluating the riches of the world's natural resources. Circulation for the fiscal year of 1958 was 98,666.

CURATOR

Another major event occurring during the year was the publication of *Curator,* a new quarterly magazine of the Museum, designed to contribute to the total fund of museum knowledge by providing a forum for the exchange of ideas on contemporary museum problems. In the two issues that appeared during the year, museum authorities in this country and abroad explored problems of research, administration, professional standards, techniques of exhibition, construction and design, and planetarium and museum teaching.

MAN AND NATURE PUBLICATIONS

Man and Nature publications deal with exhibits of particular interest and with the many natural science fields, edited for reading by the layman. More than 140 of these booklets, guides, and leaflets have been issued, and new ones are constantly in preparation. The *Handbooks,* fifteen of which have been issued, deal with themes related to the collections and are frequently used as textbooks.

Publications issued during the period under consideration include "Birds of the New York City Area" by John L. Bull, based on the Museum exhibit of birds around New York, and a revision of the *General Guide,* including a description of the new Hall of North American Forests.

MEMBERSHIP

Membership in the American Museum rose by 1541 new members, according to William A. Burns, Membership Secretary. A grand total of 77,725 members was recorded in all classes. In its first year, Junior Membership in the Museum has grown to 4602 members in two classes.

MUSEUM STAFF

Walter F. Meister, in addition to his positions as Controller and Assistant Treasurer, was appointed Deputy Director of the Museum. In his new position Mr. Meister functions as chief administrator of the Museum in the absence of the Director.

In the Department of Mammals two changes in title were made. Richard G. Van Gelder, Assistant Curator, was appointed Acting Chairman upon the retirement of Harold E. Anthony, and Hobart M. Van Deusen was given the title of Assistant Curator, Archbold Collections.

In the Department of Geology and Paleontology, George

Gaylord Simpson resigned the Chairmanship. Edwin H. Colbert was appointed to this position. David M. Seaman was made Scientific Assistant in the same department.

Luther A. Williams was appointed Assistant Chief of the Department of Exhibition, and George E. Petersen was made Technical Supervisor of the same department. Joseph M. Sedacca was promoted to Chief of the Graphic Arts Division.

At the American Museum-Hayden Planetarium, Thomas D. Nicholson was promoted from Associate Astronomer to Astronomer, and Kenneth L. Franklin from Assistant Astronomer to Associate Astronomer.

ATTENDANCE

During the fiscal year here reported on, 1,762,689 people visited the Museum, and 617,948 visited the Planetarium, making a combined total of 2,380,637. This figure represents a decrease of 96,616 for the Museum, caused principally by the fact that activities normally taking place in the auditorium were curtailed because of extensive alterations. It marks an increase of 9537 for the Planetarium.

PICTURE CREDITS

Page 29 — Charles M. Breder, Jr.
Page 47 — Joe Engels, *New York Herald Tribune*
Page 51 — Ernest Sisto, *The New York Times*

All other photographs are by the American Museum of Natural History.

THE AMERICAN MUSEUM OF NATURAL HISTORY

Financial Statements

For the Fiscal Years ended June 30, 1958 and 1957

THE AMERICAN MUSEUM

BALANCE

June 30,

ASSETS:	1958	1957
Current funds:		
General funds:		
Cash	$ 35,122	$ 33,416
Accounts receivable	248,297	294,329
Inventories, principally publications	88,260	93,598
Prepaid expenses and deferred charges	85,114	60,802
	$ 456,793	$ 482,145
Special funds:		
Cash	$ 567,974	$ 505,561
U. S. Government bonds, at cost	750,000	750,000
Accounts receivable	7,650	6,082
Due from general funds	66,372	127,173
	$ 1,391,996	$ 1,388,816
	$ 1,848,789	$ 1,870,961
Endowment funds:		
Cash:		
Demand deposit	$ 85,112	$ 5,983
Time deposit	300,000	
Investments (market June 30, 1958, $28,331,000) (Notes 1 and 2):		
Bonds	13,630,042	12,592,767
Preferred stocks	2,284,935	2,096,618
Common stocks	7,219,655	7,090,019
Other	4,299	34,748
	$23,524,043	$21,820,135
Investment in bonds of The American Museum of Natural History Planetarium Authority, $570,000 principal amount, at cost (Note 3)	$ 425,000	$ 425,000
Pension funds:		
Cash	$ 48,859	$ 81,342
Investments, at cost (market June 30, 1958, $6,119,000):		
Bonds	4,359,845	4,074,611
Preferred stocks	850,221	809,621
Common stocks	640,920	612,762
Loan receivable	270	510
	$ 5,900,115	$ 5,578,846
	$31,697,947	$29,694,942

The accompanying notes are an integral part of these statements.

OF NATURAL HISTORY

SHEETS

1958 and 1957

FUNDS and LIABILITIES:	*1958*	*1957*
Current funds:		
General funds:		
Accounts payable, payroll taxes withheld, etc.	$ 63,886	$ 57,249
Deferred income, principally unearned dues and subscriptions	386,528	300,436
Due to special funds	66,372	127,173
Appropriations for outstanding commitments	30,613	46,091
	547,399	530,949
Deficit	90,606	48,804
	$ 456,793	$ 482,145
Special funds:		
Balances of funds received or appropriated for specific purposes	$ 1,391,996	$ 1,388,816
	$ 1,848,789	$ 1,870,961
Endowment funds:		
Endowment funds, income available for:		
Restricted purposes	$10,933,826	$ 9,889,996
Unrestricted purposes	6,147,163	5,880,721
Funds functioning as endowment, principal and income available for:		
Restricted purposes	619,203	574,337
Unrestricted purposes (Notes 2 and 5)	5,823,851	5,475,081
	$23,524,043	$21,820,135
Funds invested in the bonds of The American Museum of Natural History Planetarium Authority (no change during year)	$ 425,000	$ 425,000
Pension funds:		
Pension fund balance	$ 5,898,988	$ 5,577,719
Welfare fund balance	1,127	1,127
	$ 5,900,115	$ 5,578,846
	$31,697,947	$29,694,942

GENERAL FUNDS

SUMMARY STATEMENTS OF CHANGES

for the fiscal years ended June 30, 1958 and 1957

	1958	*1957*
Deficit, beginning of year	$ 48,804	$ 32,413
Less, Transfers from unrestricted funds functioning as endowment	48,804	32,413
	—	—
Income:		
Appropriation from the City of New York	$1,360,154	$1,354,672
Endowment funds	995,608	967,551
Outside trusts and foundations	65,156	49,281
Gifts and grants	176,708	175,700
Other (Notes 2, 3 and 4)	326,081	335,410
	$2,923,707	$2,882,614
Expenses and appropriations:		
General administration	$ 503,787	$ 497,519
Educational activities	1,235,133	1,162,639
Pension and other social benefits	225,814	225,163
Operation and maintenance of physical plant	1,058,057	1,052,499
Appropriations transferred to special funds	7,000	11,982
Appropriation for outstanding commitments at end of year	30,613	46,091
	3,060,404	2,995,893
Less, Appropriation for outstanding commitments at beginning of year	46,091	64,475
	$3,014,313	$2,931,418
Deficit, end of year	$ 90,606	$ 48,804

The accompanying notes are an integral part of these statements.

SPECIAL FUNDS

SUMMARY STATEMENTS OF CHANGES IN FUND BALANCES

for the fiscal years ended June 30, 1958 and 1957
(including Exhibition Hall Funds)

	1958	*1957*
Balance, beginning of year	$1,388,816	$1,407,499
Income:		
Endowment funds	$ 121,407	$ 99,196
Gifts and grants	463,753	447,652
Other	149,134	116,166
Transfers from general funds	7,000	11,982
	$ 741,294	$ 674,996
Expenditures for the special purposes and objects for which the funds were established	$ 728,114	$ 693,679
Transfer to endowment funds	10,000	—
	$ 738,114	$ 693,679
Balance, end of year	$1,391,996	$1,388,816

The accompanying notes are an integral part of these statements.

ENDOWMENT FUNDS

SUMMARY STATEMENTS OF CHANGES IN PRINCIPAL

for the fiscal years ended June 30, 1958 and 1957

	1958	*1957*
Balance, beginning of year	$21,820,135	$20,352,384
Additions		
Gifts, bequests, etc. (Note 2)	$ 771,572	$ 272,197
Net profit on sales of investments	985,411	1,353,194
Transfer from special funds	10,000	—
	$ 1,766,983	$ 1,625,391
Deductions:		
Expenditures, for custodian fee	$ 5,000	$ 5,000
Transfers to general funds:		
For payment of certain expenses	3,425	14,227
To dispose of operating deficit of preceding year	48,804	32,413
Transfers to pension fund, including cost of amendment to plan in 1957	5,846	106,000
	$ 63,075	$ 157,640
Net additions	$ 1,703,908	$ 1,467,751
Balance, end of year	$23,524,043	$21,820,135
Comprising:		
Endowment funds, income available for:		
Restricted purposes	$10,933,826	$ 9,889,996
Unrestricted purposes	6,147,163	5,880,721
	$17,080,989	$15,770,717
Funds functioning as endowment, principal and income available for:		
Restricted purposes	$ 619,203	$ 574,337
Unrestricted purposes	5,823,851	5,475,081
	$ 6,443,054	$ 6,049,418
Totals	$23,524,043	$21,820,135

The accompanying notes are an integral part of these statements.

PENSION FUNDS

SUMMARY STATEMENTS OF CHANGES IN PRINCIPAL

for the fiscal years ended June 30, 1958 and 1957

	1958	*1957*
Balance, beginning of year:		
Pension fund	$5,577,719	$5,000,851
Welfare fund	1,127	1,127
	$5,578,846	$5,001,978
Additions:		
Contributions of members	$ 130,568	$ 129,413
Contributions of Museum	161,265	153,832
Transfer from unrestricted funds functioning as endowment in connection with amendment to plan	—	106,000
Income from investments	232,060	197,450
Net profit on sales of investments	14,046	194,169
	$ 537,939	$ 780,864
Deductions:		
Payments to members and beneficiaries	$ 212,217	$ 199,094
Expenses	4,453	4,902
	$ 216,670	$ 203,996
Net additions	$ 321,269	$ 576,868
Balance, end of year:		
Pension fund	$5,898,988	$5,577,719
Welfare fund	1,127	1,127
	$5,900,115	$5,578,846

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. Land and buildings owned by the Museum are not significant in amount. 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 in respect of those acquired by gift, bequest or otherwise at market valuations at the dates of acquisition, probate court valuations, or valuations established by the trustees.

2. The Museum owns an interest in certain mining properties acquired through a bequest. No valuation has 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. During the fiscal years ended in 1958 and 1957 royalties received, net of expenses, amounted to $112,209 and $118,617, respectively, of which $50,000 was credited to general funds (other income) in each year.

3. The Planetarium Authority is operated under the supervision of the Museum's management. Its financial statements and the auditors' opinion with respect thereto are annexed. Interest income received from the Planetarium amounted to $25,650 in each of the fiscal years ended in 1958 and 1957. These amounts are included in other income of the general funds.

4. Other income of the general funds for the fiscal years ended in 1958 and 1957 include (a) net income from magazine and book shop operations of $30,989 and $50,790, respectively, and (b) transfers from unrestricted funds functioning as endowment of $3,425 and $14,227, respectively. Gross income from magazine and book shop operations amounted to $761,046 and $746,951 for the respective years.

5. Unrestricted funds in the amount of $250,000 have been committed in connection with alterations to the existing electrical system and an additional amount of $132,100 has been appropriated as the Museum's share for the modernization of the auditorium.

6. Certain of the statements for the fiscal year ended in 1957 differ from those previously reported because they have been reclassified for comparative purposes.

LYBRAND, ROSS BROS. & MONTGOMERY

Certified Public Accountants

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, 1958 and the related statements of funds for the fiscal 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. We made a similar examination for the fiscal year ended June 30, 1957.

In our opinion, the accompanying balance sheets and related statements of funds present fairly the financial position of the Museum at June 30, 1958 and 1957 and the results of its operations for the fiscal years then ended, on a consistent basis.

Lybrand, Ross Bros. & Montgomery

New York, September 8, 1958.

THE AMERICAN MUSEUM OF NATURAL HISTORY
PLANETARIUM AUTHORITY

Financial Statements

For the Fiscal Years ended June 30, 1958 and 1957

THE AMERICAN MUSEUM

PLANETARIUM

BALANCE SHEETS,

ASSETS:	*1958*	*1957*
Cash	$ 58,549	$ 27,824
Accounts receivable	1,415	1,724
Inventory of publications	18,023	19,695
	$ 77,987	$ 49,243
Equipment, fixtures, etc.:		
Furniture and fixtures	$ 38,870	$ 38,870
Plant equipment, machinery and tools	70,222	70,222
Zeiss planetarium instrument	126,434	126,434
Copernican planetarium instrument	30,435	30,435
	265,961	265,961
Less, Allowances for depreciation	256,498	253,345
	9,463	12,616
Building, at cost (see note)	569,209	569,209
Land (donated by the City of New York)	—	—
	$578,672	$581,825
Prepaid expenses	$ 3,215	$ 4,829
	$659,874	$635,897

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 personal property passes to The American Museum of Natural History and 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. Because of the nature of the ownership of the property, provision for depreciation of the building is considered unnecessary.

OF NATURAL HISTORY

AUTHORITY

June 30, 1958 and 1957

LIABILITIES:	*1958*	*1957*
Accounts payable	$ 23	$ 522
4½% Refunding Serial Revenue bonds, and interest thereon (held by The American Museum of Natural History):		
Interest:		
Unpaid coupons, past due	$258,525	$255,915
Accrued on bonds not yet due	218	435
Accrued on past-due unpaid bonds	220,057	196,800
	478,800	453,150
Less, Payments on account, including $25,650 in each of the respective years	163,350	137,700
	$315,450	$315,450
Principal:		
Past due	$541,000	$512,000
Due in annual instalments of $29,000 each through May 1, 1959	29,000	58,000
	$570,000	$570,000
	$885,473	$885,972
Deferred income, unearned subscriptions	—	$ 7,225

CONTRIBUTED CAPITAL AND DEFICIT:

Contributed capital:		
Charles Hayden	$156,869	$156,869
Charles Hayden Foundation	130,925	130,925
	287,794	287,794
Deficit, as annexed	513,393	545,094
	$225,599*	$257,300*
	$659,874	$635,897

* Denotes deduction.

STATEMENTS OF INCOME, EXPENSES AND DEFICIT

for the fiscal years ended June 30, 1958 and 1957

	1958	*1957*
Income:		
Admission fees less allowances and commissions	$322,820	$291,310
Special lectures and courses	17,517	10,751
Miscellaneous	720	149
	$341,057	$302,210
Auxiliary activities:		
Sales booth	$ 85,041	$ 76,581
Sky Reporter pamphlet	6,947	6,237
	$ 91,988	$ 82,818
Total	$433,045	$385,028
Expenses:		
Preparation, presentation and promotional:		
Salaries	$118,063	$105,802
Supplies and expenses	28,206	22,887
	$146,269	$128,689
Operation and maintenance:		
Salaries	$ 65,719	$ 65,214
Supplies and expenses	45,009	32,624
Special improvements, renovations, etc.	17,062	19,304
	$127,790	$117,142
Administrative and general:		
Salaries	$ 5,000	$ 5,000
Pension fund, social security and other employee benefits	14,181	13,155
Miscellaneous	9,120	9,978
	$28,301	$ 28,133
Auxiliary activities:		
Sales booth	$ 63,928	$ 54,772
Sky Reporter pamphlet	6,253	6,037
	$ 70,181	$ 60,809
Total	$372,541	$334,773
Income before interest and depreciation	$ 60,504	$ 50,255
Interest on 4½% Refunding Serial Revenue bonds, including $23,257 and $21,952 on past-due bonds for the respective years	$ 25,650	$ 25,650
Provision for depreciation (see note to accompanying balance sheet)	3,153	3,153
Total interest and depreciation	$ 28,803	$ 28,803
Net income for year	$ 31,701	$ 21,452
Deficit, beginning of year	545,094	566,546
Deficit, end of year	$513,393	$545,094

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, 1958 and the related statement of income, expenses and deficit for the fiscal 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. We made a similar examination for the fiscal year ended June 30, 1957.

In our opinion, the accompanying balance sheets and related statements of income, expenses and deficit present fairly the financial position of the Authority, at June 30, 1958 and 1957 and the results of its operations for the fiscal years then ended, on a consistent basis.

Lybrand, Ross Bros. & Montgomery

New York, September 8, 1958.

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THE STAFF

July 1, 1958

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WALTER F. MEISTER, Deputy Director

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MARGARET MEAD, Ph.D., D.Sc., H.L.D., Associate Curator of Ethnology
BELLA WEITZNER, Associate Curator Emeritus of Ethnology and Consultant
JUNIUS B. BIRD, D.Sc., Curator of South American Archeology
GORDON F. EKHOLM, Ph.D., Curator of Mexican Archeology
JAMES A. FORD, Ph.D., Associate Curator of North American Archeology
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COLIN M. TURNBULL, M.A., B. Litt., Assistant Curator of African Ethnology
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PHILIP C. GIFFORD, M.A., Scientific Assistant
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ROBERT HEINE-GELDERN, Ph.D., Research Associate
WILLIAM DUNCAN STRONG, Ph.D., Research Associate
FREDERICK H. OSBORN, Litt.D., Sc.D., LL.D., Honorary Associate
ANTOINETTE K. GORDON, Associate
EDGAR M. QUEENY, A.B., Field Associate

Mammals

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CHILDS FRICK, D.Sc., Honorary Curator of Late Tertiary and Quaternary Mammals
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LEONARD J. BRASS, Associate Curator, Archbold Collections
T. DONALD CARTER, Assistant Curator
HOBART M. VAN DEUSEN, A.B., Assistant Curator, Archbold Collections
CHARLES H. FALKENBACH, Field and Laboratory Associate, Frick Laboratory
RICHARD ARCHBOLD, Research Associate
DUDLEY J. MORTON, M.D., Research Associate, Comparative Anatomy

Mammals—(continued)

ARTHUR S. VERNAY, Field Associate
JOSEPH CURTIS MOORE, Ph.D., Research Fellow
ARTHUR M. GREENHALL, M.S., Research Associate
WILLIAM J. HAMILTON, JR., Ph.D., Research Associate

Birds

DEAN AMADON, Ph.D., Chairman and Lamont Curator of Birds
E. THOMAS GILLIARD, Sc.D., Associate Curator
CHARLES E. O'BRIEN, Assistant Curator
CHARLES VAURIE, D.D.S., Assistant Curator
WESLEY E. LANYON, Ph.D., Assistant Curator
JAMES P. CHAPIN, Ph.D., Research Associate in African Ornithology
ERNST MAYR, Ph.D., Research Associate in Old World Ornithology
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