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PUBLICATIONS
OF
FIELD MUSEUM OF NATURAL
HISTORY

REPORT SERIES
VOLUME XI



CHICAGO, U. S. A.
1936-1938

REPORT SERIES

FIELD MUSEUM OF NATURAL HISTORY

FOUNDED BY MARSHALL FIELD, 1893

VOLUME XI

NUMBER 1

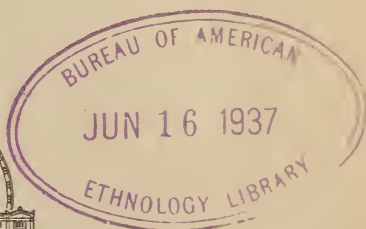
ANNUAL REPORT OF THE DIRECTOR

TO THE

BOARD OF TRUSTEES

FOR THE YEAR 1936

PUBLICATION 382



CHICAGO, U.S.A.

JANUARY, 1937

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MRS. GEORGE T. SMITH

A Benefactor of the Museum, who died September 8, 1936. In honor of her, and her late husband, a hall has been named George T. and Frances Gaylord Smith Hall

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JANUARY, 1937

PRINTED IN THE UNITED STATES OF AMERICA
BY FIELD MUSEUM PRESS

BEQUESTS

Bequests to Field Museum of Natural History may be made in securities, money, books or collections. They may, if desired, take the form of a memorial to a person or cause, to be named by the giver. For those desirous of making bequests to the Museum, the following form is suggested:

FORM OF BEQUEST

I do hereby give and bequeath to Field Museum of Natural History of the City of Chicago, State of Illinois, _____

Contributions made within the taxable year to Field Museum of Natural History to an amount not in excess of 15 per cent of the taxpayer's net income are allowable as deductions in computing net income for federal income tax purposes.

Endowments may be made to the Museum with the provision that an annuity be paid to the patron during his or her lifetime. These annuities are guaranteed against fluctuation in amount and may reduce federal income taxes.

63-24

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* DECEASED, 1936

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ANNUAL REPORT OF THE DIRECTOR

1936

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1936.

More money is the great need of Field Museum.

This fact cannot be stressed too emphatically. It has been forcibly impressed upon those in charge of the administration of this institution throughout the year just closed, and in the several years preceding; it is the outstanding consideration that confronts the Museum officials as the year 1937 opens.

More money to operate the Museum—

More money to enable it to carry on the share of expeditions, research and dissemination of knowledge to which it is entitled as one of the world's pre-eminent scientific institutions—

More money to assure maintenance of its enviable position among the great museums of the world—

More money to provide for the retirement of old faithful workers in its employ—

The need of more money for these, and countless other activities, is incontrovertibly the present crying problem of Field Museum.

The decrease in income during the past few years has become, and continues to be, a serious menace to the further growth and development of this great institution.

This decrease has occurred in nearly all sources of income, viz.:

A decrease in the return from corporate investments.

A decrease in the return from taxes levied for the maintenance of museums.

A decrease in the revenue obtained from paid admissions.

A decrease in the sums paid in for memberships in the Museum.

A decrease in the contributions received from public-spirited citizens.

The decrease in the return from corporate investments makes one ponder long as to what the future has in store for endowed institutions.

If Field Museum is to carry on its activities at full strength, and on a scale suited to its standing as an institution and to the

importance of the great public and territory which it serves, it must have large additions to its endowment funds.

There must be also a substantial increase in the amount received from taxes.

There must be an ever increasing membership supporting the Museum with contributions or annual dues.

And the Museum must be able to look to the public-spirited citizens of Chicago and the middle west, which it so well serves, for generous contributions.

Lacking increased income from all such sources, the Museum is faced with the prospect of a future situation which might lead to serious curtailment of all the important functions which it fulfills.

The number of visitors during 1936 was 1,191,437, which represents a small increase over 1935 when attendance totaled 1,182,349. This is an encouraging indication of reviving public interest, as it is the first reversal of the downward trend shown each year since the 1933 record of 3,269,390 was attained, due to the stimulation given that year by A Century of Progress exposition.

Although there was a slight increase also in the number of paid admissions in 1936, and in the ratio of paid to total admissions, it was of practically negligible proportions. The number of visitors paying the 25-cent admission fee charged on "pay days" in 1936 was 68,375, or less than 6 per cent of the total, as compared to approximately 5 per cent in 1935. All other 1936 visitors, numbering 1,123,062, either came on the free days (Thursdays, Saturdays and Sundays), or belonged to classes to which free admission is extended every day—Members of the Museum, children, students, teachers, etc.

To obtain a true measure of the Museum's educational influence, it is necessary to consider that, in addition to the attendance received in the building, the institution reaches every year hundreds of thousands of others, principally children, through its extra-mural activities. The most important of these are conducted by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, and the Department of the N. W. Harris Public School Extension.

The Raymond Foundation sent lecturers to the schools, who addressed 444 gatherings in classrooms and assembly halls, with a total of 165,757 children. In addition to this work outside the Museum building, the Foundation presented in the James Simpson Theatre nineteen free motion picture programs, which were attended by 25,759 children; and conducted 810 groups comprising a total of



ERNEST ROBERT GRAHAM

A Trustee of the Museum from 1921 until his death on November 22, 1936, and one of the institution's Benefactors. A hall has been named Ernest R. Graham Hall as a memorial to him

28,280 children on guide-lecture tours of the exhibition halls. For adults, 382 similar lecture tours were participated in by 7,115 persons. The nineteen free illustrated lectures for adults in the regular spring and autumn courses presented in the James Simpson Theatre attracted audiences totaling 17,557 persons. Altogether, 1,676 groups, aggregating 245,814 persons, were reached by the Raymond Foundation activities together with the adult lectures, tours for adults, and other similar special services offered the public by the Museum.

The traveling exhibits circulated among 446 schools and other institutions by the Harris Extension reached more than 700,000 persons, chiefly children. Contact was maintained daily throughout the school year in 379 Chicago public schools with a total enrollment of 463,539 pupils; and also in thirty-three parochial and eight private schools which, together with various community centers, clubs and other organizations, made the benefits of the service available to approximately 250,000 additional children. In each school two cases are kept on display, changes of subjects being made every two weeks through the delivery and collection service in which two Museum trucks are used.

The Museum Library functioned with its customary usefulness to the Staff of the Museum and to the general public, furnishing material needed in specialized research. Gifts, exchanges and purchases added many valuable new books and pamphlets to the collections, which now number approximately 105,000 volumes. Physical improvements were made in the rooms occupied by the Library.

The study collections maintained in each of the scientific Departments for reference work by scientists, teachers, and students were likewise used to advantage.

Other media through which the Museum disseminated scientific information to a public on which no statistics are possible but which obviously must aggregate hundreds of thousands of persons, are the publications and leaflets issued by the institution, the monthly bulletin *Field Museum News*, articles released to the daily and periodical press of Chicago and the nation, and radio programs concerning the Museum.

It is with deepest regret that there must be recorded here the deaths during 1936 of two Trustees of the Museum, Mr. Cyrus Hall McCormick and Mr. Ernest R. Graham.

In tribute to the memory of Mr. McCormick, his fellow Trustees adopted the following resolution at their meeting of July 20:

“With heartfelt grief the Trustees of Field Museum of Natural History make record of the death of their long-time and highly esteemed fellow member of the Board, Cyrus Hall McCormick.

“Since as far back as 1894, when the Museum’s work was just beginning, Mr. McCormick had served as one of its Trustees, and had helped to guide the institution in its consistent progress over the years. His counsel was held in high regard by his companions on the Board, and he was a member of the important Building Committee. For his gifts to the Museum his name has been given a perpetual place on the roll of the institution’s Contributors. He was also a Life Member and a Corporate Member of the Museum.

“Mr. McCormick was seventy-seven years old at the time of his death, which occurred on June 2, 1936. He was well known for his many philanthropies, and his deep interest and keen understanding of the problems of civic, educational and charitable institutions. His business career was characterized by remarkable vigor and the highest integrity, and he was noted for his successful development and administration of a vast industrial enterprise. He was one of the pioneers in the important field of activities for employes’ welfare.

“Mr. McCormick was greatly admired by his fellow Trustees of the Museum, and his presence will be sorely missed at their future deliberations.

“Therefore, be it resolved that this expression of our sorrow at his passing be permanently preserved on the records of the Board;

“And be it further resolved that our deep sympathy be conveyed to the members of his family in their bereavement, and that a copy of this resolution be sent to his widow.”

The following resolution in honor of Mr. Graham was adopted by the Trustees at a meeting held December 21:

“One of the truly great men of Chicago, and of the nation, has been lost by the death, on November 22, 1936, of Ernest Robert Graham. Internationally famed as architect and builder, he possessed the artist’s touch that wove symphonies in stone and steel. Thus he left behind his own most fitting monuments in a host of America’s most beautiful buildings, standing in Chicago, New York, Washington, and many other cities of this country. Abroad, too, his memory will be preserved in splendid structures of his design.

“Nowhere could grief over Mr. Graham’s death be more poignantly felt than among his fellow Trustees of Field Museum of Natural History. He had been a member of this Board since 1921, and the services he rendered are incalculable. With this institution

he had a special and intimate relationship. The Museum was one of his predominant interests among the many worthy civic activities in which he engaged. In association with the late Daniel H. Burnham he designed the present Museum building, which ranks among the gems of his professional career. He was equally interested in the Museum as an institution. He was a Life Member, a Corporate Member, and, in recognition of the advancement of science, especially paleontology, made possible by his benefactions, he was elected an Honorary Member. His generous gifts to the Museum, totaling more than \$130,000, placed his name on the list of the Museum's Benefactors, that group of twenty-one men and women who, with the Founder, have done the most for this institution in financial support. The development of the Hall of Historical Geology was made possible by his generous patronage, the magnificent series of twenty-eight mural paintings by Charles R. Knight restoring prehistoric life scenes, and the several group restorations, having been acquired with funds he provided. In recognition of his interest in and contributions to this hall, the Trustees in 1926 gave it the name Ernest R. Graham Hall, and this will remain as a permanent memorial to Mr. Graham, and a tribute on the part of the Museum for the many services he rendered it.

"As a Trustee, Mr. Graham devoted much time, and his best effort and thought, to the problem of developing and administering this institution. His keen insight and well-considered suggestions and advice were highly valued by his fellow Trustees, and he had a personal charm, as well as depth of intellect, which was always a source of inspiration to them.

"Therefore, be it resolved that this expression of our admiration and esteem for Mr. Graham, and our grief at his passing and the loss of his counsel and companionship, be permanently preserved on the records of the Board.

"And be it further resolved that our deep sympathy be conveyed to the members of his family in their bereavement, and that a copy of this resolution be sent to his widow."

Another death which removed one of the Museum's most earnest friends was that of Mrs. George T. (Frances Ann Gaylord) Smith, who passed away on September 8. Mrs. Smith had been for years a generous supporter of the institution, and in recognition of her contributions of funds and valuable material for the exhibits, had been elected a Patron, a Contributor, and a Corporate Member. In her honor, and in memory of her late husband, George T. Smith,

who died some years previously, the Board of Trustees in 1931 gave to Hall 24 (devoted to the archaeology of China) the name George T. and Frances Gaylord Smith Hall. Mrs. Smith was especially interested in the Chinese collections, being herself the possessor of an excellent private collection of Orientalia. In the settlement of her estate, Field Museum received a most notable collection of several hundred items of rare and beautiful Chinese objects of jade, porcelain, ivory, tapestry, embroidered silks, and other materials. The jades, when added to the large number already on exhibition in Hall 30, will, it is believed, make Field Museum's collection one of the finest in the world. At a meeting of the Trustees of the Museum held on September 21, the names of Mr. and Mrs. Smith were posthumously added to the roll of the Museum's Benefactors.

Also added to the list of Benefactors was Trustee Frederick H. Rawson, who gave additional funds during the year which brought his total contributions to more than \$100,000.

In recognition of her eminent services, notably in sponsoring the Straus West African Expedition (1934), Mrs. Oscar Straus, of New York, was elected a Patron.

Dr. Karl Keissler, Director of the Botanical Division of the Natural History Museum of Vienna, was elected a Corresponding Member in appreciation of services in connection with Field Museum's botanical work in Europe.

Two new Life Members were elected during 1936: Mr. Oscar Heineman, and Miss Gracia M. F. Barnhart.

A list of Members in all classes will be found in this Report, beginning on page 119. The total membership at December 31 was 4,238, a gain of 95 over the same date in 1935. This is the first increase since 1930, and encourages the hope for further membership growth in the next few years.

With regret, note is made of the death of Sir Henry Wellcome in London on July 25. Sir Henry, who was born in Wisconsin and spent his youth in this country, had achieved world-wide fame as a benefactor of medical and biological sciences, and archaeology. He gave valuable assistance to the Marshall Field Anthropological Expedition to the Near East (1934).

The Board of Trustees, at its Annual Meeting held January 20, re-elected all Officers of the Museum who had served in 1935.

At the regular meeting held December 21, the Board elected three new Trustees, Mr. Charles A. McCulloch, Mr. Leopold E. Block, and Mr. Albert B. Dick, Jr., to fill vacancies on the Board



A CHELLEAN SCENE

Group 4, Hall of the Stone Age of the Old World (Hall C)

Restoration of earliest type of man of whom remains have been found in Europe. The time represented is approximately 250,000 years ago, and the scene reproduces a site in northern France

Modeling by Frederick Blaschke

Background by Charles A. Corwin

which had been caused by the resignation of Mr. Frederick H. Rawson, and the deaths of Mr. Cyrus H. McCormick and Mr. Ernest R. Graham. They were elected Corporate Members also.

Installations of new exhibits, and reinstallations and improvements of older ones, proceeded as usual. The outstanding new exhibits are a habitat group of emperor penguins in Hall 20, and another of white-tailed gnu in Carl E. Akeley Memorial Hall (Hall 22).

The emperor penguins are especially interesting. They are the largest species of their family, they live farther south than any other birds, and are extremely odd in appearance. In the group are eight specimens, collected by Rear Admiral Richard E. Byrd on his Second Antarctic Expedition (1935), and presented to the Museum by the Chicago Zoological Society. They are shown in a scene representing their home in "Little America." The birds were mounted by Staff Taxidermist John W. Moyer, assisted by Mr. John LaBonte. A method unusual in bird taxidermy was employed—manikins similar to those used for large mammals were modeled from the skeletons in accordance with measurements from fresh specimens, and the skins were mounted over these. Staff Taxidermist Leon L. Walters cast and reproduced the bills and feet in cellulose-acetate, which gives most realistically the appearance and texture of life. Staff Artist Charles A. Corwin and Staff Taxidermist Arthur G. Rueckert painted the panoramic background representing the great Ross ice shelf.

The white-tailed gnu group is composed of two old bulls, an old cow, a younger cow, and a calf, collected in South Africa by an expedition led by Mr. Arthur S. Vernay, of New York and London, who presented them to the Museum. As it is extremely difficult to secure specimens of this animal, which is practically extinct in the wild state, the Museum was very fortunate to obtain this excellent representation. They are grotesque-looking animals, and in early books were called "horned horses." The group was prepared by Staff Taxidermist C. J. Albrecht.

Among other additions to the zoological exhibits are a series of six different species of penguins, placed in the systematic collection in Hall 21; a specimen of the rare bird known as Derby's guan, or faisan, obtained by the Leon Mandel Guatemala Expedition (1933-34), also added to Hall 21; and single mounts of the rare four-horned antelope of India, the Ethiopian ibex, the small tamarao buffalo of Mindoro in the Philippines, and the Asiatic wild ox called

banting, all four of these being placed in the horned and hoofed mammal series in George M. Pullman Hall (Hall 13). The four-horned antelope was obtained by the late Colonel J. C. Faunthorpe, of Bombay; the Ethiopian ibex was secured by the Field Museum—*Chicago Daily News* Ethiopian Expedition (1926–27); the tamarao is a gift from Mr. A. W. Exline, of Mindoro; the banting was obtained through the William V. Kelley–Roosevelts Expedition to Eastern Asia (1928). Important additions and reinstallations were made among the exhibits of reptiles and amphibians in Albert W. Harris Hall (Hall 18), and eight cases of marine invertebrates were installed in the same hall. The appearance of the habitat group of Bengal tigers in William V. Kelley Hall (Hall 17) was greatly improved by remounting of the male animal, and other minor changes. The hippopotamus and white rhinoceros, formerly included in the systematic collection of mammals in Hall 15, were transferred to Carl E. Akeley Memorial Hall (Hall 22), where they have been installed, with shrubbery and reeds to suggest their characteristic habitat.

Among important new exhibits in the Department of Geology is a model installed in Clarence Buckingham Hall (Hall 35), illustrating the structure of the internal layers of the earth, in accordance with accepted scientific theories. In the same hall there has been installed a model showing the various shapes assumed by bodies of igneous rock in their original positions before they are exposed by erosion of the rocks above. Also added to this hall are a diorama representing an Alpine glacier, and an exhibit which illustrates the phenomenon of mineral fluorescence. Work was begun on complete reinstallation of the large meteorite collection in Hall 34. A replica of the great Jonker diamond, one of the world's largest, weighing 726 carats (more than one-quarter of a pound) was placed among the gems and jewels in H. N. Higinbotham Hall (Hall 31). It is a gift from Mr. Harry Winston, of New York, owner of the original diamond.

There were many additions to the paleontological exhibits in Ernest R. Graham Hall (Hall 38). Outstanding among these are a group of four articulated skeletons of animals shown as they were caught in their death trap, the Rancho La Brea asphaltum pools in Los Angeles; a fossil skeleton of the South American glyptodont *Eleutherocercus*, together with a miniature restoration prepared by Assistant Phil C. Orr, showing the animal as it appeared in life; and the only known skeleton of the strange South American mammal

designated as *Homalodotherium*. The *Homalodotherium* skeleton was prepared by Assistant J. H. Quinn. Both *Eleutherocercus* and *Homalodotherium* are from the collections made some years ago by the Marshall Field Paleontological Expeditions to various parts of South America, under the leadership of Curator Elmer S. Riggs.

It should be mentioned here that further research conducted during 1936 on a specimen placed on exhibition in 1935, and identified in the Annual Report for 1935 (pages 298 and 340) as *Titanoides*, resulted in its classification as the type of a new genus, *Barylambda*, a similar animal of equal rarity.

In the Department of Botany, six more large murals by Staff Artist Charles A. Corwin were placed on the walls of the Hall of Plant Life (Hall 29), which, with those reported in 1935, make eight completed out of the total of fifteen planned. Subjects of the new ones are: the dragon's blood tree of Teneriffe, Canary Islands; giant tree cacti of Mexico; the Chilean pine; the baobab tree of Africa; the traveler's tree of Madagascar; cucumber trees of the island of Socotra; and the American elm. Also added to the exhibits in Hall 29 are reproductions of purple angelica, and a flowering and fruiting branch of a cassia known as "golden shower," prepared by Assistants Emil Sella and Milton Copulos.

An outstanding new exhibit in Hall 25, half of which is devoted to food plants, is a diorama depicting in miniature a tea plantation in the rocky highlands of Ceylon. This was prepared by Assistant John R. Millar, and has a painted background by Mr. Corwin.

In the Department of Anthropology an exhibit was placed in Hall 7 of the pottery and the bone and stone implements collected from the Lowry Ruin in southwestern Colorado by expeditions conducted during several summers by Chief Curator Paul S. Martin. A very interesting specimen of an ancient Egyptian promissory note was put on display in Hall J. Most of the other installation work in this Department in 1936 consisted either of reinstallations of old collections, or work upon new exhibits for future exhibition.

As in several years past, the necessity for economy permitted no budget appropriations for major expeditions. A small amount of field work was conducted, however, and the Museum again benefited to some extent from expeditions conducted under auspices other than its own. Mr. Emil Sella, of the staff of the Department of Botany, collected material in the mountains of Wyoming for the preparation of a projected group of alpine plants for the Hall of Plant Life. Curator Sharat K. Roy collected in Dutchess County,

New York, several series of rocks illustrating the phenomena connected with progressive metamorphism, for a proposed exhibit in the Department of Geology. An interesting collection of birds, mainly from northeastern Greenland, was obtained through cooperation with the Chicago Zoological Society, and the expenditure of income from the Emily Crane Chadbourne Fund. These birds were collected by Mr. Harold C. Hanson, a volunteer worker in the Department of Zoology, who accompanied, in the interest of Field Museum, the expedition led by Captain Robert A. Bartlett to capture live musk-oxen for the Chicago Zoological Society. On a hunting trip in South America, Mr. Sasha Siemel, of New York, obtained a baby tapir which he presented to the Museum for use in completion of the habitat group of that animal on exhibition in Hall 16. Arrangements were made whereby the Museum hopes to obtain rare birds of Australia and New Zealand needed for habitat groups in Hall 20. Mrs. Oscar Straus, of New York, a Patron of the Museum, and sponsor of the Straus West African Expedition of Field Museum in 1934, acted on behalf of the Museum in this connection during the course of a visit she made to those countries.

Mr. J. Francis Macbride, Associate Curator of the Herbarium, continued through 1936 the project upon which he has been working in Europe since 1929. This work has resulted in the acquisition to date of more than 30,000 photographic negatives of type specimens of tropical American plants in European herbaria. During 1936 Mr. Macbride was engaged in this task at Madrid, Geneva, and Vienna. Prints from the negatives obtained have been added to the Herbarium of Field Museum, and duplicate prints are made available to botanists and institutions everywhere, at cost. These are highly regarded for their usefulness in the work of systematic botany.

Grateful acknowledgment is herewith made to various contributors of money, and of material for the scientific collections. Among gifts of funds may be mentioned the following:

A gift from Mr. Albert W. Harris consisting of 200 shares of stock of the Harris Trust and Savings Bank, valued at \$85,000. This was added to the endowment fund of the N. W. Harris Public School Extension of the Museum.

Mr. Marshall Field contributed \$74,625.93, to meet certain operating expenses of the Museum, and to cover a budget deficit.

Contributions received during the year from President Stanley Field totaled \$59,882. Of this sum, \$38,621.37 was applied, in

accordance with his directions, to the reduction of the building deficit, and a corresponding reduction in bank loan (see financial report, page 97); and the balance was set aside for the purchase of much needed exhibition cases, storage equipment, laboratory equipment, and for certain expeditions to be conducted in the year 1937.

A contribution of \$7,500, received from Mr. Frederick H. Rawson, was added to the Museum endowment.

A gift of \$6,000 was made by Mrs. James Nelson Raymond, in continuation of the many contributions she has made toward the operating expenses of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, which she established in 1925 with a munificent endowment.

Gifts from Mr. Leslie Wheeler, for the purchase of specimens of birds of prey, totaled \$1,090.

From Mr. Henry J. Patten, a gift of \$250 was received.

Mr. C. Suydam Cutting, of New York, contributed \$200.

From the estate of the late Mr. William V. Kelley the Museum received a bequest of \$50,000. This is being maintained as a separate fund, to be known as the William V. Kelley Fund, and the income is to be used for such purposes as the President and the Board of Trustees may direct.

The will of the late Mr. Cyrus H. McCormick provided a bequest of \$10,000 for the Museum.

The sum of \$10,000, and one-fourth of the residuary estate of the late Mrs. Edith Almy Adams were bequeathed to the Museum.

The sum of \$5,175, representing his bequest of \$5,000 and interest thereon, was received from the estate of the late Judge John Barton Payne, a former Trustee of the Museum.

The administrator of the estate of the late Mrs. Helen M. Block paid to the Museum \$2,000, representing her bequest.

The Rosenwald Family Association purchased from the Museum for \$50,000, under a repurchase agreement, a block of Sears Roebuck and Company stock which the institution had acquired through a gift from the late Mrs. Augusta N. Rosenwald.

The Museum received from the Chicago Park District \$91,029.94, representing the institution's share, as authorized by the state legislature, of collections made during 1936 under the tax levies for 1935 and preceding years.

Many gifts of material for the collections were received. More detailed reference to these will be found in the departmental sections of this Report, and in the complete List of Accessions (page 98). Most valuable of such accessions was the collection of several hundred Chinese art objects, bequeathed by the late Mrs. George T. Smith, to which reference has already been made. Among other outstanding acquisitions a few may be mentioned, as follows:

His Highness the Maharaja Gaekwar Sir Savaji Rao III, ruling monarch of the Indian state of Baroda, who was a visitor at the Museum in 1933, presented excellent examples of four of the arts of India—embossed metal work, delicate lacquer work, teakwood carving, and textile making.

Mr. William H. Dunham, of Evanston, Illinois, presented his private herbarium consisting of 2,000 mounted sheets of plants. This collection has been found extremely valuable in the Department of Botany.

The Ringling Brothers and Barnum and Bailey Circus presented a specimen of black-tailed wallaby, a species which had been lacking from the Museum's Australian mammal collections.

Mr. Leslie Wheeler, of Lake Forest, Illinois, continued to make frequent contributions to the collection of birds of prey.

The Chicago Zoological Society, John G. Shedd Aquarium, General Biological Supply House of Chicago, and Lincoln Park Zoo (maintained by the Chicago Park District), as in previous years, made large and valuable additions to the Museum's zoological collections.

President Stanley Field presented to the Museum Library a rare and valuable work—the two volumes of the first edition of Dr. Samuel Johnson's *Dictionary of the English Language*, published in 1755.

Commander Eugene F. McDonald, Jr., of Chicago, presented a rare painted conch-shell trumpet, which is an interesting example of ancient culture in the State of Nayarit, western Mexico.

Unusually valuable collections of plants for the Museum Herbarium were received from the National Museum of Prague, Czechoslovakia; the Botanic Garden of Madrid, Spain, and the Department of Botany of the University of Chicago.

A copy of *Trail Mates*, an exceptionally fine four-reel motion picture presenting natural history in story form, was given to the Museum by its producer, Captain Jack Robertson, of Oakland,

California. It is extremely useful for the children's programs presented by the James Nelson and Anna Louise Raymond Foundation.

From the Federal Art Project of the Works Progress Administration there were received twenty-four, enlarged, plaster reproductions of Near East stamp seals and cylinder seals, which will be used in a new hall of archaeology now in preparation.

The Museum accepted an offer made by Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, to conduct and personally finance an expedition in southern French Indo-China, Siam, and possibly the Malay Peninsula. Plans call for Dr. Osgood's departure in January, 1937, and his return in May.

Among distinguished visitors entertained at Field Museum in 1936 were Mrs. Franklin Delano Roosevelt, wife of the President of the United States, who came to observe the accomplishments of the Works Progress Administration project being conducted at this institution; M. Jean Delacour, the noted French ornithologist; Mr. E. G. Boulenger, Director of the London Aquarium; and a group of members of the National Academy of Sciences.

The Museum presented to Tulane University, New Orleans, Louisiana, a collection of 294 casts of Mayan sculptures. This material was part of an exhibit at the World's Columbian Exposition in 1893, and had been turned over to the Museum at the close of the exposition. A number of pieces had been selected for Museum exhibition, and the remainder had been in storage since acquisition.

Two new automobile trucks were purchased in 1936 to replace those formerly in use for deliveries and collections of the traveling exhibits circulated among Chicago schools by the Department of the N. W. Harris Public School Extension of Field Museum.

In recognition of increasing costs of living, salaries of Museum employes were readjusted, effective January 1. As noted in the Report for 1932, certain salaries in that year had been adjusted downward, and then a horizontal reduction of 10 per cent was made in all salaries above \$100 per month. Salaries are now restored to the level existing before the 10 per cent cut. This restoration was made possible through the generosity of Mr. Marshall Field, and at his request.

There were a number of Staff changes during the year, and toward the end of the year the Board of Trustees approved a reassignment of titles in the scientific Departments. Under the new plan, the heads of Departments, formerly designated as Curators, have become Chief Curators; and most of the men in charge of

divisions within the Departments, formerly designated as Assistant Curators and Associate Curators, have been made Curators of their respective divisions. This eliminates much confusion which formerly existed in the minds of outsiders, and improves the internal organization of the Museum.

Dr. Paul S. Martin on January 1 assumed the post of Curator (later changed to Chief Curator) of the Department of Anthropology, in accordance with the appointment approved by the Board of Trustees on December 16, 1935 (Annual Report for 1935, page 304).

Mr. C. Martin Wilbur was appointed Curator of Sinology, and assumed his duties on October 1. Work on Oriental collections and researches, developed so notably by the late Dr. Berthold Laufer, has been placed in Mr. Wilbur's hands.

Dr. Earl E. Sherff, well-known botanist, and member of the faculty of the Chicago Normal College, was appointed Research Associate in Systematic Botany on the Museum Staff, an honorary position in recognition of valuable services he has rendered to this institution for many years.

Two new guide-lecturers were appointed to the staff of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. They are Miss Velma Whipple and Miss Marie B. Pabst. The Raymond Foundation staff, reduced to three for several years, is now back to its full strength of five lecturers, this action having been made necessary by the increasing public demands for service.

In the reassignment of titles, previously mentioned, Mr. J. Francis Macbride, formerly Assistant Curator of the Herbarium, became Associate Curator of the Herbarium; Messrs. D. Dwight Davis, Emil Liljeblad, and Emmet R. Blake, formerly Assistants in the Divisions of Vertebrate Skeletons, Insects, and Birds respectively, became Assistant Curators of those Divisions; Mr. Bryan Patterson, formerly Assistant Curator of Fossil Mammals, became Assistant Curator of Paleontology.

Because of her recent marriage, Miss Bertha Schweitzer, clerk in the Department of Botany, resigned.

Under the provisions of the Field Museum Employees' Pension Fund, insurance was paid in the following amounts to the beneficiaries of the following employes and pensioners who died during 1936 or late in 1935: \$4,000 to the sister of Miss Tessie Hannan, bindery worker in the Division of Printing; \$4,000 to the estate of Mr. Jacob F. Mangelsen, carpenter and preparator in the Depart-



MODEL OF PYRAMID OF QUETZALCOATL
Hall 8

Acquired in an exchange with the National Museum of Mexico

ment of Botany; \$6,000 to the widow of Mr. William J. O'Brien, skin dresser in the taxidermy shop; and \$4,000 to Field Museum as beneficiary of the policy on Mr. Peter Glynn, former carpenter, to whom the Museum had paid a pension for a number of years totaling an amount far in excess of the insurance proceeds.

Mr. Mathias Dones was employed as a carpenter and preparator in the Department of Botany, to replace Mr. Jacob F. Mangelsen, deceased.

Professor F. E. Wood continued his activity, begun in 1935, as a volunteer worker, in organizing the collection of Tibetan manuscripts bequeathed to the Library of the Museum by the late Dr. Berthold Laufer.

The degree of doctor of science was conferred in November by Oxford University upon Mr. Wilfrid D. Hambly, Curator of African Ethnology, in recognition of a vast amount of research, including work on the Frederick H. Rawson-Field Museum Ethnological Expedition to West Africa (1929-30), and various books he has written which have been published by Field Museum Press.

Various research projects were under way in the scientific Departments, of which it is possible to mention here only a few. A notable one was the study undertaken by Mr. Paul C. Standley, Curator of the Herbarium, of the Sessé and Mociño plants collected in Mexico nearly 150 years ago under the patronage of King Charles III of Spain. This collection, numbering 7,000 plants, was sent to the Museum for this purpose by the Botanic Garden of Madrid.

Dr. Edwin H. Colbert, Assistant Curator of Vertebrate Paleontology at the American Museum of Natural History, New York, was aided in research on an extinct member of the giraffe family known as *Sivatherium* by a representation of that animal in copper from the archaeological collections made at Kish by the Field Museum-Oxford University Joint Expedition to Mesopotamia. A horn, collected by the same expedition, assisted Dr. Wolfgang Amschler, of the College of Agriculture in Vienna, in establishing the presence 5,000 years ago in Mesopotamia of a species of modern goat which had been presumed to be unknown until recent times.

Assistant Curator Bryan Patterson was engaged in an important study of brain casts of fossil mammals of the order Notoungulata.

Mr. Henry W. Nichols, Chief Curator of the Department of Geology, undertook an investigation of methods to restore patina of

a non-malignant kind to ancient bronzes from which malignant patina had been removed to save them from destruction.

Associate Curator Charles E. Hellmayr, working in Vienna, continued his researches of past years on the birds of the western hemisphere. Curator Colin C. Sanborn made progress with his extensive researches in connection with bats. Curator Karl P. Schmidt was engaged in researches on reptiles and amphibians of southwestern Asia, Central America, and the Chicago region. Assistant Curator D. Dwight Davis made observations resulting in some new conclusions regarding the mating behavior of snakes.

Members of the Museum Staff attended a number of important scientific meetings. From the Department of Anthropology, Chief Curator Paul S. Martin, Curator Wilfrid D. Hambly, and Curator Richard A. Martin attended the meetings of the Central Section of the American Anthropological Society, held in Chicago in April. Chief Curator Martin also attended the main meetings of the same society, held at Washington, D.C., in December. Other meetings attended by Curator Richard A. Martin were those of the Middle West Branch of the American Oriental Society, and the Archaeological Institute of America, both held in Chicago, the first in March, and the second in December. Curator Henry Field, at the request of the United States Department of State, attended the International Congress of Prehistoric and Protohistoric Sciences at Oslo, Norway, in August, as a member of the American delegation.

Curator Elmer S. Riggs and Assistant Curator Bryan Patterson, of the Division of Paleontology, were present at the annual meeting of the National Academy of Sciences held at the University of Chicago in the spring, and Mr. Patterson attended also the annual meeting of the Paleontological Society of America, held in December at Washington, D.C.

The Department of Zoology was represented at the annual meeting of the American Ornithologists' Union, held at Pittsburgh in November, by Chief Curator Wilfred H. Osgood, Curator Rudyerd Boulton, and Assistant Curator Emmet R. Blake. Curator Karl P. Schmidt and Assistant Curator D. Dwight Davis attended the annual meeting of the American Society of Ichthyologists and Herpetologists at the University of Michigan, Ann Arbor, August 31 and September 1. Mr. Schmidt acted as temporary chairman, and was elected vice-president for the ensuing year.

The productivity of Field Museum Press exceeded that of any previous year, due largely to the additional labor made available by

the Works Progress Administration. The complete list of publications issued will be found in the Report under the heading "Division of Printing"; details concerning their distribution are reported under the heading "Division of Publications."

Sales, on consignment, of books published under auspices other than those of the Museum, were continued. These included works from the authorship of members of the Staff, and books otherwise connected with the institution. Notable among the additions to such books in 1936 is *Artist and Naturalist in Ethiopia*, a day-by-day record of experiences during the Field Museum-*Chicago Daily News* Ethiopian Expedition (1926-27). This was written by Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, who led the expedition, and the late Louis Agassiz Fuertes, noted artist who accompanied it. Some of Fuertes' paintings are reproduced in the book, which is published by Doubleday Doran and Company, New York. Especially interesting also is *Heads and Tales*, a unique book by Malvina Hoffman, the noted sculptor who created the Races of Mankind sculptures in Chauncey Keep Memorial Hall. In this book she has combined her autobiography and the story of her work in various parts of the world for Field Museum. It contains 278 illustrations. Charles Scribner's Sons, New York, are the publishers. The story of the Field Museum-Williamson Undersea Expedition to the Bahamas (1929) is told in *Twenty Years Under the Sea*, by J. E. Williamson, noted submarine explorer who led the expedition. It is profusely illustrated with pictures of undersea life. The publishers are Hale, Cushman and Flint, of Boston.

The Museum continued its relations with the Works Progress Administration of the federal government. The number of men and women workers assigned to the Museum ranged from 114 to 204 at different periods, and their total working time aggregated 230,100 hours. Wages, paid to these workers by the federal government, totaled \$139,579. In previous years, workers came also through the Illinois Emergency Relief Commission and other agencies, but in 1936 all were consolidated under the authority of the WPA.

As in the other years since the latter part of 1933, when the Museum began its cooperation with state and federal agencies for the relief of unemployment, the work has been of the most varied character, individuals being assigned to duties in accordance with their past experience and training or native ability. Thus, a few have proved capable of handling even scientific research projects and other work of a professional character; others have been able to

assist in tasks requiring artistic talent or highly skilled artisanship. Naturally, the majority are employed at more routine things such as clerical work, and manual labor, both skilled and unskilled. The Division of Printing has been one of the largest users of the skilled labor, and has been enabled to produce an unprecedented number of publications and other items of printed matter as a result of the additional help made available. All of the scientific Departments, and many other Divisions of the Museum, have benefited by the large numbers of relief employes assigned to such tasks as cataloguing, filing, typing manuscript and records, cleaning specimens, mounting photographs, etc. Details of this work will be found in the sections of this Report devoted to each Department and Division. It should be noted that the relief workers have been employed exclusively to accomplish objectives which could not and would not have been undertaken if these people had not been made available. The number of regular employes on the Museum's own payroll has not been reduced in consequence—it has been slightly increased, in fact. The Museum's own Staff members are occupied with the normal scientific and educational work of the Museum, and the supervision of the WPA forces.

It is not possible to over-emphasize the importance of the work accomplished during the past three years with the aid of the workers assigned by the Illinois Emergency Relief Commission, the Works Progress Administration, and other governmental agencies for the alleviation of unemployment. At no time in its history has Field Museum been able to afford the employment of sufficient clerical and other help to keep pace with the demands imposed by the immense amount of incoming material for its rapidly growing collections. It must be remembered that this vast treasure house has been built up in the short span of forty-two years, during which it has reached, in the magnitude of its collections and activities, a stage comparable to that of institutions which had been in existence scores and even hundreds of years earlier. Therefore, many details have had to be somewhat neglected to permit the achievement of larger objectives. Now, through the efforts of the many relief workers, the Museum has made great progress toward the completion of important tasks heretofore unavoidably postponed. These include the classifying, cataloguing and recording of many thousands of specimens which for years have seriously congested the storage facilities of all the scientific Departments, and which under the existing conditions had no usefulness as reference material.

Likewise, great gains have been made in the repairing and preparation of stored specimens useful for exhibition purposes as well as research. Thus, today, Field Museum's catalogues and records, and its huge accumulations of stored specimens, are at last rapidly reaching a most satisfactory condition, and some long delayed exhibits are being installed. All this work has yielded results which, in turn, have made possible the issuance of many additional scientific publications of importance. From this résumé it is readily apparent that the assistance rendered by the relief workers has enabled the undertaking and pushing forward of an extensive program of work which could not have been attempted for years to come if the regular Museum Staff had been unaided.

The Art Research Classes conducted at the Museum in cooperation with the Art Institute of Chicago were continued as in each year since 1922. Mr. John Gilbert Wilkins, a member of the faculty of the School of the Art Institute, who has been in charge since the classes were first established, remained as instructor. Approximately one hundred students participated, and courses were given, as usual, during the spring, autumn and winter, the curriculum^o including drawing, painting, illustration, design, and sculpture. In the summer there was a special class for teachers and others who are able to attend only during that season. Animals, plants, anthropological material, and other Museum exhibits are used by the students as the basis of their art creations. The Museum also provides a classroom and other working facilities. Many creative artists and art teachers have begun their careers in these classes.

For young children, classes were again held at the Museum by the Saturday School of the Art Institute. Enrollment numbered nearly 100. These classes are for children ranging from fourth grade elementary pupils to those of high school age.

The Museum building and equipment were maintained in satisfactory state by the working forces directed by the Superintendent of Maintenance and the Chief Engineer. As usual, many improvements were made, some of the more notable of which are outlined herewith:

For the Department of Anthropology, Hall K on the ground floor, formerly used as a storage room, was emptied and cleaned, and a large case of the type that merges with the architecture of the hall was built for the installation of an ancient gateway from Kish, collected by the Field Museum-Oxford University Joint Expedition to Mesopotamia. This entire hall was renovated, ceilings and walls

being channeled and replastered, drop ceilings hung in the niches to conceal piping, and new wiring installed. On the north wall of the east end a series of plaster friezes was hung. Eleven floor cases were remodeled and equipped with light boxes, and twenty cases were removed to the Anthropology workshop on the third floor for reinstallation of exhibits, after which they were returned to the hall. On the third floor, all furniture in the office of the Curator of Sinology was repaired and refinished, as well as two desks for other offices. A room was equipped with steel wire guards on windows and door, to safeguard the valuable additions to the jade collection which are temporarily stored there.

In H. N. Higinbotham Hall (Hall 31), which is under the joint supervision of the Departments of Anthropology and Geology, all wall cases were removed to the third floor for reinstallation, and later returned to their places in the hall.

For the Department of Zoology new cases were constructed for two exhibits—the white-tailed gnu group and the okapi, and a case was remodeled for the installation of a group of guereza monkeys which was in preparation. All three of these cases are for Carl E. Akeley Memorial Hall (Hall 22). In the Hall of Birds (Hall 20) three cases were trimmed and glazed. In Hall 19, devoted to osteology, skeletons exposed on open mounts were cleaned. Groundwork for a case to contain the takin exhibit was built in the carpenter shop and taken to the taxidermy shop on the fourth floor for assembly. On the third floor, in the offices and other rooms assigned to the Division of Fishes, steel shelving of cabinets in Room 86 was enclosed with twenty steel doors; new cabinets and large bookcases were built and installed in Room 88, and old cabinets were refinished. In the Division of Birds, filing cabinets were remodeled and new drawers made; four frames were built for large maps, and 150 storage trays were rebuilt. Cases for storage of egg specimens were removed from Room 99 to the south central area of the third floor, and Room 99 was converted into a workroom for the making of accessories used in zoological exhibits. For this purpose, four large cabinets with racks were built in this room, and gas stoves, compressed air apparatus, and work benches were installed. In the room under the north entrance steps of the Museum building, a compressed air line was installed for use in operations necessary in the cleaning of small mammals in benzine.

Services performed for the Department of Geology include the construction of two large bases in Ernest R. Graham Hall (Hall 38)

for the fossil ground sloths and the Rancho La Brea "tar bed" group of skeletons; the building of three small floor cases, two screens for standard floor cases, and the shifting of cases in the same hall; the building of a case with a special arrangement for the alternation of ultra-violet and ordinary light, required for the display of fluorescent minerals in Clarence Buckingham Hall (Hall 35); the fastening of twenty-five relief maps to the walls of the bridges connecting Hall 35 with Halls 34 and 36; and the remodeling of the case in Hall 35 which contains a miniature representation of the Natural Bridge of Virginia. Sixteen standard floor cases for Halls 34 and 35 were built by a contractor, but were glazed and paneled by Museum carpenters. For the paleontological laboratories on the third floor, 200 storage trays were remodeled. New shelving was installed in the Geology library.

The principal work for the Department of Botany included hanging and trimming four large mural paintings in the Hall of Plant Life (Hall 29), and resetting the exhibition cases in the half of Hall 25 devoted to palms so that they form pleasing alcoves instead of extending out in parallel rows. In Room 9 on the third floor racks of piping were constructed for storage of wood specimens. Angle iron racks were built in Room 20, and this room was furnished with laboratory equipment such as gas and compressed air lines for air brush work, thus enlarging the facilities of the Plant Reproduction Laboratories.

Thirty-six exhibition halls were cleaned, and painting and patching of walls and ceilings were done where necessary.

On the third floor, to enlarge Room 120, which is an annex to the general Library, the adjacent janitors' closet and part of the women's wash room were torn out, and a new wall and double doors were built at the south end of the room. This resulted in improving access from the main Library room.

A case which formerly contained Japanese tapestry was dismantled, and the glass salvaged from it was re-cut for use in cases in Hall 20.

Four new signs, containing information about the Museum for the public, were built, and two of these were erected on the lawns in front of the building.

Eighty-eight window sashes on the third floor were repaired and reset; six new sashes and frames were installed in Room 54, and one new sash in Room 81. One hundred and forty-four new window shades were hung in Halls 25, 26, 27, 34, 35 and 36.

The shipping room and adjacent area under the south entrance steps were cleaned, and a quantity of copper, brass and iron salvaged there was sold. The freight elevator was overhauled, and new shafts and bearings installed.

Roofs of three of the light courts were recoated, and the main roof was patched with roof cement. Six downspouts for removing rain and snow were repaired, and new heads installed on two of them.

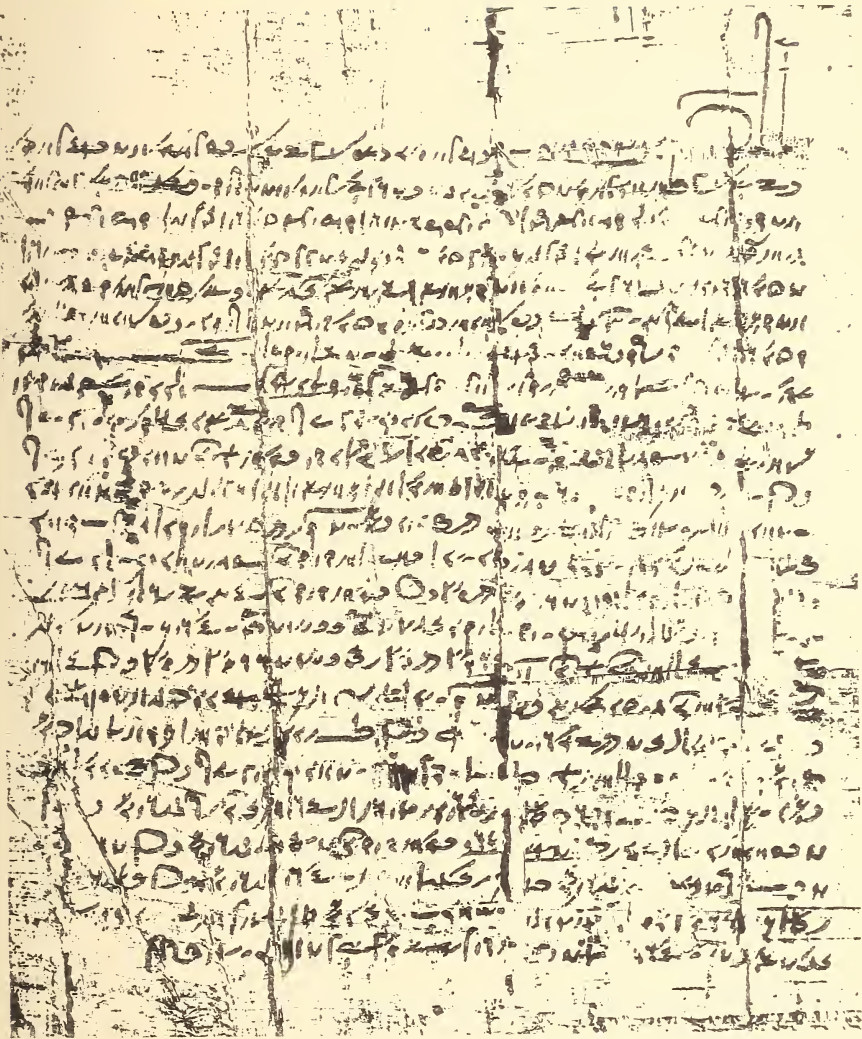
Tuck pointing was done where required about the building, notably on the north, south and west entrance steps, the flagpole bases, in six light courts, the shipping room and boiler room, and on the roof coping.

In the boiler room forty new buckets were made and attached to the coal conveyor; twenty-six new tubes were installed in two of the boilers; all brick work of the furnaces was patched, and all other equipment in the boiler room was overhauled and reconditioned. A new system of boiler feed water treatment was instituted, and extremely satisfactory results produced.

The Museum heating plant continued, under contract, to furnish steam required by the John G. Shedd Aquarium and Soldier Field during the months when heat was required. A total of 12,964,204 pounds of steam was provided for the Aquarium, and 6,654,064 for Soldier Field.

By complying with certain restrictions in the use of electric light and power, the Museum continued to enjoy favorable rates under the "peak load contract" entered into with the Commonwealth Edison Company several years ago.

Under a federal Works Progress Administration project carried out for the Chicago Park District, improvements of value to the Museum were made. Five concrete walks were constructed across the Museum lawns to the terrace steps of the building—two on the north, two on the south, and one on the west side of the building. Two large automobile parking spaces were prepared, one at the Museum's southeast lawn with a capacity of approximately 600 cars, and one facing the north entrance of the building with space for 400 cars. A large number of trees and shrubs were planted around the building. The section of Leif Eriksen Drive northeast of the Museum, connecting with Field Drive, was widened and repaved, and is now open to northbound traffic, to which it will be restricted; Columbus Drive, to the west of the Museum, is now designated as a one-way boulevard for southbound traffic. An underpass for pedestrians was completed beneath Eriksen Drive, linking the



ANCIENT EGYPTIAN PROMISSORY NOTE

Hall J

Written in Demotic script, and dated about 108 B.C. From Thebes, Egypt

Presented to the Museum by the late Edward E. Ayer, 1894

approaches to Field Museum and the John G. Shedd Aquarium, thus facilitating the safe passage of visitors from one institution to the other.

In the pages which follow will be found reports in detail of the year's activities in each of the Departments and Divisions of the Museum:

DEPARTMENT OF ANTHROPOLOGY

EXPEDITIONS AND RESEARCH

The Department of Anthropology undertook no expeditions in 1936.

During the year the following anthropological publications were issued by Field Museum Press: an archaeological report, *Lowry Ruin in Southwestern Colorado*, by Chief Curator Paul S. Martin; Part 2 of an archaeological report, *Archaeology of Santa Marta, Colombia*, by Dr. J. Alden Mason, formerly Assistant Curator of Central and South American Archaeology at Field Museum; an archaeological report, *Egyptian Stelae in Field Museum of Natural History*, by Dr. T. George Allen, Research Associate in Egyptian Archaeology; a leaflet, *Primitive Hunters of Australia*, by Curator Wilfrid D. Hambly; and a leaflet, *Archaeology of South America*, by Mr. J. Eric Thompson, formerly Assistant Curator of Central and South American Archaeology.

In press at the close of the year were the following publications: *Textiles of the Early Nazca Period*, by Dr. Lila M. O'Neale, of the University of California, and *Cañete Valley*, by Dr. A. L. Kroeber, of the University of California (Research Associate in American Archaeology at Field Museum), these two publications being Parts III and IV of Volume II of the Anthropology Memoirs Series; and *Skeletal Material from San José Ruin, British Honduras*, by Curator Hambly. Dr. Hambly has prepared for publication also a monograph entitled *Source Book of African Anthropology*, which will be issued in 1937.

Curator Henry Field was granted leave of absence to attend Harvard University from September, 1936, to June, 1937, for the purpose of taking several courses on physical anthropology from Dr. E. A. Hooton, and also to prepare for publication a report on the physical anthropology of the peoples of the Near East.

Mr. C. Martin Wilbur, who assumed his duties as Curator of Sinology on October 1, has examined the various papers and manuscripts left by the late Dr. Berthold Laufer, former Curator of the Department of Anthropology. Mr. Wilbur has been fortunate enough

to find five nearly completed manuscripts treating of the domestication of various plants and animals. These are now being carefully edited by him for publication in the near future. Further, Curator Wilbur has devoted some time to unpacking the collection of jade objects bequeathed to Field Museum by the late Mrs. George T. (Frances Ann Gaylord) Smith, of Chicago.

Curator Richard A. Martin has spent most of the year cleaning and cataloguing archaeological specimens from Kish. Under his supervision, an arched gateway of stucco from Kish has been completely restored and built into a special case in Hall K. Further, in order to illustrate the history of glyptic art in the Near East from 3200 B.C. to A.D. 350, Mr. Martin selected, for enlarged reproduction, impressions from eighteen cylinder seals and six stamp seals. These impressions, magnified twenty-five times by projection, have been modeled in clay from that projection, and then cast in plaster with the help of the Federal Art Project of the Works Progress Administration. The resultant reproductions have been made into a frieze for which special beam illumination has been provided. The scale for these reproductions is such that the most minute details are clearer (even when viewed at a distance of twenty feet) than they are on the originals when examined with a hand lens. To explain the symbolism on them, and, where necessary, to give a translation of the cuneiform inscriptions, Mr. Martin has written a leaflet, entitled *Reproductions of Seal Cylinder Impressions*, which will be published in the near future.

Dr. J. Alden Mason, formerly Assistant Curator of Central and South American Archaeology at Field Museum, and now Curator of the American Section, University Museum, Philadelphia, spent four weeks in Chicago. During this period he engaged in studies at the Museum, taking notes on pottery which he excavated at Santa Marta, Colombia, South America, as leader of the Marshall Field Archaeological Expedition to Colombia (1922-23). From these data Dr. Mason will prepare the third part of his report on the Tairona culture of Colombia.

A generous portion of the time of the staff of this Department has been devoted to correspondents and to scholars, students, and other visitors calling for information.

Six signed articles and fifty-two unsigned items were contributed by the Department staff to *Field Museum News*. The staff also supplied data used in twenty-six newspaper articles.

ACCESSIONS—ANTHROPOLOGY

Accessions received and recorded during the year amount to twenty-six, of which twenty-two are gifts, and four resulted from exchanges. The total number of objects received in these accessions is 2,095.

A collection of rare Chinese art objects, valued at several hundred thousand dollars, was received by the Museum in the settlement of the estate of the late Mrs. George T. (Frances Ann Gaylord) Smith, of Chicago, who died on September 8. There are 718 pieces in the collection, nearly all of them representing the Ching or Manchu dynasty (1644–1912). Included are jade objects, porcelains, snuff bottles, textiles, beaded belts, screens, ivory, semi-precious stones and other materials. Arrangements are being made for the addition of these objects to the exhibits, after they have been catalogued and labeled. The jades in this bequest, numbering approximately one hundred, when added to the large number already on exhibition in the Museum's special hall devoted to Chinese jades (Hall 30), will, it is believed, make the Museum's collection in this field the foremost in America, and possibly in the whole world.

Mr. Eugene F. McDonald, Jr., of Chicago, presented a painted conch-shell trumpet from the State of Nayarit, Mexico, a rare specimen representing a little-known culture.

From Mr. V. F. C. Richardson, of Haifa, Palestine, the Museum received eighty-eight samples of human hair from Transjordan and Syria, valuable in the physical anthropology researches being conducted by this institution. An Eskimo's whale harpoon, and a sealskin float for such an implement, as well as a Cree Indian rabbit-fur blanket, were given to the Museum by Mr. Clarence Burley, of Winnetka, Illinois. These objects represent cultures of the Hudson Bay region of Canada.

Two hundred and thirty stone and bone implements, obtained from a rock shelter in Rhodesia, South Africa, were presented by Mr. and Mrs. Rudyerd Boulton, of Chicago.

Mr. Henry Field, Curator of Physical Anthropology, contributed twelve puppets, twenty-one playing cards, and one battle-ax, from Iran, and two skulls of modern Arabs.

Dr. Albert B. Lewis, Curator of Melanesian Ethnology, presented a Burmese betel-nut box of woven strips of bamboo.

His Highness the Maharaja Gaekwar Sir Savaji Rao III, ruling monarch of Baroda State, India, presented a repoussé low table

composed of silver, copper, and brass; a buffalo-effigy carved from teakwood, and a cradle, representative of the arts of his country.

A series of fifty-two pieces of glazed pottery from Pecos Pueblo, New Mexico, was received from Phillips Academy, Andover, Massachusetts. These specimens were excavated by Dr. A. V. Kidder, of the Carnegie Institution, Washington, D.C., during the seasons of field work from 1919 to 1928.

Mrs. Philip Chancellor, of Hollywood, California, presented two skulls with modeled faces from northern New Guinea.

A man's costume of tree-bark is the gift of Mr. Henry W. Nichols, Chief Curator of the Department of Geology.

The Museum is indebted to Mr. Harold S. Gladwin, of Gila Pueblo, Globe, Arizona, for a gift of fifty pieces of Basket Maker pottery from Colorado.

From the Federal Art Project (Illinois) of the Works Progress Administration the Museum received twenty-four plaster reproductions of impressions of Babylonian and other ancient seal cylinders.

CATALOGUING, INVENTORYING, AND LABELING—ANTHROPOLOGY

Entries were made of twenty-two of the twenty-six accessions received during the year. Likewise, there were entered twenty-two accessions of previous years.

The number of catalogue cards prepared during the year totaled 5,575, of which 2,286 were entered. The total number of catalogue cards entered from the opening of the first volume is 214,278.

The catalogue cards for the current year were distributed as follows: North American archaeology and ethnology, 387; Central and South American archaeology and ethnology, 27; European archaeology, 29; African ethnology, 399; Madagascar ethnology, 9; Philippine ethnology, 14; Malayan ethnology, 359; Kish archaeology, 4,057; Near Eastern archaeology, 184; Korean ethnology, 12; Burmese and Indian ethnology, 20; Formosan ethnology, 30; Chinese ethnology, 1; physical anthropology, 47.

The Division of Printing supplied a total of 2,053 labels for use in exhibition cases. These labels were distributed as follows: Navaho textiles, 227; archaeology of the Southwest, Lowry Ruin, 250; Northwest Coast Indians, 3; China, 30; Gem Room, 237; Malay Peninsula, 347; Egypt, 14; Philippine Islands, 2; Burma, Ceylon, Siam, Korea, 943. The Division of Printing also supplied 18,430 catalogue cards and 25,162 index cards.

The number of additional photographs mounted in the departmental albums is 818. Three new photographic albums were opened. To the label file, seventy-nine cards were added.

Workers assigned to the Department by the Works Progress Administration of the Federal government performed much valuable clerical and repair work. These assistants, varying in number from nine to eleven, worked an average of thirty hours per week. Their principal accomplishments during the year were as follows: 2,300 pages of manuscript typed; 23,304 library cards typed and filed; 1,861 captions for photographs typed; 310 pages of manuscript read; 8,230 pamphlets catalogued and checked; 14,109 numerical index cards for departmental albums prepared and filed; 8,486 photographs mounted; 3,293 captions mounted; 1,881 cards in photograph file numbered and filed; 978 labels pasted; 6,125 index cards perforated; 73 pieces of textiles (Persian, Korean, East Indian) repaired; 500 pieces of pottery washed; 149 pieces of pottery repaired; 786 pieces of pottery numbered; 5,239 flints numbered; 4,716 flints washed; 7,450 catalogue cards numbered; 67 boxes of beads cleaned; 916 pieces of stucco work from Kish repaired; 6,034 ethnological specimens sorted; 2,500 Kish archaeological specimens cleaned, catalogued, and studied; 188 outline drawings made for publications; 1,562 hours spent on reconstruction of Kish palace gateway; 1,009 hours spent in general work; 71 hours spent in identifying Hopi pictures, and 192 hours spent on statistical work.

INSTALLATIONS AND REARRANGEMENTS—ANTHROPOLOGY

The Navaho textiles in Hall 6 have been rearranged in chronological order so that a person interested in this subject can note the decadence in technique that has occurred over the years in the contrast of the fine blankets of old with the poor rugs produced by the modern Indians. Moreover, new labels have been supplied which indicate the kinds of wool and dyes used in each specimen.

The pottery and the bone and stone implements from Lowry Ruin in southwestern Colorado, the excavation of which was made possible by the Julius and Augusta N. Rosenwald Archaeological Expedition Fund, were placed on exhibition in Hall 7.

All of the jewelry in H. N. Higinbotham Hall (Hall 31) was reinstalled and relabeled in newly lined cases.

Curator Lewis completed the reorganization of Hall G (ethnology of the Malay Peninsula and the Malay Archipelago). Eight cases

were reinstalled in such a way as to permit exhibition of many specimens never before shown in this Museum.

An Egyptian promissory note written in Demotic script on papyrus was installed in Hall J, along with a complete literal translation made by Dr. Nathaniel Julius Reich, of Philadelphia.

Installation of material from India, Ceylon, Siam, Burma, and Korea, for future exhibition in Hall K, has proceeded apace. This work is being performed by Dr. Lewis, who has taken great pains to arrange and label these specimens. It is hoped to finish the installation of this material by the end of 1937.

The archaeological specimens from Kish, resulting from the Field Museum—Oxford University Joint Expedition to Mesopotamia (1922–32), which are to be exhibited in the east third of Hall K, have not yet been installed. The delay is caused by the necessity of washing, chemically treating, and cataloguing these specimens—a task which must necessarily proceed slowly. Installation, however, may be started by next fall.

At various times during the year the storage and poison rooms have been overhauled. All of the North American ethnological specimens have been sorted and replaced in proper order.

New labels for the Races of Mankind sculptures by Malvina Hoffman in Chauncey Keep Memorial Hall (Hall 3) have been provided. In addition to giving the names of racial types, these labels bear small maps on which are indicated the regions inhabited by the peoples of each group represented in the sculptures.

Mr. Tokumatsu Ito, who is in charge of special repair work for the Department, treated, repaired, or restored 333 objects. Mr. Robert Yule, assistant and letterer in the Department, marked identification numbers on 2,153 objects during the year. Eight cases of invertebrates were installed for the Department of Zoology.

DEPARTMENT OF BOTANY

EXPEDITIONS AND RESEARCH

In the summer of 1936 Mr. Emil Sella, of the Plant Reproduction Laboratory staff, visited the mountains of Wyoming to obtain material for an exhibit of alpine vegetation now in preparation for the Hall of Plant Life (Hall 29). A large amount of necessary material was collected, representing characteristic plants of the alpine region.

Curator Llewelyn Williams completed his detailed descriptions of the woods he collected in 1929-30 in northeastern Peru during the course of the Marshall Field Botanical Expedition to the Amazon. In preparation of his report, recently published as Volume XV of the Botanical Series, he spent parts of May and June examining microscope slides of this material at Yale University School of Forestry. This study was made possible through the cooperation of Dr. Samuel J. Record, Professor of Forest Products at Yale, and Research Associate in Wood Technology at Field Museum.

Associate Curator J. Francis Macbride continued his activities, described in the Reports of 1929 to 1935 inclusive, of photographing type specimens of tropical American plants preserved in European herbaria. Early in 1936 Mr. Macbride completed the work at Madrid, of which mention was made in the 1935 Report. He studied there particularly the original collections of Ruiz and Pavón, the first botanists to explore the flora of Peru. These collections are of particular interest to Field Museum because of the publication, *Flora of Peru*, four parts of which were issued by this institution in 1936. The Madrid herbarium contains also the earliest collections from many other parts of South America, and from Mexico, obtained by scientific expeditions dispatched to the American colonies by the Spanish crown a century and a half ago.

Work at Madrid was made pleasant and facilitated in every manner by the whole-hearted cooperation extended by the Director of the Jardín Botánico, Dr. Antonio Garcia Varela, and by Dr. José Cuatrecasas. A large number of type specimens were lent for use at Geneva, where they could be photographed conveniently.

A signal courtesy was the loan to Field Museum, by Dr. Varela, of the Sessé and Mociño Herbarium of Mexican plants, which was sent to Chicago for study by Curator Paul C. Standley. This herbarium, consisting of 7,752 sheets of specimens, was gathered in Mexico about 1790, and was the first important plant collection made in Mexico. Its history is romantic, but too extensive to be detailed here. A partial report upon it, prepared after the return to Spain of the celebrated collectors, Martin Sessé and Don José Mariano Mociño, remained unpublished until 1890, by which time it was obsolete, its contents having been anticipated by publications of later botanists whose manuscripts had been published promptly.

The Sessé and Mociño Herbarium has remained at Madrid, as its collectors left it, for more than a century, during which it has been inaccessible to botanists. The loan of it to Field Museum in 1936

was made so that the specimens could be determined and named according to present knowledge, and the names ascribed to the plants by Sessé and Mociño in their *Flora Mexicana* and *Plantae Novae Hispaniae* might be referred to their proper position in literature. This work was still in progress at the end of the year. The aid of specialists in several groups has been enlisted, and it is expected that a volume enumerating the contents of the herbarium will be published by Field Museum. Through the great generosity of the staff of the Madrid herbarium, Field Museum is permitted to retain duplicates or fragments of many of the specimens. These, for the most part, will be their only representation outside of Madrid.

After finishing his work at Madrid, Mr. Macbride returned to Switzerland, where he continued photographic work and study of collections from South America. As in previous years, he received at Geneva generous assistance from Dr. B. P. G. Hochreutiner, Director of the Conservatoire et Jardin Botaniques, and Dr. Charles Baehni, a member of its staff.

In the early summer, Mr. Macbride went to Vienna, where, as upon his visit in 1935, he received kindly assistance from Dr. Hermann Michel, Director of the Naturhistorisches Museum, and Dr. Karl Keissler, Director of its Botanical Section. Studies were made of the important South American collections there, especially those of Poeppig from eastern Peru. Through the courtesy of Dr. Keissler, Mr. Macbride was permitted to take selected material to Geneva for photographing.

At the end of 1936, Mr. Macbride returned to Geneva, where he plans to complete his photographic work quickly, and then transfer his activities to another center.

The great value of the type photographs assembled by Mr. Macbride becomes more apparent each year. There have been received so far more than 30,000 negatives; others made during 1936 have not yet reached Chicago, but are expected early in 1937. The photographs are exceptionally useful because of their high quality, and after having had them available at Field Museum for the past seven years, it would be a hardship for the botanical staff to do without them. They are becoming better known outside the Museum, also, and are constantly more appreciated among American and other botanists, particularly for monographic studies. Prints from the negatives are made available by the Museum to botanists generally at the cost of production. During the past year 1,799 such prints were purchased by American institutions, and many



TRAVELER'S TREE OF MADAGASCAR

Mural painting by Charles A. Corwin in Hall of Plant Life (Hall 29)

others were accepted in exchange for similar type photographs needed by Field Museum.

The Herbarium has been consulted frequently during 1936 by visiting botanists and others from near and remote parts of the United States, and from foreign countries as well. It has, of course, been utilized most frequently by scientists and students from the many large universities in Chicago, and elsewhere in Illinois and near-by states, since it is the only large herbarium existing within a radius of many hundreds of miles. Naturally, for the staff of the Museum's own Department of Botany, it has been a source of information to which constant reference is made.

The time of the Herbarium staff has been occupied fully throughout the year by care of the collections and determination of the many large shipments of plants received for study. The employment of a large number of workers supplied by the federal Works Progress Administration during most of the year has made possible the undertaking of a vast amount of extra work, which could not have been done without such additional assistance. The direction of the WPA workers, however, has made special demands upon the time of the regular staff of the Department. There have been mounted and added to the Herbarium 62,259 sheets of specimens and photographs, and more than 4,000 printed or typewritten descriptions of new species of plants. This number is greater than that for 1935, and unusually large for any herbarium of the world. The total number of mounted specimens in the Herbarium is now 854,245. All old material that had been in storage for many years has been mounted, and practically all the current collections, and all prepared material, has been distributed promptly into the Herbarium.

A good beginning was made at cleaning and repairing the sheets in the general Herbarium. Much was done toward rearrangement of special groups according to recently published monographs. Many hundreds of new covers for genera and species were written for the Herbarium, which was searched for misplaced specimens such as, in spite of utmost care, always are found in every study collection.

Submitted to the Herbarium for study and determination were at least 22,510 specimens of plants, chiefly from tropical America, but representing also many other regions. Nearly all of these were determined during the year. While some of this material was returned to the senders after names had been supplied, by far the greater part was retained for the Museum. In addition, there were determined, but not preserved for the permanent collections, many

plants from the Chicago region and elsewhere that were brought to the Museum by visitors, teachers, and students, or forwarded by mail. Hundreds of inquiries for information regarding the most diverse botanical subjects were answered by mail and telephone.

Botanical publications exceeded in size and scope those of any previous year of the Museum's history, and included three complete volumes of the Botanical Series. Volume XI was completed by Number VI of *Studies of American Plants*, by Mr. Paul C. Standley, Curator of the Herbarium, and *Monograph of the Genus Coreopsis*, by Dr. E. E. Sherff, Research Associate in Systematic Botany.

Volume XII of the Botanical Series is devoted to *The Forests and Flora of British Honduras*, a product of the joint authorship of Professor Samuel J. Record of Yale University (Research Associate in Wood Technology for the Museum) and Curator Standley. While listing all flowering plants known from British Honduras, the volume is devoted principally to the woody plants, and includes brief accounts of the distribution and woods of the principal trees.

There have been issued four large parts of Volume XIII, the *Flora of Peru*, under the authorship of Associate Curator J. Francis Macbride, with the assistance of specialists in certain groups. This work, when completed, will constitute a volume of six parts and several thousand pages, presenting a descriptive account of the many thousands of flowering plants known from Peru. While based primarily upon the large collections obtained by the Museum's three expeditions to Peru, use has been made also of material in other herbaria of America and Europe.

Volume XIV is devoted to an *Index of American Palms* by Chief Curator B. E. Dahlgren. It enumerates all plants of this group described before the end of 1935, citing all published descriptions and Field Museum photographs of type specimens, synonymy and vernacular names, and includes an extensive bibliography, and lists of palms known from each American country. The volume includes also an enumeration, by Professor A. C. Noé, of the University of Chicago, Research Associate in Paleobotany at Field Museum, of fossil palms discovered to date on the American continent.

Volume XV, entitled *Woods of Northeastern Peru*, by Curator Llewelyn Williams, consists of descriptions of the woods obtained by the Marshall Field Expedition to the Amazonian region of Peru in 1929-30. The report includes brief descriptions of the trees of

this region, with citation of vernacular names, and notes upon uses of the more important woods.

During the year Curator Standley published fifteen papers based directly or indirectly upon the Herbarium collections, the most important being treatments of the Gramineae (grass family) and Rubiaceae (coffee family) in the *Flora of Peru*.

Two botanical leaflets were published by the Museum: *Common Mushrooms*, by Mr. Leon L. Pray, and *Old-fashioned Garden Flowers*, by Mr. Donald Culross Peattie.

Members of the Department staff prepared for *Tropical Woods* numerous abstracts and reviews of current literature relating to woody plants of the tropics. They contributed many signed articles and other items for *Field Museum News*, besides data for twenty-four newspaper articles.

ACCESSIONS—BOTANY

The Department of Botany received 275 accessions, comprising 41,477 specimens, during 1936. Both the number of accessions and the number of specimens were substantially larger than in the preceding year, and their value was much greater. Included were specimens for the Herbarium, for the exhibits, and for the wood and economic collections. Of the total number, 22,047 were gifts, 18,238 were received in exchanges, 608 were purchased, and the remainder acquired from miscellaneous sources.

Of the total receipts, specimens for the Herbarium amounted to 41,457—plant material, photographs, and typed descriptions. As always is the case, much material of exceptional value was received through exchange. First in scientific importance are 6,624 complete or fragmentary specimens from the Jardín Botánico of Madrid. Half of these are from the Sessé and Mociño Mexican Herbarium mentioned under the heading "Expeditions and Research"; the rest consist of duplicates of various unique series preserved at Madrid, such as those of Née, Ruiz and Pavón, which were described in part by Cavanilles, Lagasca, Ortega, and other Spanish botanists. Almost all these specimens are duplicate types, of which there is no representation elsewhere in America, and very little in Europe outside of Madrid. This historical material gives Field Museum a quite unexpected wealth of authoritative specimens of prime value for study purposes.

Similar in nature are two other series received from European herbaria: 1,773 specimens forwarded by the Conservatoire et Jardin

Botaniques of Geneva, and 596 from the Naturhistorisches Museum of Vienna. The former is noteworthy for a large number of critically determined European fungi of historical significance, as well as many historical specimens of tropical American flowering plants. The collection sent from Vienna contains much interesting material from South America.

From the Musée National, Prague, Czechoslovakia, were received 192 specimens collected by Thaddaeus Haenke, one of the first botanical explorers to visit Mexico. About 500 sheets of Haenke's collections, made a century and a half ago, were determined at Field Museum and found to include type material of many Mexican species obtained by this celebrated collector.

Other noteworthy receipts through exchange include the following: from the Naturhistoriska Riksmuseet, Stockholm, through Dr. Gunnar Samuelsson, 624 specimens, principally representing Brazil and Hispaniola; from Göteborgs Botaniska Trädgård, Sweden, through Dr. Carl Skottsberg, 735 specimens, chiefly Swedish; from the Imperial Forestry Institute, Oxford, England, through Dr. J. Burt Davy, 495 specimens representing India and Africa; from the Gray Herbarium of Harvard University, Cambridge, Massachusetts, 582 specimens, largely Brazilian, together with numerous photographs of type specimens; from the United States National Museum, Washington, D.C., 763 specimens and other items, chiefly of tropical American origin; from De Pauw University, Greencastle, Indiana, through Professor T. G. Yuncker, 440 Honduran specimens; from the Bailey Hortorium, Ithaca, New York, through Professor L. H. Bailey, 423 Mexican specimens.

Among gifts of herbarium specimens accessioned during 1936 are several of outstanding importance. Undoubtedly first in value is one of 8,190 specimens from the Museo Nacional of San José, Costa Rica, received through the courtesy of the Director, Professor Juvenal Valerio Rodriguez. This gift comprises part of the unique series assembled during the past twenty-five years by Professor Alberto M. Brenes, official collector for the Costa Rican Museum, who is well known among orchid students for his extraordinary contributions to knowledge of that fascinating family. This herbarium is of immediate practical value for use in preparation of the *Flora of Costa Rica*, upon which Curator Standley is now engaged.

A gift especially appreciated is that from Mr. William H. Dunham, of Evanston, Illinois, who presented his private herbarium of 2,000 sheets. Its importance lies in the fact that much of it was

collected during the past fifty years in parts of Chicago from which all native vegetation has long disappeared. It makes an important and irreplaceable addition to the Illinois Herbarium maintained by Field Museum.

From the Department of Botany of the University of Chicago were received 3,192 specimens of Illinois and South Dakota plants, which had served as the basis for published ecological reports. The major portion of the collection is from the Black Hills of South Dakota, a region poorly represented previously in the Museum Herbarium, although of botanical interest because of the association there of eastern and Rocky Mountain types of vegetation.

The Department of Botany of the University of Texas, through Professor B. C. Tharp, presented 2,452 specimens, partly from little known mountains of extreme western Texas, but chiefly from various states of northeastern Mexico. The Mexican plants, obtained in areas unvisited previously by collectors, were determined at Field Museum, and proved unexpectedly rich in new species, as well as in species known before only from a few collections.

Numerous other gifts of herbarium specimens merit mention, but there is space only for the following: 283 specimens and 919 negatives of type and other specimens, from Dr. E. E. Sherff, of Chicago, representing chiefly Compositae and special groups of Hawaiian plants; 835 specimens collected in Chihuahua and Sonora, Mexico, by Mr. Howard Scott Gentry, of Westmoreland, California, and illustrating many new or rare species; 317 sheets, chiefly of South American trees, from the School of Forestry of Yale University, through Professor Samuel J. Record; 355 specimens from the north coast of Colombia, presented by Reverend Brother Elias of Barranquilla; 322 specimens from the high mountains of Peru, presented by Professor J. Soukup of Puno, and of definite value for citation in the *Flora of Peru*; 230 specimens from Platt National Park, Oklahoma, presented by the United States National Park Service.

Gifts of economic material and of woods were received from many institutions and individuals. All of these are noted in the List of Accessions (page 99), and mention of some follows herewith.

For addition to the series of vegetable drying and non-drying oils donated by him a few years ago, and now displayed in Hall 28, Dr. Otto Eisenschiml, of the Scientific Oil Compounding Company, Chicago, contributed samples of tea-nut and of crude and refined hempseed oil. The Soya Products Division of the Glidden Company, of Chicago, furnished samples of soya beans, crude and refined oil,

and the various by-products obtained in the extraction of the oil from the beans. Representative of an agricultural crop which has attained increased prominence in the Middle West during the last few years, this material forms an important addition to the exhibits.

Various negatives and photographs of local trees exhibited in Charles F. Millspaugh Hall (Hall 26) were presented by Mr. Hermann C. Benke, of Chicago, who for many years has been a regular contributor to the Department. Mr. Leo R. Kische, of Columbus, Georgia, is the donor of wood samples of twenty-four species of trees, native to the state of Georgia, not represented previously in the study collections. The Armstrong Cork Products Company, Lancaster, Pennsylvania, furnished several acorn-bearing branches of cork oak (*Quercus suber*) to replace some of the cork material in Hall 28. Mr. George N. Lamb, secretary of the Mahogany Association, of Chicago, gave a leafing branch, and fruits, of mahogany (*Swietenia*), collected at Key Largo, Florida.

Through Professor Samuel J. Record, there were obtained from the School of Forestry of Yale University a large number of wood samples for critical study by Curator Williams, as part of the researches undertaken by members of the International Association of Wood Anatomists. From the same source there was received also a log specimen of a sumac (*Rhus sylvestris*), an ornamental tree native to Asia. It has handsome foliage which turns deep red or scarlet in autumn, and possesses toxic qualities similar to those of its close relative, the poison ivy.

As in previous years, specimens of new or little known species of woods for the study collections were received from Dr. Román Sabas Flores, of Progreso, Yucatan. Dr. David A. Kribs, Department of Forestry, Pennsylvania State College, at Mont Alto, Pennsylvania, contributed ninety microscope slides of woods collected several years ago in Liberia for Yale University School of Forestry by Mr. G. Proctor Cooper III.

Other gifts which merit mention were an unusual bifurcated trunk section of choke-cherry (*Prunus virginiana*) from central Illinois, presented by Mr. Ray Lundy, of Chicago; a fruiting branch of winterberry (*Ilex verticillata*), a shrub or small tree common around acid swamps or in bogs in the dune region of Indiana and Michigan, and also a specimen of "saqui-saqui" (*Bombacopsis*), a very light wood closely related to balsa, native to Central and northern South America, both of which were given by Mr. Reginald

Owen, of Evanston, Illinois; leaves, fruits, and fiber of babassú and carnaúba palms, collected during 1935 by Chief Curator Dahlgren in Ceará and Bahia, Brazil; leaves and fruits of blue-palm (*Erythea armata*), collected by Laboratory Assistant John R. Millar near Riverside, California; and a wood specimen of a leguminous vine (*Bauhinia*), presented by Mr. Armando Dugand, of Barranquilla, Colombia.

CATALOGUING, INVENTORYING, AND LABELING—BOTANY

Although no general distribution of duplicate material was made during the year, the Department distributed through exchanges 5,832 herbarium specimens and photographs to various institutions and individuals in North and South America, and in Europe. Eighty-eight lots of plants were lent for study to institutions and individuals in Europe and the American continents, and seventy-one lots were received on loan, for study or determination.

Workers assigned to the Department by the federal Works Progress Administration were of great assistance in reorganization and arrangement of reference material, and did many and various tasks of typing. More than 201,600 cards were written in long hand for permanent or temporary files. Some of the catalogues now in process of preparation will be of extraordinary value when carried to completion.

Several hundred labels for exhibits were revised or entirely rewritten, and reprinted on light-colored stock.

INSTALLATIONS AND REARRANGEMENTS—BOTANY

Owing to the sudden death, shortly before the beginning of 1937, of Preparator Jacob F. Mangelsen, who for many years had been responsible for the preparation of the wood specimens for the halls of American and foreign woods, installations in these halls were interrupted, and no additions were made to either during the past year. Mr. Mangelsen's wide practical acquaintance with woods and woodworking, his great skill, and the intelligent care with which he performed his work, made him, for many years, one of the most valued members of the Department's staff of preparators. With very few exceptions the remaining woods required to complete the display in the Hall of American Woods (Charles F. Millspaugh Hall, Hall 26) are on hand awaiting preparation and installation, as is also a considerable quantity of new material for the Hall of Foreign Woods (Hall 27).

An important addition to the exhibit of food plants in Hall 25 is a small scale diorama of a tea plantation in Ceylon, prepared by Laboratory Assistant John R. Millar. This diorama, a companion piece to that of a coffee plantation described in the Report for 1935, forms a part of the exhibit of tea among the beverage plants at the east end of the hall.

A rearrangement of the cases containing the palm collection on the north side of Hall 25 resulted in a better display, and gives a more spacious appearance to the hall. Minor changes were made in the palm exhibits, with new labels and the installation of some new carnaúba material secured by Chief Curator Dahlgren several years ago in Ceará, Brazil. A new exhibit is that of babassú palms of northern Brazil which yield an edible vegetable oil which recently has become prominent as an import of the United States. Material for this was obtained partly by the Marshall Field Botanical Expedition to the Amazon (1929-30), and partly by collecting and purchase made possible through the interest and generosity of Mr. H. F. Johnson, Jr., of Racine, Wisconsin, a Non-Resident Life Member of the Museum.

To the exhibits in the Hall of Plant Life (Hall 29) were added six important new mural paintings of botanical subjects, the work of the Museum's Staff Artist, Mr. Charles A. Corwin. Thus, with the two installed in 1935, there are now eight completed and in place of the total of fifteen murals planned for the west wall. The new ones, described from time to time during the year in *Field Museum News*, are as follows: Chilean pine (*Araucaria imbricata*), dragon's blood tree (*Dracaena draco*) of the Canary Islands, tree ferns (*Hemitelia* sp.), traveler's tree of Madagascar (*Ravenala madagascariensis*), cucumber trees of Socotr  (*Dendrosicyos socotrana* with *Adenium socotranum*, etc.), and American elm—the last named being pictured in a scene typical of New Hampshire.

Another new installation in Hall 29 is a reproduction of a tall-growing plant of the carrot family, local to the Chicago area—the purple angelica—which was completed during the year by Messrs. Milton Copulos and Emil Sella of the Plant Reproduction Laboratories. It is located in its appropriate place in the hall, where it serves to illustrate the general characters of its order and family. From plant material recently secured, a flowering and fruiting branch of a cassia (*Cassia fistula*), an Indian tree commonly planted in warm countries for ornament and known in English-speaking countries as "golden shower," was reproduced in glass and celluloid



A TEA PLANTATION IN CEYLON
Miniature diorama in Hall 25

by Mr. Sella and added to the exhibits of leguminous plants in the same hall. This family, with its various types of flowers, is so large and important, and contains so many economic plants, that it deserves to be illustrated even more fully than at present.

Some minor additions, such as fruits of the rose and madder families, were added to the exhibits, but the most important other changes in Hall 29 were effected by an extensive rewriting of labels and the elimination of the black labels, formerly in general use in the Museum.

Considerable progress was made during the year on various exhibits intended for Hall 29, particularly a beginning on the ecological groups which eventually are to occupy the now vacant north and south ends of this hall. With the aid of selected Works Progress Administration workers assigned to the Museum, a large quantity of material was prepared for a group showing North American alpine vegetation, which is to be the first of the series.

DEPARTMENT OF GEOLOGY

EXPEDITIONS AND RESEARCH

Collecting for the Department of Geology was limited to one short expedition to gather specimens for which there was an immediate need. To obtain these Curator Sharat K. Roy spent ten days in Dutchess County, New York, and collected there several series of rocks illustrating the progressive metamorphism of clay through shale, slate, and phyllite to mica schist. These specimens were required in order to fill an important gap in the collections of structural and dynamic geology which are now undergoing complete reorganization and reinstallation in Clarence Buckingham Hall (Hall 35).

By making the collection at this time the material can be placed during the installation now under way, and extensive rearrangement of the exhibit at a later time is thus obviated. The material from Dutchess County is particularly useful because this is the only region known to the geological staff where *all* stages of the progressive metamorphism can be obtained, thus providing a single series, instead of a mosaic composed of several partial series, for exhibition.

Work on reinstallation, and on arrangement and systematization of study and reserve collections, left less time than usual for concentrated research.

The most important works published during the year were two papers by Assistant Curator Bryan Patterson. The first includes a careful study of the structure of the middle ear in the Notoungulata, an order of extinct South American mammals, illustrated with numerous anatomical drawings. These studies have brought out three distinct types of ear-structure which afford new and important bases of classification. The studies were made possible by the large collections of fossil mammals brought to the Museum by the Marshall Field Paleontological Expeditions to South America. The second paper by Mr. Patterson describes a fossil caiman from the Pleistocene formation of South America, and includes a catalogue of South American fossil crocodiles.

An important study of brain casts of fossil mammals of the order Notoungulata was begun, also by Assistant Curator Patterson. This work is facilitated by the large collection of specimens of that order in this Museum, and by the use of an elastic rubberoid material which makes it possible to produce the casts of the brain cavities without destroying the specimens. Comparison of brain casts offers a basis of study very little used in paleontology, but one which has important possibilities in classification.

Continuing studies resulting from his observations during the Second Rawson-MacMillan Subarctic Expedition of Field Museum (1927-28), Curator Roy prepared two short papers, one on the Grinnell Glacier, the other on the history and petrography of Frobisher's "gold ore," a rock which the famous explorer, Sir Martin Frobisher, mistakenly thought contained gold, causing great excitement in the England of his day (sixteenth century). Mr. Roy prepared also a short paper: *Additional Notes on Living Bacteria in Stony Meteorites*.

Dr. Albert Walcott, working in the Department under a special arrangement, continued his studies of the diamonds in matrix which were collected several years ago by Chief Curator of Botany B. E. Dahlgren in Brazil. He identified by optical methods many doubtful specimens uncovered during the rearrangement of the mineral collection.

Under the direction of Chief Curator Henry W. Nichols, sixty-seven Egyptian bronzes were treated in the chemical laboratory to cure a malignant patina which was slowly destroying them. The Fink electrolytic method, and a chemical treatment originated in this laboratory, were both employed. As treatment removes the original patina and leaves the bronzes with a surface less attractive than is desirable, an investigation of methods for restoring non-malignant

patina was undertaken and is now under way. The methods commonly employed for patinating new bronzes, reasonably effective on such material, cannot be safely employed on antique specimens which are always more or less porous and fragile from age, because some of these treatments reintroduce elements of malignant patina, and others are of too drastic a nature.

Several of the bronzes were treated by the method used by the Metropolitan Museum of Art in New York. Although this treatment, which consists of exposing the bronze to certain chemical fumes, is usually successful, it failed on these specimens, as it produced a color and texture resembling that of old wrought iron. This was found to be due to the presence of an excessive amount of sulphur in the metal. Another method now being investigated is more promising.

The still for purifying old and discolored alcohol for re-use on the fish and reptile collections of the Department of Zoology was in operation for eleven months of the year.

Serious corrosion of the degreasing tank used in the Department of Zoology was investigated and a remedy was recommended. The chlorine content of a water supposed to be injurious to the Museum boilers was determined, and a flue-cleaning compound was analyzed.

Numerous partial analyses of minerals for identification and classification were made as usual.

A new petrographic microscope acquired during the year has greatly facilitated routine identification of minerals, since this work is now done by petrographic and microchemical means instead of by the slower method of chemical analysis.

Members of the Department staff contributed ten signed articles and twenty-five unsigned items for *Field Museum News*, and data for seventeen newspaper releases. There were 277 correspondents and 185 visitors referred to the Department for information and the identification of several hundred specimens.

ACCESSIONS—GEOLOGY

The number of accessions recorded during 1936 was forty-seven. The number of specimens included in these accessions is 544. Of these, 348 were gifts, 39 were obtained by exchange, and 157 came from expeditions or were collected by members of the staff. Although the number of accessions is somewhat greater than that recorded last year, it includes less than one-third as many specimens. This is partly accounted for by a more critical attitude toward specimens offered as gifts.

The most important addition to the mineral collection is a large crystal of gem kunzite with a gem cut from its base, presented by Mr. William J. Chalmers, of Chicago. The crystal, weighing seven ounces, is four and one-half inches long and nearly half an inch thick. It is practically free from flaws and defects, and is of gem quality throughout, which is remarkable for so large a crystal. The gem cut from its base weighs twenty-eight carats, is free from flaws and is of good brilliancy.

An attractive addition to the collection of opals in H. N. Higinbotham Hall (Hall 31) is a group of seven Mexican opals which Mrs. Joseph W. Work, of Evanston, Illinois, added to her former generous gifts of gems.

Miss Margaret M. Cornell of the Museum staff presented a baroque pearl attached to the shell on which it grew.

A glass model of the Jonkers diamond, the gift of Mr. Harry Winston, of New York, is a welcome addition to the models of large and famous diamonds in Higinbotham Hall.

Mr. Sharat K. Roy of the Department staff presented an agate showing unusually brilliant fluorescence.

Of special local interest is a group of pyrite crystals, and one of calcite, from the tunnels under the city of Chicago, contributed by a Mr. Roche, who neglected to leave his full name and address.

Other gifts of minerals include twenty-five miscellaneous specimens from Mr. and Mrs. Walter J. Flesch, of Chicago; eleven minerals of North Carolina from Mr. Samuel H. Gilbert, of Chicago, and nineteen crystallized gypsums and six calcite crystals from Mr. O. J. Salo, of Red Lodge, Montana.

One of the most interesting specimens received during the year is a vapor vent obtained by exchange with Mr. E. M. Brigham, of Battle Creek, Michigan. This is a tube which penetrated a lava surface of Kilauea volcano, Hawaii. Through it, steam and hot gases were ejected.

A specimen of friction breccia, the gift of Mr. Bernard Bartnick, of Chicago, illustrates structural features with exceptional clarity.

A welcome addition to the fulgurite or lightning tube collection was the gift of three fulgurites in loam, from Mr. J. O. Beadle, of Marshall, Wisconsin.

A series of manganese-silica concretions from South Dakota, collected and presented by Professor L. A. Higley, of Wheaton, Illinois, is of unusual scientific interest. The curious structure of

curved plates, imperfectly shown in most manganese concretions, is so perfectly developed in these specimens that much may be learned of its nature from intensive study of them. Other concretions were presented by Mr. Albert Walker, of Ontario, Wisconsin. Two specimens, illustrating a phase of travertine not previously well represented in the collections, were received as a gift from Mr. L. E. Hildebrand, of Winnetka, Illinois.

The most important addition to the economic collection was the gift by Mr. H. G. Metcalf, of Auburn, New York, of specimens of the upland diamond-bearing ground of Brazil, one of the few important types of diamond deposit not hitherto represented in the collections. A unique talc specimen, presented by Mr. Dan P. Mumbrue of Helena, Montana, illustrates another type of deposit of which representation was hitherto lacking in the Museum.

Other gifts for the economic collection are a specimen of diabase containing petroleum, from Mr. Charles G. Cowan, of Chicago; six brick shales and briquettes, from the Western Shale Products Company, Fort Scott, Kansas; four specimens of cement rock and two of vermiculite, from the Utica Hydraulic Cement Company, Utica, Illinois, and a specimen of gold ore from Dr. F. A. Thurston, Chicago.

Of greatest scientific interest among additions to the collection of invertebrate fossils is a series, presented by the Chicago Historical Society, of forty fossil insects named by Scudder, and containing twenty-two of his types. Three very perfect fossil fish and eight vertebrate fossils were also included in this gift.

A collection of seventy-five rocks, minerals and fossils, presented by Mr. Henry Field of the Museum staff, includes thirty European invertebrate fossils, many of them of unusual perfection, beauty and rarity. The rocks and minerals included in this gift are of varieties not readily obtained in this country.

A number of coal balls, and large celluloid sections made from them, were obtained by exchange with Professor A. C. Noé, of the University of Chicago. The transparent sections, which illustrate in a striking way the structures and forms of the vegetable detritus from which coal is made, are examples of a recently developed technique which has greatly improved our knowledge of the coal flora.

Twelve fossil leaves from Patagonia were added to the collections through exchange with Mr. E. W. Berry, of Baltimore, Maryland.

Two crustaceans and nine fossil plants were collected by Mr. Bryan Patterson of the Department staff. Other gifts of invertebrate

fossils were a fossil cycad leaf from Mr. G. W. Wharton, of Roseburg, Oregon, and a fossil cephalopod from Mr. Donald Farquhar, Jr., of Chicago.

The most important addition to the collection of vertebrate fossils was a fine mountable skeleton of the strange Miocene ungulate *Moropus*. This was received from the American Museum of Natural History in exchange for a skeleton of *Barylambda*.

Mr. Edwin C. Galbreath, of Ashmore, Illinois, presented thirty specimens of Pleistocene mammals of Illinois, examples of the pre-glacial fauna of this region.

Eight models and casts of Pleistocene vertebrates were obtained from the Los Angeles Museum of Science, History and Art in exchange for similar material from this Museum. This exchange was for the purpose of providing material for study and as an aid in identifying specimens in both institutions. Mr. R. M. Barnes, of Lacon, Illinois, presented a vertebra, the second to be found in this state, which it has not yet been possible to identify. It may belong to some pre-glacial animal hitherto unknown in this region.

CATALOGUING, INVENTORYING, AND LABELING—GEOLOGY

There were 583 new entries in the Department catalogues, which comprise twenty-six volumes. Adding these to previous entries, the total becomes 195,611. The number of specimens catalogued exceeds the number received during the year, as it includes vertebrate material from expeditions of past years, which was not freed from matrix and identified until 1936. Many specimens of vertebrate fossils come to the Museum enclosed by and partly concealed in a stony matrix, so that it is sometimes impossible to determine their number or identify them accurately until the matrix has been chipped away. Also a few unrecorded specimens were found and catalogued during the checking of the study collections which accompanies the preparation of the card catalogues.

Copy for 2,283 specimen labels was prepared and sent to the Division of Printing, and 2,298 labels were received from that Division and installed in the cases. There were 143 labeled prints of photographs added to the Department albums, which now contain 8,528 prints. One hundred and eight United States Geological Survey maps were received, filed and labeled, making the number of these maps now available 4,398.

The cross-indexed card catalogue of photographs has been kept up to date, as has the card index of meteorites. At the beginning of

the year, the meteorite index included cards for only those meteorites added to the collection since 1916, the date of the last printed catalogue of the collection. Cards have now been written for all entries in the printed catalogue as well, thus covering all the meteorite specimens in the Museum. A beginning has been made on an index of all known meteorites not represented in the collection. These are typed on red cards to avoid confusion with the regular catalogue. As the known meteorites not represented number only a few hundred, the writing of this index would be a simple matter were it not that some of the data is widely scattered in the literature.

Work on the card catalogue of minerals has continued. This index is now complete for all exhibited minerals, and substantial progress has been made in cataloguing the reserve collection. During the preparation of this catalogue all specimens were checked, and all doubtful ones were re-identified, a task much greater than listing the minerals and typing the cards. The preparation of the other card catalogues also involved much more work in assembling and correlating data, and checking identifications of specimens, than was required for typing the cards. In all, 7,471 cards were typed, exclusive of those for vertebrate paleontology mentioned later.

Preparation of permanent records of the specimens in vertebrate paleontology was carried on during the greater part of the year. It included preparation of card indexes, records, and a bibliography of South American fossil mammals needed in connection with researches under way based on material collected by the Marshall Field Paleontological Expeditions. During this work, 6,838 specimens were numbered and catalogued, and 1,304 specimen and bibliography cards were written. Forty-five pages of field records were typed for preservation.

Employment of workers assigned by the federal government's Works Progress Administration has been of great benefit to the Department, and much has been accomplished that could not have been attempted without this assistance. They prepared the much needed card catalogue of the meteorite collection, and began the classified catalogue of the mineral collection needed as an aid to future installation and for arrangement of exchanges. They assisted in the preparation of catalogues of the Department photographs and of the vertebrate paleontology collection. Nearly 12,000 catalogue cards were typed by WPA workers during the year. In addition to this, much other needed clerical work was performed. They arranged, cleaned and, where necessary, renumbered and relabeled the reserve

collections on the third floor, handling nearly 23,000 specimens. They have been of material assistance on reinstallation and placing of labels, and their aid has expedited the general work of the preparators. They made two small models for exhibition and helped in the preparation of vertebrate fossils. The number of WPA workers engaged in the Department varied from a minimum of three to a maximum of nine, with a monthly average of seven.

INSTALLATIONS AND REARRANGEMENTS—GEOLOGY

The case labels which formerly projected above the tops of the cases were somewhat unsightly and not sufficiently legible. They have been replaced by framed labels, eighteen inches long and three inches wide, placed inside the cases. Similar labels have been installed also in all cases not previously labeled.

In Hall 34, devoted to minerals and meteorites, the appearance of exhibits in four small cases has been materially improved by replacing with opaque backs the glass backs of the cases which had caused a confused view of objects behind them.

Reinstallation in new cases of the entire meteorite collection, which occupies the west half of Hall 34, was started by emptying three cases and transferring their contents to the workrooms on the third floor where rearrangement for an improved installation is in progress. Otherwise installation in this hall has not been disturbed except for the usual minor adjustments, and additions of a few new specimens.

Plans made in 1935 for the complete reinstallation of Clarence Buckingham Hall (Hall 35) contemplate a number of important changes, upon which work was begun during 1936. The relief maps which occupied more than half the hall are to be removed, because they occupy more space than their interest justifies. The small rock collection formerly in the east end of the hall is to be replaced by a larger and better organized collection which will fill the west end of the hall. The reason for this change is that visitors display more interest in this collection than was believed probable at the time of the original installation. The rest of the space vacated by the removal of relief maps is to be occupied by an exhibit of fluorescent minerals (installed in 1936), and an enlargement of the structural and dynamic collections for which material has been accumulating for years. The appearance of the exhibits is to be improved by removing the shelves and attaching specimens directly to the backs of the cases. This installation not only improves appearance, but



REPRODUCTION OF PURPLE ANGELICA
Hall of Plant Life (Hall 29)
Northeastern North America

permits a better grouping by which sequences and relations of specimens are made more readily apparent. During reinstallation many minor improvements, such as replacing inferior with better specimens, and revision of labeling, are being made. Work on the reinstallation of this hall has progressed steadily during the year.

The relief maps of most interest have been placed on the walls of the two corridors connecting Hall 35 with adjoining halls, where they show to better advantage. Half of the enlarged collection of rocks filling six cases is now installed in the west end of the hall. When complete this collection will fill twelve cases of the slope-top type, each twelve feet in length. The specimens, which approximate the usual size of three by four inches, are installed on panels parallel with the sloping fronts of the cases. Instead of being mounted on individual blocks as in the old installation, the specimens are attached directly to the panel by invisible clips. For each series of rocks there is a group label explaining them in simple language. The six cases now in place contain an extensive collection of the sedimentary and metamorphic rocks, leaving six cases of igneous rocks yet to be installed.

The reinstallation of structural specimens and those of dynamic origin has proceeded to the extent of five cases. The collection of volcanic material, which formerly occupied two cases, has been enlarged and now occupies three.

A case of specimens and models, illustrating the structure of the earth and features pertaining to its interior, was assembled and installed. It contains the model made last year showing the structure of the earth with its core of metal enveloped with successive shells of rock, each lighter and more acid in composition than the shell below. Another model, illustrating the forms assumed by intrusions of rock from the depths of the earth into overlying rock, was made in the Museum laboratories during the year and is now in position in this case. The rest of the case contains examples of rocks and structures characteristic of such depths as can be reached. A case of travertines and tufas, dendrites, and specimens illustrating rock coloration by weathering, and color banding by segregation of coloring matter, was emptied. After these collections were reorganized and relabeled, the case was reinstalled in accordance with the new plan.

A diorama representing an alpine glacier, modeled in the Department laboratories during the year, was installed in an individual case

against one of the windows and is complete except for a few minor details of coloring.

The most important change in Hall 35 is the addition of a case which promises to be one of the most attractive displays in the Department. It illustrates mineral fluorescence, a property some substances possess of transforming invisible ultra-violet light into visible light of longer wave length. While ordinary minerals are invisible when illuminated by ultra-violet light, fluorescent species glow brilliantly with colors which have no relation to their ordinary colors. In order to obtain the best effects, hundreds of specimens had to be tested before thirty of the most brilliant, representing twelve mineral species, were selected.

As the fluorescent glow, brilliant when seen under proper conditions, is completely masked in daylight by the ordinary color of the mineral, the design of a case in which the fluorescence could be seen under favorable conditions in a dim light was a matter of some difficulty. The specimens have been installed on a vertical panel, four feet high and five and one-half feet long, on the back of a case three feet deep. The panel and interior of the case are black. Access of daylight from the front is impeded by a screen so placed that there is a passage three and a half feet wide between screen and case, from which the fluorescence can be observed. Entrance of light into the passage is further obstructed by wings attached to the screen at the entrance and exit. The specimens are provided with labels lettered with fluorescent paint. The minerals are illuminated by ultra-violet light from a nico lamp at the top. An illumination of forty-five seconds in each minute by ultra-violet light is followed by fifteen seconds of illumination by ordinary artificial light. The change of illumination is controlled by an automatic switch. The abrupt change from the brilliant blue and green, and less brilliant red and yellow, fluorescent glow to ordinary dull and commonplace color as the illumination changes is impressive.

Eight colored transparencies of typical and well-known volcanoes were installed in windows adjacent to the volcanic exhibit. The colored transparencies formerly installed in a window adjacent to the exhibit of cave formations have been replaced by six views of superior quality representing scenes in the Carlsbad Caverns of New Mexico. Other rearrangements in this hall were confined to minor adjustments and changes of individual specimens.

Installations in Hall 36 and in Frederick J. V. Skiff Hall (Hall 37) were limited to minor readjustments and additions of specimens.

In Ernest R. Graham Hall (Hall 38) the most conspicuous change is the addition of a group of "tar bed" fossils from the asphalt springs near Los Angeles. This group, which occupies a floor space of eleven by fourteen feet, represents a portion of the surface of an asphalt spring in which many animals were trapped and mired. Mounted skeletons of the ground sloth, saber-tooth tiger, fossil horse and fossil bison are placed upon this surface in life-like poses. They exemplify a few of the larger of the numerous animals whose fossil remains have been found in this spring. A skeleton of the large armored mammal, *Eleutherocercus*, from South America, mounted in three-quarter relief and accompanied by a miniature restoration of the animal as it appeared in life, fills a whole case.

A skull of the fossil baleen whale, *Agalocetus*; a carapace of a Pliocene glyptodont, *Plohophorus*, and a mounted skeleton of the great Pliocene turtle, *Testudo*, were removed from upright cases and installed in individual cases built for them. A collection of fossil cones, branches and sections of trunks of South American araucaria trees, with cones and foliage of a related modern tree, was installed in half of a slope-top case. Considerable rearrangement of collections and of the position of cases in the north end of the hall was necessary to make room for these additions.

A unique skeleton of the rare and hitherto little-known ungulate *Homalodotherium*, from the Miocene of Argentina, was mounted in full relief and installed to occupy an entire case.

In other parts of the hall only minor changes, such as elimination of duplicates and replacement of inferior specimens, were undertaken.

Besides the preparation of vertebrate fossils finished and placed on exhibition during the year, two nearly complete skeletons and three additional skulls of a remarkable Pliocene bird from South America were removed from the matrix and prepared for the study which must precede mounting them for exhibition.

Work on rearrangement and classification of study and reserve collections on the third floor has continued through the year. All reserve and study collections of minerals, including structural, dynamic and economic specimens in Room 113 (except the lithologic collection) are now substantially in order, although the repainting of faded numbers, replacing of defective labels, and some other details are far from complete. The value of a well-arranged reserve collection has been amply demonstrated during the year.

During the reinstallation of exhibits on the second floor, it has been possible to compare reserve with exhibited specimens and, by

interchanges, to improve materially the appearance of the exhibits. Visitors whose problems call for examination of specimens not on exhibition are now assisted in their studies with greater benefit to them and the expenditure of less time. The reserve collections of invertebrate paleontology in Room 111 are of a character which will require much more labor to achieve a similar rearrangement. The specimens are more numerous, they require more cleaning, and checking them against the records requires more time. Although nearly 15,000 specimens have been cleaned, reclassified, and systematized, it is anticipated that several more years of work will be required before this task is completed.

DEPARTMENT OF ZOOLOGY

EXPEDITIONS AND RESEARCH

Expeditionary work for the Department of Zoology was at a minimum during 1936, and no field work of a regularly organized nature was conducted.

Through cooperation with the Chicago Zoological Society, the services of Mr. Harold C. Hanson, a volunteer worker in the Department, were utilized to obtain an interesting collection of birds, mainly from northeastern Greenland. Mr. Hanson was associated for this purpose with the expedition of Captain Robert A. Bartlett, which had as its primary object the capture of specimens of live musk-oxen for the Zoological Society. Field Museum's participation in this expedition was made possible by the Emily Crane Chadbourne Fund.

Through the generosity of Mr. Sasha Siemel, of New York, who spent several months on a hunting trip in South America, the Museum secured a baby tapir specimen which he collected. This will be used to augment and complete the Museum's group of tapirs in the Hall of American Mammal Habitat Groups (Hall 16).

Mrs. Oscar Straus, of New York, in the course of a visit to Australia and New Zealand, kindly made arrangements whereby it is expected the Museum will obtain certain rare birds needed for proposed habitat groups in the Hall of Birds (Hall 20).

Fifteen zoological publications, embodying the results of research by members of the Department staff, and other scientists as well, were issued by Field Museum Press during the year, as follows: *Fishes of the Crane Pacific Expedition*, by Dr. Albert W. Herre, of Stanford University; *African Reptiles and Amphibians in Field*

Museum of Natural History, by Arthur Loveridge, of the Museum of Comparative Zoology, Harvard University; *Records and Measurements of Neotropical Bats*, and *Descriptions and Records of African Bats*, both by Curator Colin C. Sanborn; Part IX, *Catalogue of Birds of the Americas*, by Associate Curator Charles E. Hellmayr; *Secondary Sex Characters of Chinese Frogs and Toads*, by Ch'eng-Chao Liu, of Soochow University, Soochow, China; *The Distribution of Bidder's Organ in the Bufonidae*, and *Courtship and Mating Behavior in Snakes*, both by Assistant Curator D. Dwight Davis; *Clearing and Staining Skeletons of Small Vertebrates* (Museum Technique Series), by Assistant Curator Davis and U. R. Gore; *Notes on Bahaman Reptiles and Amphibians*, *Guatemalan Salamanders of the Genus Oedipus*, *Preliminary Account of Coral Snakes of South America*, and *Notes on Central American and Mexican Coral Snakes*, all four by Curator Karl P. Schmidt; *Notes on Snakes from Yucatan*, by Curator Schmidt and E. Wyllys Andrews; and *New and Imperfectly Known Small Mammals from Africa*, by Chief Curator Wilfred H. Osgood.

Publications by staff members which appeared under other than Field Museum auspices include the following: "Robert Kennicott, Founder of Museums," by Karl P. Schmidt, *Program of Activities—Chicago Academy of Sciences*, Vol. 7, pp. 3–8; "New Amphibians and Reptiles from Honduras in the Museum of Comparative Zoology," by Karl P. Schmidt, *Proceedings of the Biological Society of Washington*, Vol. 49, pp. 43–50; "Zoogeographica" (review), by Karl P. Schmidt, *American Naturalist*, Vol. 70, pp. 264–266; "The Amphibians of the Pulitzer Angola Expedition," by Karl P. Schmidt, *Annals of the Carnegie Museum*, Vol. 25, pp. 127–133; "A Key to the Lizards of the United States and Canada" (review of a paper by Charles E. Burt), by Karl P. Schmidt, *Copeia*, 1936, pp. 127–129; "Notes on Brazilian Amphisbaenians," by Karl P. Schmidt, *Herpetologica*, Vol. 1, pp. 28–30, pl. 3; *Artist and Naturalist in Ethiopia*, a book by Wilfred H. Osgood and Louis A. Fuertes, with illustrations by the latter, Doubleday, Doran and Company, New York; "A Second Record of the White-eyed Vireo in Guatemala," by Emmet R. Blake, *The Auk*, Vol. 53, p. 219, April, 1936; "Additional Records of *Neomorphus radiolosus*," by Emmet R. Blake, *The Auk*, Vol. 53, p. 447, October, 1936; "The Terminology of Reptilian Musculature," by D. Dwight Davis, *Herpetologica*, Vol. 1, pp. 12–17, 1936; and "Reducing the Injurious Effects of Formaldehyde in the Museum," by Alfred C. Weed, *Museum News*, Vol. 14, No. 2, pp. 7–8, May 15, 1936.

Contributions of the zoological staff to *Field Museum News* comprised thirteen signed articles and twenty-six brief notes. Data were furnished for thirty-three newspaper releases.

Research on African mammals obtained by various expeditions during the last ten years was continued by Chief Curator Osgood, and preliminary studies were completed with the publication of descriptions of eighteen new forms.

Curator Colin C. Sanborn continued preparation of a special study of the American bats of the family Emballonuridae. Considerable progress was made in compiling the index to the literature pertaining to bats.

Associate Curator Charles E. Hellmayr, working in Vienna, continued with the preparation of the final volumes of the *Catalogue of the Birds of the Americas*, which are to include the birds of prey, the game birds, and the water birds. Research Associate H. B. Conover was actively engaged in assisting Dr. Hellmayr with the volume which will cover game birds. So far as routine duties permitted, Curator Rudyerd Boulton and Assistant Curator Emmet R. Blake engaged in the identification of African and South American birds. Messrs. Harold Hanson and Sidney Camras, volunteer workers, proceeded with the identification of birds from Greenland and from the South Sea islands.

Research in the Division of Reptiles centered on the collections from southwestern Asia, which have been further increased due to the interest of Mr. Henry Field of the Department of Anthropology, and on the Guatemalan and other Central American collections made by Curator Karl P. Schmidt in 1934. The study of the local fauna was continued, and the fall aggregation of blue racers in the Indiana Dunes was again observed. Two studies on the American coral snakes were completed and results published. Reptiles and amphibians collected by Mr. L. C. Cole in Utah and Arizona were identified in the Division with the aid of Curator Schmidt, the greater part of the collection being presented to the Museum.

The mating behavior of snakes was investigated by Assistant Curator D. Dwight Davis. Existing literature on this subject was compiled and analyzed in conjunction with original observations yielding certain novel conclusions as to the relation between the mating behavior of snakes and that of other animals.

Preliminary studies were made on adaptive radiation and convergence in the skulls of snakes. These studies were based on the

Museum's notable collection of specimens. Further study of this collection promises to yield much new and valuable information.

Curator Alfred C. Weed continued work on fishes collected in Fiji by an expedition of the John G. Shedd Aquarium, and on new and interesting fishes collected in the Near East by Mr. Henry Field and others. Preparation of manuscripts for publication has been much delayed by the pressure of routine work. A study of Atlantic sea bass of the genus *Centropristes* also was made, and results will soon be ready for printing.

Many undetermined butterflies and moths in the Museum's collection were properly classified by Dr. E. Murray-Aaron, a competent entomologist employed through the federal Works Progress Administration. In connection with this work 6,393 specimens of lepidopterous insects were studied, 150 name labels were written, 792 previously unnamed species were identified, 1,270 generic and specific names were changed, and 2,043 name labels were supplied with bibliographic notations.

ACCESSIONS—ZOOLOGY

Total accessions for the year amount to 11,481 specimens, of which some 4,000 are insects. The more important specimens of vertebrates were received as gifts and exchanges, material from expeditions or from purchases being relatively scanty. Accessions are classified by zoological groups as follows: mammals, 2,258; birds, 846; amphibians and reptiles, 3,003; fishes, 580; insects, 4,145; lower invertebrates, 649. The number received from Museum expeditions is 3,196; gifts, 5,399; exchanges, 868; purchases, 2,018.

Of particular value among gifts of mammals was a complete specimen of a markhor from Messrs. John M. Simpson and A. Watson Armour III, of Chicago. The Oriental Institute of the University of Chicago presented two wild boars from Syria. Mr. Sasha Siemel, of New York, collected and presented a young Brazilian tapir which will be placed with the adults of the same species in the Museum's group in Hall 16. Dr. J. F. W. Pearson, of the University of Miami, Coral Gables, Florida, collected and presented a collection of 142 bats from Long Island, Bahamas.

Chief Curator Wilfred H. Osgood gave a series of forty-four Ontario mammals collected by himself. Mr. George K. Cherrie, of Newfane, Vermont, sent a collection of twenty-nine small mammals from Texas. Mr. Henry Field, of the Department of Anthropology, added forty specimens from Iraq to his many other gifts from that

country. Mr. H. E. Perkins, of Huron Mountain, Michigan, secured a bobcat for the Museum. Mrs. John Hinaus, of Bruce, Wisconsin, presented an albino bat, the first ever received by the Museum.

The John G. Shedd Aquarium, the Chicago Zoological Society, and the Lincoln Park Zoo presented the Museum with a total of thirty-seven mammals. Most important are a Brazilian manatee from the Shedd Aquarium; a binturong, two gibbons and six kangaroos from the Chicago Zoological Society; a giant ant-eater, zebra, three orang utans and one chimpanzee from the Lincoln Park Zoo. A young chimpanzee was received from Mr. Henry Trefflich, of New York, through the Chicago Zoological Society.

In the Division of Birds, seventy-six gifts from thirty-eight individuals (compared with sixty-six gifts from twenty-seven individuals for 1935), totaling 497 specimens, indicate continued increase in the interest and cooperation of local naturalists.

As in 1935, the most important gifts of birds were those of Mr. Leslie Wheeler and the Chicago Zoological Society. Mr. Wheeler, who is both a Trustee and a Research Associate of the Museum, presented 180 specimens, mostly of hawks and owls, adding many new species and races to the large list of those already represented in the collection, as well as amplifying previously acquired series.

Among 188 birds presented by the Chicago Zoological Society are 127 from northeast Greenland, collected on the Bartlett expedition as noted elsewhere. The remainder are specimens that died during the course of the year in the Society's zoo at Brookfield. Many of these were very rare and valuable, especially for preparation of skeletons and anatomical specimens.

Among other important gifts of birds received during the year were those from Research Associate H. B. Conover, Mr. Henry Field, Mr. A. J. Franzen, of the Department of the N. W. Harris Public School Extension, Major R. D. Hildebrand, of Washington, D.C., Mr. J. Andrews King, of Lake Forest, Illinois, and Mr. Karl Plath, of Chicago.

The most notable gifts of reptiles and amphibians were 273 specimens from Florida, England and Iraq, presented by Mr. Henry Field, and forty specimens from Syria, presented by the Oriental Institute of the University of Chicago. From Mr. Lamont C. Cole, of Chicago, 333 specimens representing Utah and Arizona varieties were received. Forty-five specimens from Panama and Costa Rica were presented by Dr. Emmett R. Dunn, of Haverford, Pennsylvania; forty-nine specimens from Ecuador were received



MODEL ILLUSTRATING STRUCTURE OF THE EARTH

Clarence Buckingham Hall (Hall 35)

Shown are concentric layers of rocks, increasing in weight towards the center, which is a core of metal

from Mr. R. W. Chadwick, of Chicago; 115 specimens from the Bahamas were presented by the Museum of Comparative Zoology, of Harvard University; five specimens came from the Lincoln Park Zoo, and fifty specimens from the Chicago Zoological Society. Several of these were used in preparation of exhibition models.

Many valuable fishes were received as gifts from various sources. An unusually large number of these filled specific needs because the donors had been advised just what would be most desirable.

Gifts of fishes from Mr. Henry Field include a collection containing some new species from the rivers Tigris and Diala, Iraq. Other gifts from Mr. Field include valuable specimens from the west coast of Florida, and a series of the commoner fishes of northeastern Scotland. Many of the species of this latter collection were not previously represented in our study series. To Mr. Field's interest is due also the gift of a collection of specimens from the Tigris and Euphrates rivers, sent by Professor W. P. Kennedy, of the Royal College of Medicine, Bagdad, Iraq.

The John G. Shedd Aquarium has continued to cooperate with the Museum by furnishing many rare specimens for the study collections, as well as valuable information for the taxidermists.

Professor H. W. Norris, of Grinnell College, Grinnell, Iowa, added some very interesting material to the series of jaws and skin samples of the sharks he has been studying. At the request of the Museum, Mr. Fred Ladd, of Wakulla, Florida, forwarded seven very excellent specimens of sea bass from the Gulf of Mexico.

The Chicago Zoological Society gave a small collection of shore fishes of Newfoundland, collected by Mr. Harold C. Hanson while on the Greenland Expedition of 1936. Mr. Robert Zimmerman, of Chicago, presented a small series of the interesting fishes of the reefs and sand flats of Andros Island, Bahamas.

Mr. Emil F. Vacin, of Oak Park, Illinois, added to the collection of game fishes, especially trout, as in previous years, and gave some fine specimens showing the variation of fishes planted in a new locality. Mr. Alfred C. Weed, Jr., of Chicago, gave two specimens collected on the west coast of Africa. One of these represented a genus not previously in the study collection.

Much valuable osteological material to fill conspicuous gaps in the collections was received through the cooperation of the Chicago Zoological Society and the Lincoln Park Zoo.

A large number of donors contributed to the collection of insects. Among the larger gifts was a series of 945 specimens pre-

sented by Mr. Henry Field, representing well known but much needed species of England, Scotland and Wales. Mr. Gordon Grant, of Los Angeles, California, gave a collection of 643 insects. Mr. Field gave also 144 lower invertebrates from Great Britain, and Mr. Grant 307 from western North America.

One of the most important exchanges of the year was with the United States National Museum, Washington, D.C., from which Field Museum received 185 bats, adding new genera and many new forms to the collection. Forty specimens of African and South American mammals were received in exchange from the Museum of Comparative Zoology, of Harvard University. By other exchanges, thirty specimens were received from Japan and eleven from West Africa.

Twelve exchanges of birds were effected with eight other institutions and individuals. Although only forty-eight specimens were thus acquired, there were twenty genera, eight species and eight geographical races not hitherto represented in Field Museum's collections.

Exchanges of reptiles and amphibians resulted in the acquisition of 545 specimens. Most of these came from the British Museum; from Dr. Charles E. Burt, of Winfield, Kansas; and from Dr. J. F. W. Pearson, of Miami, Florida. Exchange of fishes was confined to that of one valuable specimen received from the Muséum d'Histoire Naturelle, of Paris. The most important purchase of the year was a general collection from western China, obtained by Mr. Floyd T. Smith. This included 1,581 mammals, 299 birds, 405 amphibians and reptiles, and 72 fishes. Other purchases include two fine clouded leopards from northern India and forty-one miscellaneous mammals from Ecuador.

Material from expeditions was sparse, and largely confined to specimens collected in previous years but for various reasons not incorporated in the collections at the time of receipt. As mentioned elsewhere, a small but valuable collection was made by Mr. Harold C. Hanson, a volunteer assistant in the Division of Birds, who was enabled to accompany an expedition to Greenland with Captain Robert A. Bartlett under the auspices of the Chicago Zoological Society. Mr. Hanson's collections include 127 beautifully prepared birdskins, as well as skeletons, anatomical material, and birds' stomachs for use in the study of food habits.

As part of Field Museum's share of the collections of the Vernay-Lang Kalahari Expedition (1930) there was received, in 1936, a

series of named South African fishes numbering 126 specimens forwarded by the Transvaal Museum of Pretoria, South Africa.

CATALOGUING, INVENTORYING, AND LABELING—ZOOLOGY

The number of zoological specimens catalogued was 8,473. They are divided by subjects as follows: mammals, 743; birds and birds' eggs, 4,212; reptiles and amphibians, 2,599; and fishes, 919. About 24,000 small mammal skins were cleaned and degreased with benzine. Some 600 cards were added to the reference index of new forms of mammals. To the card index of the mammal collection, 500 cards were added and 1,500 cards were corrected and rewritten. Old-style skull vials were replaced and new labels written for them to the number of 3,400. Other skulls numbered and labeled amounted to 1,086. All original mammal labels not attached to specimens were numbered and filed consecutively in small envelopes. New labels were written for about 200 drawers, and for about 150 alcohol bottles. Thirty-three exhibition labels were written.

Work was begun on a survey of the Museum's collection of pamphlets dealing with mammals so that missing papers can be secured and pamphlets bound. Work was also started on sorting and labeling the collection of photographs of mammals.

In the Division of Birds unusual activity prevailed, and much progress was made in the arrangement of specimens and the perfection of records and adjuncts to their efficient utilization.

Specimens of birds belonging to fifty families were properly arranged so that individual specimens can be readily found, and space was allowed for expansion of the collection. This makes a total of seventy-two families now in good condition, slightly less than half the collection. Specimens from the New World, to the number of 11,730, were carded, making forty-four families now complete. Added to those of last year, this gives a total of 14,895 specimens carded. A geographic card index file of all these specimens was also completed.

Typewritten labels to replace old illegible labels were prepared for 14,895 specimens. Identifications were lettered in pencil on 13,961 of them, and 9,000 labels were sewed to the original labels and tied on the specimens. This work was made possible largely by a special typewriter, equipped with very small type, presented by Trustee Leslie Wheeler.

About one hundred large trays for storage cases were rebuilt, and the lining of trays with sheet cotton was continued, the number lined during the year being 1,497, which brings the total to 2,373. More than 200 especially valuable study skins of birds were degreased and repaired, most of them being entirely remade. A file of all birds permanently removed from the collection by exchange, sale, or otherwise, was prepared, totaling 1,383 entries.

Much checking of identifications of study skins of birds was accomplished, including identifications of two-thirds (about 2,000) of the specimens in the Coale Collection received in 1935; the checking, cataloguing and distributing of all non-passerine birds of the Ethiopian collection, and the identification and partial cataloguing of the Cornelius Crane Pacific collection.

Among the bibliographic enterprises completed in the Division of Birds are the following: compilation of 9,495 author titles of New World birds complete from 1900 to 1934; compilation of all (728) New World birds described as new up to 1934, since the publication of the various volumes of the *Catalogue of the Birds of the Americas*; refileing and recarding of the Museum's collection of pamphlets on birds (997 titles to date); compilation of all (104) birds described as new since the publication of Peters's *Birds of the World*; compilation of all (529) African birds described as new since the publication of Sclater's *Systema avium Ethiopicarum*.

Six maps (18" x 24") of Field Museum's zoological expeditions were made on appropriate projections showing routes, dates, and collecting stations. Projections were calculated and four large (30" x 40") wall maps of the New World and Africa were constructed on which were plotted the localities of birds in Field Museum's collections. Seven maps for transparent exhibition labels were made, and three outline maps were drawn for photogravure reproductions to be used in plotting data and for publication.

The Museum's collection of birds' eggs was unpacked, preparatory to final arrangement. One hundred and ninety-seven miscellaneous sets were catalogued, carded, labeled and arranged in new pasteboard trays, 385 sets were identified and arranged in new pasteboard trays, and 2,026 sets of the Barnes American collection were catalogued.

A mounted and bound atlas of all available sheets of the American Geographical Society's *Millionth Map of Hispanic America* was presented to the Division by Trustee Leslie Wheeler, Research Associate H. B. Conover, and Curator Rudyerd Boulton. Four

map frames for holding the reference maps being drawn in the Division were acquired.

Cataloguing of reptiles and amphibians was kept up to date. The number of entries for the year is 2,599, including 106 for osteological material. Forty exhibition labels for lizards were rewritten to conform with others in Albert W. Harris Hall (Hall 18), and a small map indicating distribution was added for each species. Further progress has been made in labeling, made necessary by the rearrangement of the study collection which has been begun in the new steel cases on the fourth floor. Printed labels are now in preparation for both cases and drawers containing the main collection in Room 88.

Facilities for the storage of study collections of reptiles and amphibians have been improved by the addition of twenty-six steel cases on the fourth floor. This has made possible the elimination of the unsightly and bulky tanks in Room 88. These are now enclosed in cases, into which they are raised by a simple but ingenious carrier. Space gained in Room 88 is used for additional storage cases and for much needed expansion of the study tables.

Considerable progress has been made in the work of separating specimens of fish remaining in large containers, which often were very poorly labeled, and in which they could be found for study purposes only after long and laborious search. Work so far accomplished encourages the hope that, by the end of another year, practically all material in the study series may be so arranged that any desired specimen can be located within a few minutes. During the year 1,221 gallons of used alcohol were taken to the still. Reclaimed alcohol to the amount of 980 gallons at an average strength of 77 per cent was received, equivalent to 1,091 gallons at 69 per cent for return to the specimens.

Steel doors were added to the stacks set apart for the types of fishes and other valuable material in the study collection. Practically all of these valuable specimens have now been separated from the general collection, and placed where they will not be injured by the effects of light and where they can receive careful attention.

The bibliographic project in the Division of Fishes was advanced by the indexing of seventeen bound volumes of short ichthyological papers.

Osteological material was catalogued under divisional subjects and also by card index in the Division of Osteology and Anatomy, the number of entries being 444. Of these, 49 were mammals, 289

birds, and 106 amphibians and reptiles. Many desirable alcoholic specimens were transferred from other divisions and prepared as skeletons. Total accumulations of the year in osteology are 635 specimens, bringing the total collections to 2,289, an increase over 1935 of more than 34 per cent.

With the cleaning of 1,111 mammal skulls, preparation of this type of material was brought up to date for the first time in the history of the Museum. This made possible a concerted attack on the accumulation of skeletons, most of which require cleaning by hand. A record total of 875 osteological specimens, in addition to mammal skulls, was prepared during the year. In order to accommodate this material, considerable rearrangement and expansion were necessary. Much additional storage space was obtained, and the flexibility of the collections was greatly increased by cutting down deep drawers to make 150 three-inch trays for storage of small specimens. Labels were printed for all storage cases.

An outstanding accomplishment of the year was the preparation of a comprehensive collection of nearly 400 snake skulls. These were removed from alcoholic specimens without serious damage to the latter, and cleaned. This is the only extensive collection of snake skulls in the United States, and promises to yield much valuable information. The bodies of two mammals and seven reptiles were embalmed and added to the series of vertebrate types preserved for study of soft anatomy. A much needed book-case was installed in the office of the Division.

No insects were catalogued, but, as in the past, all accessions were recorded and indexed according to locality, donor and collector. For the installation of eight cases of lower invertebrates, thirty-six descriptive labels were prepared, and 777 name labels were verified and changed, when necessary, to conform to recent classifications. In continuation of the arrangement of the several collections of North American beetles, 2,749 specimens, requiring 405 species labels, were determined, largely repinned, and placed in fourteen new drawers.

Student-assistants provided volunteer service in the Department as in former years. In the Division of Birds, Mr. Harold Hanson, Mr. Sidney Camras, and Mr. William Beecher have furnished valuable aid. Mr. Walter Necker continued from time to time as a volunteer in the Division of Amphibians and Reptiles. Mr. Chester Roys assisted in the preparation of insects and in the installation of lower invertebrates.

The assistance of workers provided by the federal Works Progress Administration was of very great advantage throughout the Department. The type of work done by such workers was much the same as in 1935, but due to continuity of employment and better training, as well as to the larger number engaged, very much more was accomplished.

INSTALLATIONS AND REARRANGEMENTS—ZOOLOGY

Although the preparation of large mammal groups proceeded at the usual rate, only one group was fully completed. Several others were in advanced stages at the end of the year, including groups of harbor seal for the Hall of Marine Mammals (Hall N), and of Asiatic takin for William V. Kelley Hall (Hall 17). A group of Colobus or guereza monkeys from Ethiopia also was nearing completion for exhibition in Carl E. Akeley Memorial Hall (Hall 22).

The group of Bengal tiger, installed in Kelley Hall in 1934, was improved by alteration. The male tiger was remounted and placed in a slightly different position. Although the change is not great, it is in the direction of a less tense and dramatic position for the animal, giving it better conformity with the subjects of other groups in the hall. The male tiger now stands over its kill merely snarling and defiant, while the female stands at one side, half-crouched and ready to slink away.

The one finished group of large mammals is that of the white-tailed gnu or black wildebeest of South Africa, installed in Akeley Hall. This includes six specimens—males, females, and young—rather closely aggregated in conformity with the highly gregarious habits of the species. The setting is that of open plains such as those where the species once roamed in great herds but where, for the most part, it is now extirpated. The group is perhaps the only one of this species in existence, for as a truly wild animal the species is exceedingly scarce, being preserved mainly on private lands where natural conditions are still available. The specimens for this group were received through the generosity of Mr. Arthur S. Vernay, having been collected by the Vernay-Lang Kalahari Expedition (1930). The taxidermy is by Staff Taxidermist C. J. Albrecht.

Further additions to Akeley Hall were made by reinstallation of a hippopotamus and a white rhinoceros in special cases with natural groundwork.

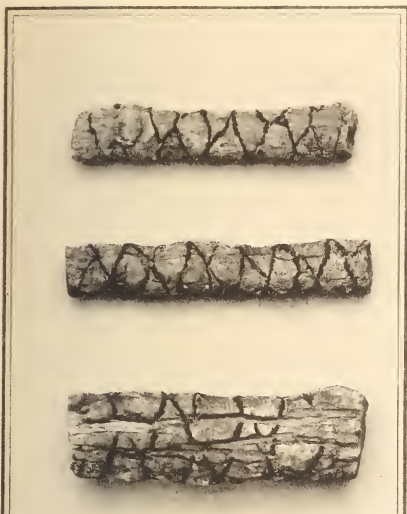
Various important additions were made to the systematic exhibit of horned and hoofed mammals in George M. Pullman Hall (Hall 13).

In one case, two forms of wild oxen were installed—the Philippine tamarao, and the banting of southeastern Asia. The tamarao, a sort of dwarf buffalo, known only from Mindoro Island and probably nearing extinction, was collected and presented by Mr. A. W. Exline, a resident of the Philippines. The banting, a very fine, richly colored specimen, was collected by the William V. Kelley-Roosevelts Asiatic Expedition (1928). Both of these wild oxen were mounted by Staff Taxidermist Julius Friesser. Further additions to Pullman Hall include a blue sheep shot by Colonel Theodore Roosevelt in western China, a four-horned antelope shot by the late Colonel J. C. Fauntorpe in India, and an Ethiopian ibex obtained by the Field Museum-*Chicago Daily News* Ethiopian Expedition. These were mounted by Assistant Taxidermist W. E. Eigsti.

In Hall 15 one case of marsupials was reinstalled with important additions and substitutions, also prepared by Mr. Eigsti. The new animals shown are the red kangaroo, Matchie's tree kangaroo, the Australian native cat or dasyure, and the spotted cuscus of New Guinea. The last of these was collected by the Cornelius Crane Pacific Expedition (1928-29), and the others were presented by the Chicago Zoological Society.

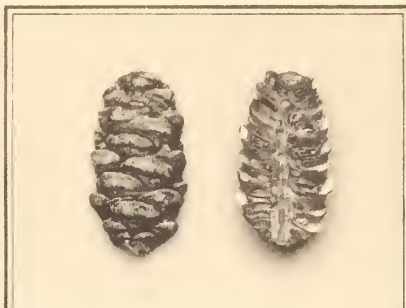
Much progress was made in Hall 20, where a series of habitat groups of foreign birds is under way. The emperor penguin group from "Little America" was completed and opened for exhibition. Eight specimens of this, the largest of penguins, collected by Rear Admiral Richard E. Byrd, on his Second Antarctic Expedition (1935) and presented to the Museum by the Chicago Zoological Society, are shown on the Ross Ice Shelf with the Barrier Reef of ice in the background. A small party of penguins is seen in the rear, hastening from open water some miles in the distance to join the group in the foreground. A sky filled with snow clouds adds to the impression of extreme cold. The specimens were mounted and installed by Staff Taxidermist John W. Moyer. The background was painted by Staff Artist Charles A. Corwin and Staff Taxidermist Arthur G. Rueckert.

Three other groups in Hall 20 were practically completed, in preparation for opening early in 1937. These are the Mount Cameroon forest group, the weaver-bird group, and the Kalahari Desert group. The specimens for the Mount Cameroon group were collected by Curator Rudyerd Boulton and Mrs. Boulton on the Straus West African Expedition (1934), and were presented to the Museum by Mrs. Oscar Straus, of New York. The group



P 14014, 14015

Leafscarred Branches
Proaucarlia species
 Cerro Cuadrado Fossil Forest
 Province of Santa Cruz, Argentina



P 13949

Fossil Cone (Carpellate)
Proaucarlia patagonica Wiel.
 (Type Specimen)
 Cerro Cuadrado Fossil Forest
 Province of Santa Cruz, Argentina



P 13869

Fossil Cone, Sectioned Obliquely
Proaucarlia mirabilis (Speg.) Wiel.
 Cerro Cuadrado Fossil Forest
 Province of Santa Cruz, Argentina



P 13823

Fossil Cone Entire (Carpellate)
Proaucarlia mirabilis (Speg.) Wiel.
 Cerro Cuadrado Fossil Forest
 Province of Santa Cruz, Argentina



P 13812

Fossil Cone (Carpellate)
Proaucarlia mirabilis (Speg.) Wiel.
 Cerro Cuadrado Fossil Forest
 Province of Santa Cruz, Argentina

FOSSIL CONES AND TWIGS

Ernest R. Graham Hall (Hall 38)

Specimens from evergreen trees related to the *Araucaria* of Australia and South America

Collected by the Marshall Field Paleontological Expedition

in the Cerro Cuadrado fossil forest of Argentina

shows the junction of the lowland rain forest and the mountain rain forest at an altitude of 5,000 feet on the slope of Mount Cameroon in West Africa. The peak of the mountain, 13,353 feet high, is just discernible in the background. A flock of six plantain eaters is feeding on the fruit of a wild fig tree. Thrushes and fruit pigeons have also gathered to the feast. The disturbance has attracted several other species. Six species of birds found only on Mount Cameroon, and three other species widespread in West African forests, are shown. Twenty-seven species of plants, all collected on the mountain, are included in the group, helping to give the effect of tangled luxuriance. Three species of butterflies and the Goliath beetle are also shown. Rain drops on the leaves of the *Dracaena* and fig, and heavy, low-lying mist, help to create the illusion of excessive humidity in a place where the normal rainfall is more than forty feet in a year. The birds were mounted by Taxidermist Rueckert, and the vegetation was made under the direction of Preparator Frank Letl. The background was painted by Messrs. Corwin and Rueckert.

The weaver-bird specimens also were collected by Mr. and Mrs. Boulton on the Straus Expedition, and presented by Mrs. Straus. The group shows a nesting colony of village weaver-birds in a gully on the bank of the Niger River at Niamey in French West Africa. Ten or fifteen nests in various stages of construction are shown in an abellia tree, closely related to the acacias and popularly called "woman's tongue tree," because the loose seeds in its large pods are constantly rattling in the wind. In the background, on the bank of the river, is a native village. About twenty birds in their bright orange, black, and yellow livery are seen at their nests engaged in various activities. The birds were mounted by Taxidermist Moyer, the accessories were made under the direction of Mr. Letl, and the background was painted by Mr. Corwin.

The Kalahari Desert group was virtually completed. The specimens were collected by the Vernay-Lang Kalahari Expedition (1930), and presented by Mr. Arthur S. Vernay, of New York and London. Gomodimo Pan, a waterhole in the semi-desert, is shown in the background, and to it flocks of yellow-throated sand-grouse are coming to drink. In the foreground, a small flock of sand-grouse have alighted. Two white-quilled bustards are stalking a lizard, while a double-banded courser scuttles out of the way. A pair of scarlet-breasted shrikes observe the commotion from their vantage point in a red aloe. In the background a giant bustard displays

before his mate, and a bateleur eagle soars overhead. The birds were mounted by Taxidermist Rueckert, the accessories were prepared under the direction of Mr. Letl, and the background was painted by Messrs. Corwin and Rueckert.

In all the aforementioned groups, the accessories were made with the assistance of Works Progress Administration workers, whose services amounted to several thousand hours.

Four other habitat groups for Hall 20—those of toucan, quetzal and oropendula collected by the Leon Mandel Guatemala Expedition (1933-34), and the red grouse collected by Mr. Henry Field—are in various stages of preparation.

In Hall 21, additions to the systematic exhibit of birds were relatively few. Notable were several species of penguins to complete a synoptic exhibit of the group to which they belong. An important substitution was that of a fine African ostrich for a specimen mounted many years ago. The new specimen was prepared by Staff Taxidermist Leon L. Walters, and Assistant Taxidermist Edgar G. Laybourne. The head, neck, legs, and feet are reproduced by the "celluloid" process invented by Mr. Walters, which is particularly suitable to a bird of this kind having extensive naked or nearly naked and delicately colored parts.

Rearrangement of the exhibition cases of amphibians and reptiles, begun in 1935, was completed in 1936, with the addition of nine models of snakes and eight of lizards. Notable among the snakes placed on exhibition were the fer-de-lance, the most important poisonous snake of tropical America, made from a specimen brought to the Museum by the Mandel Guatemala Expedition; the common European viper; and the blue racer and milk snake from the Chicago area. Especially notable among the lizards are the Galapagos land iguana, and the large East Indian monitor. Models of two species of the large lizards of the family Scincidae, characteristic of Australia, were added to the exhibition series, based on material received from the Chicago Zoological Society. Other models completed during the year are a prairie rattlesnake, a large lizard representing the African family Gerrhosauridae, a western spade-foot toad, and the large Jamaican tree frog. Molds were made of a variety of interesting forms acquired from the Chicago Zoological Society and from the Lincoln Park Zoo.

In order to display in a more attractive manner the lower invertebrates that were formerly on exhibition, eight cases were installed with sponges, millepores, sea-fans, corals, sea-stars and

sea-urchins. These were placed in Albert W. Harris Hall (Hall 18). Although most of the specimens consist only of the calcareous or horny skeleton of the animals, glass models are utilized to show the color and form of soft-bodied creatures, like jellyfish, sea-anemones and sea-cucumbers. The cases were prepared for exhibition, under the supervision of Curator William J. Gerhard, by preparators in the Department of Anthropology, who are especially qualified for such work.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

A quarter of a century has now passed since the founding, through the generosity of the late Norman Wait Harris, of this Department for the extension of Museum benefits into the Chicago schools. During these twenty-five years Museum preparation and exhibition methods have advanced markedly. This Department has kept pace with the improvements in technique, the most important of which are the development of the cellulose-acetate method for reproducing perishable specimens and accessories, the use of sheet celluloid in the making of flower petals and leaves of plants, the use of balsa wood for bodies in mounting birds and small mammals, and the installation of curved colored backgrounds in habitat exhibits. It is essential that Harris Extension exhibits be true to nature, attractively installed, durable enough to withstand frequent transportation, yet light enough to be handled by children.

The Department of the N. W. Harris Public School Extension has currently available for loan to the schools 1,212 traveling exhibits, after withdrawal during 1936 of eighteen cases which, due to long use, deterioration of specimens, loss of present-day interest, or irreparable damage, were no longer of value. Included in the total in service are twenty-one new cases which were completely prepared and installed during the year. Sixty older cases were completely reinstalled, repairs of varied extent were made on 353 cases, and several more new ones were under way at the end of the year.

The reinstallation activities of the Department staff have been concerned chiefly with the changing of case interiors and specimen plaques, and the adoption of labels printed on the buff-colored stock now used for all the Museum's exhibits. Where it seemed desirable, replacements were made with new specimens or accessories. Better methods of attaching specimens to the plaques have been developed, resulting in greatly improved appearance of the exhibits.

During 1936 a larger number of educational institutions was served than at any previous time, the total being 446, an increase of thirty-one over the preceding year. Of these, 379 were public schools with an enrollment of 463,539 pupils. Sixty-seven other institutions, including thirty-three parochial schools, eight private schools, two Boys' Union League Clubs, eight social settlements, seven branches of the Y.M.C.A., and nine branches of the Chicago Public Library, were also served. These organizations made the exhibits available to approximately 250,000 additional persons.

Special loans of several cases were made to the Chicago Council of the Boy Scouts of America for their annual circus, and to the International Horticultural Exposition, both of which were held at the International Amphitheatre of the Union Stock Yards. Cases were sent also to the Algonquin, Illinois, summer camp of the United Charities of Chicago. Three cases were loaned to the Museum and Art Institute of Kalamazoo, Michigan.

All cases were returned to the Department laboratories at the close of the school year, and were given a thorough inspection and cleaning during the summer.

To maintain the regular bi-weekly delivery of 892 cases, two to each school, two new motor trucks, especially equipped, were placed in operation at the beginning of the fall semester, displacing the trucks formerly in use. Total mileage of Museum trucks in this service was 11,266 for the year.

As in past years, many letters were received from school authorities and others showing a growing interest in and appreciation of the educational value of the Harris Extension work.

THE JAMES NELSON AND ANNA LOUISE RAYMOND FOUNDATION FOR PUBLIC SCHOOL AND CHILDREN'S LECTURES

In 1936, as in previous years, the James Nelson and Anna Louise Raymond Foundation has provided series of entertainments, lectures, and other activities for the education and enjoyment of children. Included were special patriotic programs, and the regular spring and autumn courses of motion picture programs presented in the James Simpson Theatre of the Museum, as well as guide-lecture tours of the exhibits available to parties of children throughout the year, and extension lectures given in classrooms and assembly halls of the schools. A new record was made in the number of groups

coming to the Museum for conducted tours; also, there was an increase in the number of requests for lectures in the schools.

ENTERTAINMENTS FOR CHILDREN—RAYMOND FOUNDATION

The programs in the Saturday morning series of free motion pictures, presented in the James Simpson Theatre during the spring and autumn, are appended:

SPRING COURSE

- March 7—Chumming with Chipmunks; The Gallas and Their Cattle; Making the Deserts Bloom; The Lair of the Spider.
 March 14—When Jellyfish and Starfish Meet; The Iceberg Patrol; Spinning and Weaving.
 March 21—Cliff Dwellers; In the Land of Mountain Sheep; The Beauties of a Great National Forest; Birds and Beasts of the American Desert.
 March 28—Children of the Balkans; "Thar She Blows;" Toads; Earthquakes.
 April 4—The Silent Enemy.
 April 11—Who's Who in the Zoo; A Visit to Boulder Dam; Where the Bananas Grow.
 April 18—Glimpses of the Ethiopians at Home; Mystery of the Ferns; Travel Through the Ages; Strange Animals of the Galapagos.
 April 25—Springtime; The Deadly Mosquito; The Animals Call a Congress; The Bees—How They Live and Work; When Summer Comes.

AUTUMN COURSE

- October 3—Indians at a Pow-wow; The Fish That Builds a Nest; Whale and Walrus Hunting in Alaska; The Indian at Work.
 October 10—The Coral Polyp and Its Work; The Adventures of Columbus.*
 October 17—Blowing Soap Bubbles; The Friendly Elephant Seal; Sea Shells and Their Uses; Palms and Cacti; Charming Ceylon.
 October 24—The Parade of Comic Balloons; A Visit to a Rubber Plantation; Glass Blowing; Glimpses of Java.
 October 31—Ship Ahoy!; Leading a Dog's Life; Children of Holland; Chumming with Animals.
 November 7—Trailmates (*The story of Wrongstart, a dog, and his master in Alaska*).
 November 14—Our Neighbors, the White-tailed Deer; Where Pineapples Grow; The Story of Sulphur; Strange Salt Workers of Formosa.
 November 21—In the Days of Chivalry; Armor of Horse and Man; Where Ostriches and Rhinos Meet; Beautiful Iguassu.
 November 28—Forest Folk; The Pilgrims.*

* Gift to the Museum from the late Chauncey Keep.

In addition to the regular series of entertainments, two special programs were offered in February as follows:

- February 12—Lincoln's Birthday Program: My First Jury; The Call to Arms.
 February 22—Washington's Birthday Program: Washington, the Boy and Man.

In all, nineteen programs in the Simpson Theatre were offered to the children of the city and its suburbs. Total attendance at these entertainments was 25,759. Of this number, 4,381 came to the special programs, 8,824 to the spring course, and 12,554 to the autumn series.

The following newspapers gave publicity to the programs: *Chicago Daily News*, *Chicago Tribune*, *Chicago Herald and Examiner*, *Chicago Evening American*, and *Chicago Daily Illustrated Times*.

To the Chicago, Rock Island, and Pacific Railroad, and the Goodyear Tire and Rubber Company, expressions of appreciation for films loaned for the programs are herewith made.

MUSEUM STORIES FOR CHILDREN—RAYMOND FOUNDATION

Two series of Museum Stories for Children were prepared by members of the Raymond Foundation staff. These were printed by Field Museum Press in folder form, and all children attending the entertainments were handed copies. In subject, some of these stories were correlated with films shown in the Simpson Theatre. The titles of the stories in each series were as follows:

Series XXVI—The Cattle Family; The Story of Flax; The Story of Mesa Verde; Earthquakes; Indian Bows and Arrows; Tropical Fruits; Ferns; The Grasshopper Family.

Series XXVII—North American Indian Beads; Coral Gardens; The Cactus Family; Balloons and Their Uses; The Koala or Real Teddy Bear; Land of Copper and Caribou; The Story of Common Salt; Armor Through the Ages; Gourds and Pumpkins and Their Uses.

Copies of these stories were distributed to children during the summer by displaying them at the North Door in a holder from which they could be taken, in addition to the regular distribution effected at entertainments. The year's total distribution of the stories was 37,500 copies.

LECTURE TOURS FOR CHILDREN—RAYMOND FOUNDATION

Classwork in the exhibition halls was extended to the following groups:

	Number of groups	Attendance
Tours for children of Chicago schools		
Chicago public schools	470	16,673
Chicago parochial schools	34	1,065
Chicago private schools	10	186
Tours for children of suburban schools		
Suburban public schools	202	6,147
Suburban parochial schools	12	474
Suburban private schools	9	169
Tours for special groups from clubs and other organizations	73	3,566

Guide-lecture service was given to 810 groups in all, and the attendance was 28,280. During the month of May alone, 104 groups from the public schools of the city, and sixty-three from suburban schools were served, each receiving one hour's attention

from a guide-lecturer. On December 1, a party of 706 girls, assembled from communities in forty-four states and Canada as delegates to the National 4-H Clubs Congress, was given special guide-lecture service for tours of certain halls. On December 3, the 4-H Clubs sent 700 boys for similar tours. These boys and girls, representative of the finest types of rural youth, later sent hundreds of letters evincing their keen interest in and appreciation of the Museum's exhibits.

EXTENSION LECTURES—RAYMOND FOUNDATION

Extension lectures were offered to the schools, as in previous years. The subjects presented in classrooms and assemblies, before audiences of both high and elementary schools, were as follows:

FOR GEOGRAPHY AND HISTORY GROUPS

Glimpses of Eskimo Life; South America; North American Indians; Glimpses of Chinese Life; Native Life in the Philippines; Mexico and Its Southern Neighbors; The Romans; The Egyptians; Migisi, the Indian Lad.

FOR SCIENCE GROUPS

Field Museum and Its Work; Prehistoric Plants and Animals; Insects and Reptiles; The Story of Rubber; Coal and Iron; Coffee, Chocolate and Tea; A Trip to Banana Land; Birds of the Chicago Region; Animal Life in the Chicago Region; Trees of the Chicago Region; Wild Flowers of the Chicago Region; Animals at Home; Our Outdoor Friends.

The extension lectures given by the staff of the Raymond Foundation totaled 444, and the aggregate attendance was 165,757.

ACCESSIONS—RAYMOND FOUNDATION

The Raymond Foundation acquired during the year, for use in the Theatre and the extension lectures, 674 slides made by the Division of Photography. The Museum Illustrator colored 370 of these.

The Foundation received also 3,600 feet (4 reels) of motion picture film entitled *Trailmates*, made and presented by Captain Jack Robertson, of Oakland, California; and 4,000 feet (4 reels) of film entitled *Undersea Life*, taken by Mr. J. E. Williamson, of Lake Worth, Florida, leader of the Field Museum-Williamson Undersea Expedition to the Bahamas (1929).

LECTURE TOURS AND MEETINGS FOR ADULTS—RAYMOND FOUNDATION

As in other years, guide-lecture service was made available without charge to clubs, conventions, colleges and other organizations, and to Museum visitors in general. In addition to the regular afternoon tours, morning tours were given during July and August.

For the information of visitors, printed monthly schedules were distributed at the main entrance, and through cooperating agencies such as libraries and other civic centers throughout the city and in the suburbs as well. The public tours included 106 of a general nature, and 196 covering specific subjects. These were taken advantage of by 292 groups, comprising 5,204 individuals. In addition to the public tours, there were special tours for ninety groups from colleges, clubs and other organizations, in which 1,911 persons participated.

The Board of Education used the James Simpson Theatre on June 4 for the commencement exercises for 837 foreign-born adults. On November 2, the small lecture hall was used for three discussions of Field Museum and its work, attended by 509 high school students. These lectures were followed by conducted tours.

SUMMARY OF ATTENDANCE AT ENTERTAINMENTS, LECTURES,
TOURS, ETC.—RAYMOND FOUNDATION

The number of groups reached through the activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures totaled 1,659, and the aggregate attendance included in these groups numbered 228,257 individuals.

LECTURES FOR ADULTS

During the spring and autumn months the Museum's sixty-fifth and sixty-sixth courses of free lectures for adults were given on Saturday afternoons in the James Simpson Theatre. They were illustrated, as usual, with motion pictures and stereopticon slides. Following are the programs of both series:

SIXTY-FIFTH FREE LECTURE COURSE

- March 7—Where Rolls the Oregon.
Dr. William L. Finley, Portland, Oregon.
- March 14—Gold, Diamonds and Orchids.
Mr. William La Varre, New York.
- March 21—Getting the Killer.
Mr. Sasha Siemel, New York.
- March 28—A New Dinosaur Kingdom.
Mr. Barnum Brown, American Museum of Natural History,
New York.
- April 4—In the South Seas on the *Zaca*.
Dr. James P. Chapin, American Museum of Natural History, New
York.
- April 11—The Barbary States.
Mr. H. C. Ostrander, Jersey City, New Jersey.
- April 18—Exploring the Atlantic's Greatest Deep.
Dr. Paul Bartsch, Smithsonian Institution, Washington, D.C.



EMPEROR PENGUIN

Hall 21

Specimens collected by the Second Byrd Antarctic Expedition, 1935

Presented by Chicago Zoological Society

Taxidermy by John W. Moyer

Background by Charles A. Corwin and Arthur G. Rueckert

April 25—The Four Arab Kingdoms by Camel and Car.
Mr. Clarence W. Sorensen, Denver, Colorado.

SIXTY-SIXTH FREE LECTURE COURSE

- October 3—Alone across Arctic America.
Mr. David Irwin, Grand Rapids, Michigan.
- October 10—Real Australia—the Land That Is Different.
Rev. James Marshall, Turramurra, Sidney, New South Wales,
Australia.
- October 17—Sun and Silence in Death Valley.
Mr. John Claire Monteith, Hollywood, California.
- October 24—Siam and Java—Oriental Wonderlands.
Mr. Branson De Cou, New York.
- October 31—Awakening of Iran.
Mr. Herrick B. Young, New York.
- November 7—Recent Discoveries in the Maya Field.
Dr. Sylvanus G. Morley, Carnegie Institution, Washington,
D.C.
- November 14—Some Wonders of the Plant World.
Mr. Arthur C. Pillsbury, Berkeley, California.
- November 21—Ceylon, the Island of Spice.
Mr. H. C. Ostrander, Jersey City, New Jersey.
- November 28—Into the New World under the Sea.
Mr. J. E. Williamson, Lake Worth, Florida.

The total attendance at these seventeen lectures was 17,557 persons, of whom 8,973 attended the spring course, and 8,584 the autumn course.

SUMMARY OF ATTENDANCE AT LECTURES, ETC.

The Museum rendered instruction or other services during the year to a total of 1,676 groups, aggregating 245,814 individuals. These figures include the 1,659 groups and 228,257 individuals reached through the activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, as well as the 17,557 persons attending the adult lectures, and the 1,346 persons attending the meetings of outside organizations to which the James Simpson Theatre and the small lecture hall were made available.

LIBRARY

During 1936 important physical improvements have been made in the Library. Appearance and convenience have been served by making a new entrance into the room across the hall from the reading room, directly opposite the doors of the latter.

Many books which showed wear resulting from years of hard usage were repaired and returned to the shelves during the year. All the leather-bound books have been treated with oil, which

has bettered their appearance and prolonged their serviceability. For years the binding of books and periodicals had been deferred and the amount of work accumulated had become appalling. In the past year, with the aid made available by the assignment of federal Works Progress Administration workers, a beginning has been made on this task. Concurrently with repairs and binding, the shelves are being cleaned, and an inventory is under way.

The Library's most important source of accessions is its exchanges. These bring the latest information on scientific work being done in this and other countries. As in previous years, many desirable publications have been received during 1936 through this medium.

An attempt has been made to obtain complete sets of the publications of a few scientists who had in earlier years favored the Library by sending copies of some of their writings. These requests have met with most gracious response.

During the year there have been more than 5,000 accessions of books and pamphlets, bringing the total number of works now in the Library to 105,032. It is gratifying to note that the Library is proving year after year to be of increasing utility to members of the staff of all Departments of the Museum. This growing use of the books emphasizes the necessity of continuing efforts to obtain further material for which demands have been made. Not only are current works sought, but older books also are frequently required for comparative study. The Library has partial files of various periodicals that are much used, and it is hoped gradually to complete many of these. A few years ago financial conditions compelled the Library to cancel subscriptions to many periodicals. Some of these were resumed in 1936, and at the same time the volumes for the intervening years were bought. An important purchase was that of early volumes of *Zoologischer Anzeiger*, completing to date the file of this valuable periodical.

Among desirable books of recent publication added by purchase during the year were: R. Bourret, *Les serpents de l'Indo-Chine*; Fuertes and Osgood, *Artist and Naturalist in Ethiopia*; A. Eckardt, *History of Korean Art* (translated from the German by Kindersley); M. Hoffman, *Heads and Tales*; J. R. Partington, *Origins and Development of Applied Chemistry*; G. C. Robson, *The Species Problem*; W. H. Ukers, *All about Coffee*; W. M. Wheeler, *Ants, Their Structure, Development, and Behavior*.

Of books long listed among the Library's desiderata there have been added: J. R. Aspelin, *Antiquités du Nord Finno-ougrien*; L. H. Bojanus, *Anatome Testudinis Europaeae* (first edition, 1819-1821); Gervais, *Journal de Zoologie* (six volumes, 1872-1877); G. Hegi, *Illustrierte Flora von Mitteleuropa* (1906-1931); Hendley, *Damascening on Steel and on Iron as Practiced in India*; Hendley, *Memorials of the Jeypore Exhibition* (4 volumes, 1883); J. E. Pohl, *Plantarum Brasiliae Icones et Descriptiones Hectenus*; *Reise in innern von Brasilien* (1817-1821); P. Russell, *An Account of Indian Serpents* (1796-1801); L. H. Schneider, *Illustrierte Handbuch der Laubholzkunde*; G. Schuchert, *History of the Geology of the Antillean-Caribbean Region*; Sessé and Mociño, *Flora Mexicana* (second edition); B. Solvyns, *Costume of Hindostan* (1807); O. Swartz, *Nova Genera et Species Plantarum Itinere per Indian Occidental* (1783-1878).

Many welcome gifts have been received from friends of the institution, including members of the staff. Among these the following are especially deserving of mention: *Plantas Utiles de Colombia*, presented by Mr. E. P. Arbelaez; twenty volumes from the Carnegie Institution, Washington, D.C.; four books presented by Mr. Joseph N. Field, Chicago; *Variations and Diseases of the Teeth of Animals*, received from Sir Colyer Frank, London; *Cyrus Hall McCormick, Harvester, 1856-1884*, presented by Mr. Cyrus Hall McCormick, Chicago; *John W. Norton*, a biography, given by Mr. and Mrs. Frank G. Logan, Chicago; *Obras Completas de Ameghino* (volumes 19-22), sent by the Brazilian commission which is publishing this valuable work; *Roumanian Art from 1800 to Our Own Days*, contributed by G. Oprescu; two Tibetan manuscripts presented by the Reverend Theodore Sorensen, of Norway; *Coffee, the Epic of a Community*, given by Mr. Heinrich Edward Jacob; *Niblack's Coast Indians of Southern Alaska and Northern British Columbia*, presented by Mrs. James Ward Thorne, Chicago.

Mr. Stanley Field, President of the Museum, added to his many valuable gifts of previous years a copy of the first edition of Dr. Samuel Johnson's *Dictionary of the English language* (1755), which includes a history of the language and a grammar. This dictionary was the result of seven years' work, and was recognized by the lexicographer's contemporaries as a masterly production. The Museum's copy was formerly in Mr. Field's private library. Mr. Field continued also his gift of current numbers of the *Illustrated London News*.

Curator Rudyerd Boulton, Research Associate H. B. Conover, and Trustee Leslie Wheeler presented the sheets thus far issued of the *Millionth Map*, a publication of the American Geographical Society. This is the base for all comprehensive study of Hispanic America.

Professor F. E. Wood, a volunteer worker, continued his work on the Tibetan manuscripts in the collection bequeathed to the Museum by the late Dr. Berthold Laufer. This material pertains chiefly to the Bon religion. Some of the manuscripts are extremely beautiful, embellished with artistic lettering in gold and silver.

Various libraries have continued their courtesies by lending to Field Museum books required by members of the staff and not available here. Acknowledgment with gratitude is hereby made especially to the following: Library of Congress, Washington, D.C.; United States Department of Agriculture; Army Medical Library, Washington, D.C.; John Crerar Library, Chicago; Library of the University of Chicago; Library of the American Museum of Natural History, New York; Harvard University Library, and the Museum of Comparative Zoology and Peabody Museum of Harvard; and the Newberry Library, Chicago. Field Museum has reciprocated by lending to various libraries books required for research.

DIVISION OF PRINTING

Production of the Division of Printing exceeded by far that of any previous year in the history of the Museum. Many publications for which manuscripts had been completed several years ago, but issuance of which had been delayed because of insufficient labor and mechanical facilities, were printed in 1936. Very little of such deferred work now remains. The heavy increase in production was made possible by the purchase of additional machinery and other equipment, and by the large extra force of compositors, monotype operators, pressmen, binders, assistants in proofreading, and other helpers furnished practically throughout the year by the federal Works Progress Administration.

There were twenty-eight new numbers issued by Field Museum Press in the regular publication series, requiring an aggregate of 4,783 pages of type composition (as against 992 pages in 1935). The number of copies printed was 27,895. Three of these publications were in the Anthropological Series, nine in the Botanical Series, one in the Geological Series, fourteen in the Zoological Series, and one was the *Annual Report of the Director* for 1935. In addition,

813 copies were printed of a 26-page index for Volume XI of the Botanical Series. Besides the regular series, miscellaneous publications of the year include a 16-page booklet in the Museum Technique Series, of which 666 copies were printed; and six numbers in the Leaflet Series (three on anthropological, and three on botanical subjects), aggregating 468 pages of type composition, and printed in editions totaling 11,014 copies.

The total number of exhibition labels printed for all Departments of the Museum was 7,651. Other miscellaneous work, such as the twelve issues of *Field Museum News*, Museum stationery and supplies, etc., brought the total number of impressions for the year to a total of 549,175.

Following is a detailed list of the publications:

PUBLICATION SERIES

- 350.—Botanical Series, Vol. XII. The Forests and Flora of British Honduras. By Paul C. Standley and Samuel J. Record. January 27, 1936. 432 pages, 16 photogravures. Edition 831.
- 351.—Botanical Series, Vol. XIII, Part I, No. 1. Flora of Peru. By J. Francis Macbride. January 27, 1936. 320 pages, 1 map. Edition 796.
- 352.—Botanical Series, Vol. XI, No. 5. Studies of American Plants—VI. By Paul C. Standley. February 10, 1936. 134 pages. Edition 763.
- 353.—Zoological Series, Vol. XXI. Fishes of the Crane Pacific Expedition. By Albert W. Herre. April 15, 1936. 473 pages, 50 photogravures. Edition 784.
- 354.—Report Series, Vol. X, No. 3. Annual Report of the Director for the Year 1935. January, 1936. 136 pages, 12 photogravures. Edition 5,488.
- 355.—Botanical Series, Vol. XIV. Index of American Palms. By B. E. Dahlgren. April 30, 1936. 456 pages. Edition 819.
- 356.—Anthropological Series, Vol. XXIII, No. 1. Lowry Ruin in Southwestern Colorado. By Paul S. Martin. June 4, 1936. 216 pages, 112 photogravures, 54 text figures, 4 maps. Edition 650.
- 357.—Botanical Series, Vol. XIII, Part II, No. 1. Flora of Peru. By J. Francis Macbride. June 10, 1936. 254 pages. Edition 844.
- 358.—Anthropological Series, Vol. XX, No. 2. Archaeology of Santa Marta, Colombia. The Tairona Culture. Part II, Section 1. Objects of Stone, Shell, Bone, and Metal. By J. Alden Mason. June 26, 1936. 142 pages, 99 photogravures. Edition 640.
- 359.—Anthropological Series, Vol. XXIV, No. 1. Egyptian Stelae in Field Museum of Natural History. By Thomas George Allen. July 24, 1936. 80 pages, 43 photogravures, and 43 copies of inscriptions in the text. Edition 707.
- 360.—Zoological Series, Vol. XXII, No. 1. African Reptiles and Amphibians in Field Museum of Natural History. By Arthur Loveridge. August 15, 1936. 112 pages. Edition 791.
- 361.—Zoological Series, Vol. XX, No. 13. Records and Measurements of Neotropical Bats. By Colin Campbell Sanborn. August 15, 1936. 14 pages. Edition 837.
- 362.—Zoological Series, Vol. XX, No. 14. Descriptions and Records of African Bats. By Colin Campbell Sanborn. August 15, 1936. 8 pages. Edition 834.
- 363.—Botanical Series, Vol. XIII, Part I, No. 3. Flora of Peru. By J. Francis Macbride. August 26, 1936. 350 pages. Edition 841.

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- 364.—Botanical Series, Vol. XIII, Part VI, No. 1. Flora of Peru. By J. Francis Macbride. September 18, 1936. 264 pages. Edition 832.
- 365.—Zoological Series, Vol. XIII, Part IX. Catalogue of Birds of the Americas. By Charles E. Hellmayr. October 6, 1936. 458 pages. Edition 774.
- 366.—Botanical Series, Vol. XI, No. 6. Revision of the Genus *Coreopsis*. By Earl Edward Sherff. October 20, 1936. 200 pages, 3 text figures. Edition 824.
- 367.—Geological Series, Vol. VI, No. 15. The Internal Structure of the Ear in Some Notoungulates. By Bryan Patterson. October 31, 1936. 30 pages, 11 text figures. Edition 834.
- 368.—Zoological Series, Vol. XXII, No. 2. Secondary Sex Characters of Chinese Frogs and Toads. By Ch'eng-Chao Liu. October 31, 1936. 44 pages, 12 photogravures. Edition 817.
- 369.—Zoological Series, Vol. XX, No. 15. The Distribution of Bidder's Organ in the Bufonidae. By D. Dwight Davis. October 31, 1936. 12 pages, 2 text figures. Edition 808.
- 370.—Zoological Series, Vol. XX, No. 16. Notes on Bahaman Reptiles and Amphibians. By Karl P. Schmidt. October 31, 1936. 8 pages, 2 text figures. Edition 850.
- 371.—Zoological Series, Vol. XX, No. 17. Guatemalan Salamanders of the Genus *Oedipus*. By Karl P. Schmidt. October 31, 1936. 32 pages, 7 text figures. Edition 833.
- 372.—Zoological Series, Vol. XX, No. 18. Notes on Snakes from Yucatan. By Karl P. Schmidt and E. Wyllys Andrews. October 31, 1936. 22 pages, 4 text figures. Edition 825.
- 373.—Zoological Series, Vol. XX, No. 19. Preliminary Account of Coral Snakes of South America. By Karl P. Schmidt. October 31, 1936. 16 pages. Edition 837.
- 374.—Zoological Series, Vol. XX, No. 20. Notes on Central American and Mexican Coral Snakes. By Karl P. Schmidt. October 31, 1936. 12 pages, 4 text figures. Edition 841.
- 375.—Zoological Series, Vol. XX, No. 21. New and Imperfectly Known Small Mammals from Africa. By Wilfred H. Osgood. December 28, 1936. 40 pages. Edition 790.
- 376.—Zoological Series, Vol. XX, No. 22. Courtship and Mating Behavior in Snakes. By D. Dwight Davis. December 28, 1936. 34 pages, 7 text figures. Edition 775.
- 377.—Botanical Series, Vol. XV. Woods of Northeastern Peru. By Llewelyn Williams. December 31, 1936. 588 pages, 17 text figures, 1 map. Edition 817.

LEAFLET SERIES

- Anthropology, No. 25 (third edition).—The Civilization of the Mayas. By J. Eric Thompson. June, 1936. 104 pages, 14 photogravures, 11 text figures, 1 map, 1 cover design. Edition 1,067.
- Anthropology, No. 32.—Primitive Hunters of Australia. By Wilfrid D. Hambly. February, 1936. 60 pages, 12 photogravures, 1 map. Edition 2,012.
- Anthropology, No. 33.—Archaeology of South America. By J. Eric Thompson. July, 1936. 160 pages, 12 photogravures, 18 text figures. Edition 1,649.
- Botany, No. 11 (second edition).—Common Trees. By J. Francis Macbride. February, 1936. 44 pages, 2 photogravures, 43 halftones. Edition 1,224.
- Botany, No. 18.—Common Mushrooms. By Leon L. Pray. July, 1936. 68 pages, 66 text figures, 1 cover design. Edition 2,516.
- Botany, No. 19.—Old-fashioned Garden Flowers. By Donald Culross Peattie. November, 1936. 32 pages, 28 text figures, 1 cover design. Edition 2,546.

MUSEUM TECHNIQUE SERIES

- Zoology, No. 4.—Clearing and Staining Skeletons of Small Vertebrates. By D. Dwight Davis and U. R. Gore. October 31, 1936. 16 pages, 3 text figures. Edition 666.

DIVISIONS OF PHOTOGRAPHY AND ILLUSTRATION

The Division of Photography produced a total of 46,186 items, including negatives, prints, photographic enlargements, lantern slides, transparent exhibition labels, etc. This is by far the largest production ever attained by the Division. Most of these items were to fill requisitions from the various Departments and Divisions of the Museum, but the number includes also 482 prints and enlargements and 144 stereopticon slides for sale on orders received from the public.

The exceedingly large amount of work performed was made possible by the assistance rendered by workers assigned to the Division by the federal Works Progress Administration. There were two photographers, and, varying at different times, from two to four clerks, from WPA, and their total working time amounted to approximately 6,000 hours. Of a total of 43,258 prints made, 38,181 (principally of type specimens of plants for the Herbarium) were the work of the WPA photographers, and the remainder were made by the regular staff of the Division. The regular staff was responsible also for the negatives, slides, and other items included in the total of 51,263 items of work. The WPA clerks made and filed some 42,000 index cards, and performed other operations in connection with the important task of cataloguing the Museum's immense negative collection which now numbers approximately 87,000 negatives.

Because of the fact that production in the Division of Printing of publications and leaflets requiring photogravure illustrations was greater in 1936 than in any previous year, the total number of prints produced by the Division of Photogravure likewise exceeded all past records. The number was 733,400, which compares with 194,750 in 1935, and 578,820 in 1934. Included, in addition to the aforementioned illustrations, are headings of posters, covers for various published works, and picture post cards. The enormous increase in the amount of work handled was made possible by the assistance of from one to three workers assigned at various times to the Division by the federal Works Progress Administration.

A wide variety of work was completed by the Museum Illustrator, who performed tasks called for by more than 800 orders received from the institution's various Departments and Divisions. Included in this total were fifty drawings, the coloring of 376 lantern slides, and lettering, retouching, map-making, etc.

DIVISION OF PUBLICATIONS

The number of scientific publications issued by Field Museum in 1936 exceeded that of any previous year, and the total distributions

to institutions on the Museum's exchange lists were correspondingly in excess of those for any similar period. During the past year the Museum sent out on exchange 16,262 copies of scientific publications, 1,776 leaflets, and 683 miscellaneous publications and pamphlets. In addition, 3,835 copies of the 1935 *Annual Report of the Director* and 1,331 leaflets were sent to Members of the Museum. Sales during the year totaled 671 scientific publications, 7,340 leaflets, and 9,366 miscellaneous publications and pamphlets, such as guides, handbooks, and memoirs.

Thirty-eight large boxes containing 5,636 individually addressed packages of publications were shipped to Washington, D.C., for distribution to foreign countries through the courteous cooperation of the Smithsonian Institution's bureau of international exchanges. An equal quantity of Museum books was sent by stamped mail to names on the domestic exchange list.

Twenty-six new exchange arrangements were established with institutions and scientists.

For future sales and other distributions, 13,648 copies of the various publications issued during 1936 were wrapped in 527 packages, labeled, and stored in the stock room.

A third edition was issued of the anthropology leaflet *The Civilization of the Mayas*, and a second edition of the botany leaflet *Common Trees*. The first editions were printed in 1927 and 1925, respectively. Numerous purchases of the leaflets entitled *The Races of Mankind* and *Prehistoric Man* again gave evidence of the great public interest in these subjects. In this, their fourth year, sales of these two leaflets totaled 1,794 copies.

As in 1935, there were again more than 1,000 copies sold of several books published outside, and handled at the Museum on consignment. These books pertain to natural history, and are written in popular style. Some of the authors are members of the Museum Staff.

General clerical service of value to the Division was received during the entire year from one helper assigned by the federal Works Progress Administration.

POST CARDS

The total number of post cards sold during 1936 was 84,050, of which 12,406 were grouped into 887 sets. The increase over the preceding year's total sales was about 12,000.

Two views on anthropological and six on zoological subjects were added to the assortment of individual post cards.



BENGAL TIGER

William V. Kelley Hall (Hall 17)

Specimens collected by James Simpson-Roosevelts Expedition, 1925

Taxidermy by C. J. Albrecht. Background by Charles A. Corwin

DIVISION OF PUBLIC RELATIONS

Throughout the year, the public has been kept informed of all Field Museum activities through publicity in the daily press. As in preceding years, news, feature stories, and photographs have been released several times each week. These have been published not only by Chicago newspapers, but widely circulated nationally and internationally through the medium of news distributing agencies which have extended their usual hearty cooperation to the Museum.

The aim of the Museum's publicity has continued to be not only the announcement of current activities, but the furtherance of the institution's primary educational motive: dissemination and interpretation of scientific knowledge in forms readily comprehensible to the largest possible number of persons. For this purpose, an innovation made during the latter months of the year was the designation of one outstanding exhibit each seven days as "Exhibit of the Week," and the releasing of a descriptive article and photograph.

Aside from material sent out by the Museum's Division of Public Relations, additional publicity has been received due to the interest of newspaper and magazine editors who, on their own initiative, have frequently assigned reporters and photographers to obtain material concerning the exhibits and other activities of the institution. Editorial writers, too, attracted by reports of the Museum's accomplishments, have drawn the public's attention to the Museum in their columns from time to time. Further publicity has been given to the Museum on the radio, both by individual broadcasting stations and by the network systems.

Preparation and distribution of the monthly bulletin, *Field Museum News*, also a duty of the Division of Public Relations, has been carried on as before, with the aim of presenting in the limited space available the largest amount and variety of articles and pictures possible. This was the seventh year and seventh volume of this publication, and the usual schedule, which assures delivery to all Members of the Museum promptly at the beginning of each month, was maintained. Besides keeping the Museum in monthly contact with its entire membership, and informing them of all the institution's activities, the *News* performs an additional function, that of increasing the Museum's publicity reaching the general public. This result is obtained through distribution of the bulletin to newspapers and magazines which frequently quote or reprint articles from it. It is also circulated to other scientific institutions as an item in exchange relationships.

The Museum has again enjoyed the benefits of advertising through media made available, without cost to this institution, by various organizations. Placards advertising the Museum have appeared on the street cars of the Chicago Surface Lines, and in the busses of the Chicago Motor Coach Company. The Museum has been permitted to announce its spring and autumn lecture courses again, as in so many past years, on placards displayed at city and suburban stations through the courtesy of the Illinois Central System and the Chicago and North Western Railway. Likewise, posters about the lectures have appeared in hotels, clubs, department stores, libraries, schools and other public places. Many of these organizations have further cooperated by distributing information folders prepared by the Museum.

The Division of Public Relations, in addition to press publicity and *Field Museum News*, has devoted its time to a variety of other duties, such as editorial work on certain Museum publications, special articles requested by periodicals, the handling of a large volume of correspondence, and other tasks involving much detail.

For the purpose of attracting many of Chicago's out-of-town visitors, invitations to visit the Museum have been sent to the chairmen of several hundred conventions held in this city, and thousands of Museum folders have been distributed through them.

The Division has been able to utilize, in certain work, clerical services of relief workers assigned to the Museum by the federal Works Progress Administration.

Grateful acknowledgment is herewith made to the Consolidated Press Clipping Bureaus of Chicago, which for the fourth year were so generous as to render a limited press clipping service to the Museum free of charge.

DIVISION OF MEMBERSHIPS

It is both gratifying and encouraging to be able to report a net increase of ninety-five in the number of Museum memberships on record at the end of the year 1936. This is a great improvement over conditions in 1935, and marks the first definite increase in the number of Members since 1930.

To those Members who have continued their loyal support during the years of economic stress, and to the many new Members, the Museum wishes to express its deep appreciation and gratitude for their association with the work of the institution. And to those Members who found it necessary to discontinue their membership,

an invitation is extended to join again the ranks of the many public-spirited citizens who are aiding the great educational program undertaken by the Museum.

Following is a classified list of the total number of Memberships as of December 31, 1936:

Benefactors.....	21
Honorary Members.....	16
Patrons.....	28
Corresponding Members.....	8
Contributors.....	112
Corporate Members.....	50
Life Members.....	287
Non-Resident Life Members.....	10
Associate Members.....	2,422
Non-Resident Associate Members.....	4
Sustaining Members.....	11
Annual Members.....	1,269
Total Memberships.....	4,238

The names of all persons listed as Members during 1936 will be found at the end of this Report.

The services of a worker assigned by the federal Works Progress Administration greatly facilitated the clerical work in the Division.

CAFETERIA

In the lunch rooms operated in the Museum, meals or refreshments were served to a total of 118,841 persons during 1936. The patrons of the main cafeteria numbered 81,534, while those using the children's room totaled 37,307. These figures represent considerable increases over 1935 business, when the total number served was 98,643, of whom 69,011 patronized the main cafeteria and 29,632 the children's room.

In the pages which follow are submitted the Museum's financial statements, lists of accessions, names of Members, *et cetera*.

STEPHEN C. SIMMS, *Director*

COMPARATIVE ATTENDANCE STATISTICS
AND DOOR RECEIPTS
FOR YEARS 1935 AND 1936

	1936		1935
Total attendance.....	1,191,437		1,182,349
Paid attendance.....	68,375		54,631
Free admissions on pay days:			
Students.....	27,205		19,478
School children.....	63,914		67,514
Teachers.....	2,165		2,016
Members.....	997		1,080
Admissions on free days:			
Thursdays (53).....	171,357	(52)	190,580
Saturdays (52).....	373,470	(52)	385,159
Sundays (52).....	483,954	(52)	461,891
Highest attendance (Sept. 6).....	21,229	(Sept. 1)	22,305
Lowest attendance (Jan. 22).....	73	(Jan. 22)	61
Highest paid attendance (Sept. 7).....	2,694	(Sept. 2)	2,842
Average daily admissions (366 days).....	3,255	(365 days)	3,239
Average paid admissions (209 days).....	327	(209 days)	261
Number of guides sold.....	5,339		4,814
Number of articles checked.....	16,969		14,853
Number of picture post cards sold.....	84,050		72,300
Sales of publications, leaflets, handbooks, portfolios, and photographs.....	\$4,441.33		\$4,079.94

COMPARATIVE FINANCIAL STATEMENTS

FOR YEARS 1935 AND 1936

INCOME	1936	1935
Endowment Funds.....	\$173,521.14	\$173,834.39
Funds held under annuity agree- ments.....	38,646.13	36,724.36
Life Membership Fund.....	13,672.74	12,878.81
Associate Membership Fund...	12,407.71	12,132.13
Chicago Park District.....	91,029.94	140,838.65
Annual and Sustaining Member- ships.....	11,167.00	10,149.00
Admissions.....	17,093.75	13,657.75
Sundry receipts.....	12,666.29	16,909.10
Contributions, general purposes.	450.00
Contributions, special purposes (expended <i>per contra</i>).....	48,567.37	13,530.00
Special funds: Part expended this year for purposes desig- nated (included <i>per contra</i>)	16,884.79	18,138.76
	<u>\$436,106.86</u>	<u>\$448,792.95</u>

EXPENDITURES

Collections.....	\$ 54,636.54	\$ 56,395.67
Expeditions.....	1,228.47	561.84
Furniture, fixtures, etc.....	13,180.07	12,321.25
Pensions, group insurance.....	15,833.45	15,418.36
Departmental expenses.....	41,342.48	32,680.82
General operating expenses.....	327,831.67	263,850.29
Annuities on contingent gifts..	36,431.64	36,205.39
Added to principal of annuity endowments.....	2,214.49	518.97
Interest on loans.....	3,828.99	3,930.93
Paid on bank loans.....	38,624.20
	<u>\$535,152.00</u>	<u>\$421,883.52</u>
Deficit...	99,045.14	Balance.. \$ 26,909.43
Contribution by Mr. Marshall Field...	74,625.93	
Net Deficit...	<u>\$ 24,419.21</u>	

Notes payable January 1.....	\$ 95,000.00	\$ 95,000.00
Paid on account, by contribution of Mr. Stanley Field.....	38,624.20
Balance payable December 31.....	<u>\$ 56,375.80</u>	<u>\$ 95,000.00</u>

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

	1936	1935
Income from Endowment.....	\$16,717.15	\$15,684.04
Operating expenses.....	<u>16,365.50</u>	<u>17,590.04</u>
December 31.....Balance	\$ 351.65	Deficit \$ 1,906.00

LIST OF ACCESSIONS

DEPARTMENT OF ANTHROPOLOGY

- BARODA, HIS HIGHNESS MAHARAJA GAEKWAR SIR SAVAJI RAO III, Baroda State, India: 1 Sankheda lacquer-work cradle, 1 Patola tablecloth of pongee silk, 1 Visnagar repoussé low table of 3 metals, and 1 Visnagar carved wooden buffalo of teakwood—Baroda State, India (gift).
- BOULTON, MR. AND MRS. RUDYERD, Chicago: 230 stone and bone implements—near Salisbury, Rhodesia, South Africa (gift).
- BRECKINRIDGE, MISS MARVIN, New York: 16 stone implements—Kaffeifontein, Cape Province, South Africa; and 6 prints of Bushman cave paintings—Plum Pudding Kopje Dombashawa, Rhodesia, South Africa (gift).
- BURLEY, CLARENCE, Winnetka, Illinois: 1 whale harpoon with head and rope, and 1 sealskin float for same—Hudson Bay Eskimo; and 1 rabbit-fur blanket—Cree Indians, James Bay, Hudson Bay, Canada (gift).
- BUSTAMANTE, ELVA, Kokomo, Indiana: "Indian suit," including breast-, ankle-, stomach-, wrist- and head-pieces of parrot and other bird feathers—Ecuador (gift).
- CHANCELLOR, MRS. PHILIP, Hollywood, California: 2 skulls with modeled faces—Central Sepik River, North New Guinea (gift).
- CHICAGO HISTORICAL SOCIETY, Chicago: Mummy of baby found in tree top—Montana; and 709 stone implements and potsherds—Arkansas, New York, Utah, Tennessee, and central United States (gift).
- FIELD, HENRY, Chicago: 12 puppets, 21 playing cards, 1 battle-ax—Teheran, Iran (gift); 2 skulls—modern Arabs, An Najaf, Iraq (gift).
- FIELD MUSEUM OF NATURAL HISTORY: Transferred from Department of Zoology: 1 skeleton of male orang utan.
- GLADWIN, HAROLD S., Gila Pueblo, Globe, Arizona: 50 pieces of Basket Maker pottery, dated about A.D. 600 by tree-ring study at Gila Pueblo—Durango, Colorado (gift).
- KNOBLOCK, BYRON, La Grange, Illinois: 2 human skulls—California; 4 human skulls and fragmentary bones—Illinois; 1 Folsom-like point—Indiana; 2 human skulls, male—California (exchange).
- LAZZAR, JOSEPH, Bagdad, Iraq: 4 rare painted potsherds—Abu-Shahrain, Iraq (gift).
- LEWIS, DR. ALBERT B., Chicago: 1 betel-nut box of woven strips of bamboo covered with lacquer and painted designs—Rangoon, Burma (gift).
- MCDONALD, EUGENE F., JR., Chicago: 1 painted conch-shell trumpet—rare from grave, State of Nayarit, Mexico (gift).
- NICHOLS, HENRY W., Chicago: 1 man's costume and cap of inner bark of a tree—Gran Chaco, Bolivia (gift).
- PHILLIPS ACADEMY, Andover, Massachusetts: 52 pottery specimens representing a series from Glaze I to Glaze IV—Pecos Pueblo, New Mexico (gift).
- RHODESIA MUSEUM, Bulawayo, South Africa: 130 stone implements—Rhodesia, South Africa (exchange).
- RICHARDSON, V. F. C., Haifa, Palestine: 88 samples of human hair—Transjordan and Syria (gift).
- ROSENTHAL, MRS. SAMUEL R., Highland Park, Illinois: 1 pottery bowl and heads of two figurines, and 1 spindle whorl—Mitla, Oaxaca, Mexico (gift).
- SMITH, MRS. GEORGE T. (FRANCES ANN GAYLORD), ESTATE OF: 718 specimens, including jade, beaded belts, porcelains, textiles, screens, glass, and semi-precious stones—China (gift).
- WOOD, MISS AGNES A., Fraer, Iowa: 1 cattle whip of plaited buck hide, covered handle—Zulu, Durban, South Africa (gift).
- WORK, MRS. JOSEPH W., Evanston, Illinois: 2 pieces of jewelry (necklaces), 1 of turquoise and silver wires—Navaho Indians, United States; 1 piece of gold-plated silver filigree disks surmounted by inscribed pieces of jade—Peiping, China (gift).
- WORKS PROGRESS ADMINISTRATION (Federal Art Project), Chicago: 6 enlarged plaster reproductions of Near East ring seals; 18 enlarged reproductions of Near East cylinder seals—Near East (gift).

DEPARTMENT OF BOTANY—ACCESSIONS

ACADÉMIE DES SCIENCES, SECTION D'AZERBAÏDJAN, Baku, U.S.S.R.: 258 specimens of plants from Transcaucasia (exchange).

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pennsylvania: 59 specimens of Mexican plants (exchange).

ARMSTRONG CORK PRODUCTS COMPANY, Lancaster, Pennsylvania: branch of cork oak (gift).

ARNOLD ARBORETUM, Jamaica Plain, Massachusetts: 54 specimens of Guatemalan plants (exchange).

ARSÈNE, REV. BROTHER G., Santa Fe, New Mexico: 11 plant specimens (gift).

BAILEY HORTORIUM, CORNELL UNIVERSITY, Ithaca, New York: 182 plant specimens (gift); 423 plant specimens (exchange).

BALL, DR. CARLETON R., Washington, D. C.: 14 specimens of plants (gift).

BENKE, HERMANN C., Chicago: 9 negatives, 8 photographic prints of sycamore (gift).

BISHOP MUSEUM, BERNICE PAUAAHI, Honolulu, Hawaii: 1 plant specimen (gift).

BOTANIC GARDEN, Leningrad, U.S.S.R.: 39 plant specimens (exchange).

BOTANISCHES INSTITUT, Munich, Germany: 172 plant specimens (exchange).

BRACELIN, MRS. H. P., Berkeley, California: 2 plant specimens (gift).

BRAVO H., PROFESSOR HELIA, Mexico City, Mexico: 2 plant specimens (gift).

BRISTOL, MAURICE, Elgin, Illinois: 1 plant specimen (gift).

BURKART, ARTURO, Buenos Aires, Argentina: 114 specimens of Argentine plants (exchange).

BUTLER UNIVERSITY, Indianapolis, Indiana: 260 plant specimens (exchange).

CABRERA, PROFESSOR ANGEL L., La Plata, Argentina: 144 specimens of plants, 116 photographic prints (exchange).

CALDERON, DR. SALVADOR, San Salvador, Salvador: 8 plant specimens (gift).

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, California: 288 specimens of California plants (exchange).

CÁRDENAS, PROFESSOR MARTÍN, Potosí, Bolivia: 80 specimens of Bolivian plants (gift).

CARNEGIE INSTITUTION OF WASHINGTON, DEPARTMENT OF GENETICS, Cold Spring Harbor, Long Island, New York: 31 plant specimens (gift).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 261 plant specimens (exchange).

CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.: 475 plant specimens (exchange).

CHRYSLER, PROFESSOR MINTIN A., New Brunswick, New Jersey: 3 plant specimens (gift).

CLETUS, REV. BROTHER, Fort Logan, Colorado: 310 specimens of Colorado plants (gift).

CONSERVATOIRE ET JARDIN BOTANIKES, Geneva, Switzerland: 1,773 plant specimens (exchange).

CORNING, W. H., Chicago: 1 plant specimen (gift).

DANFORTH, RALPH E., West Boylston, Massachusetts: 1 plant specimen (gift).

DARROW, DR. ROBERT A., Tucson, Arizona: 41 plant specimens (gift).

DARTMOUTH COLLEGE, DEPARTMENT OF BOTANY, Hanover, New Hampshire: 99 plant specimens (gift).

DEAM, CHARLES C., Bluffton, Indiana: 10 plant specimens (gift).

DEGENER, OTTO, Honolulu, Hawaii: 237 specimens of Hawaiian plants (gift).

DE PAUW UNIVERSITY, Greencastle, Indiana: 440 specimens of plants from Honduras (exchange).

DIRECCION GENERAL DE AGRICULTURA, Guatemala City, Guatemala: 5 plant specimens (gift).

DIRECTORIA DE PLANTAS TEXTEIS, Fortaleza, Ceará, Brazil: 34 specimens of textile plants (gift).

DOOLITTLE, MRS. HAROLD M., Onekama, Michigan: 1 plant specimen (gift).

DUGAND, ARMANDO, Barranquilla, Colombia: 1 plant specimen (gift).

DUKE UNIVERSITY, DEPARTMENT OF BOTANY, Durham, North Carolina: 18 plant specimens (exchange).

100 FIELD MUSEUM OF NATURAL HISTORY—REPORTS, VOL. XI

DUNHAM, WILLIAM H., Evanston, Illinois: 2,000 specimens of plants from United States and Europe (gift).

DURNO, W. F., Chicago: 2 plant specimens (gift).

EFRIG, PROFESSOR G., Oak Park, Illinois: 18 specimens of plants (gift).

ELIAS, REV. BROTHER, Barranquilla, Colombia: 355 specimens of Colombian plants (gift).

FERNANDES, PROFESSOR GRIJALVA, Maracanahú, Ceará, Brazil: 10 plant specimens (gift).

FIELD, HENRY, Chicago: 112 plant specimens (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Dr. B. E. Dahlgren: 1 plant specimen.

Collected by Rudyerd Boulton (Straus West African Expedition): 1 plant specimen.

Transferred from the Division of Photography: 831 photographic prints.

Purchases: 105 specimens of plants—Mexico; 211 specimens of plants—Peru; 269 specimens of plants—Uruguay; 23 specimens of plants—Juan Fernandez.

FISHER, GEORGE L., Houston, Texas: 9 plant specimens (gift).

FISHER, DR. R. H., Chicago: 1 plant specimen (gift).

FLORES, DR. ROMÁN S., Progreso, Yucatan, Mexico: 37 plant specimens, 12 wood samples (gift).

FLORISTS' PUBLISHING COMPANY, Chicago: 1 plant specimen (gift).

GARFIELD PARK CONSERVATORY, Chicago: 3 plant specimens (gift).

GARRETT, PROFESSOR ARTHUR O., Salt Lake City, Utah: 122 specimens of Utah plants (gift).

GENTRY, HOWARD SCOTT, Westmoreland, California: 835 specimens of Mexican plants (gift).

GIFFORD, DR. JOHN C., Miami, Florida: 1 plant specimen (gift).

GINZBERGER, DR. AUGUST, Vienna, Austria: 43 specimens of Brazilian plants (gift).

GLIDDEN COMPANY, Chicago: 20 samples of soya beans and products (gift).

GÖTEBORG BOTANISKA TRÄDGÅRD, Göteborg, Sweden: 735 plant specimens (exchange).

GRAY HERBARIUM, Cambridge, Massachusetts: 582 plant specimens, 242 photographic prints (exchange).

GREGG, CLIFFORD C., Park Ridge, Illinois: 22 plant specimens (gift).

HAYNIE, MISS NELLIE V., Oak Park, Illinois: 7 plant specimens (gift).

HEATH, LESTER H., Milton, Florida: 6 plant specimens (gift).

HERRMANN, PROFESSOR F. J., Ann Arbor, Michigan: 207 plant specimens (exchange).

HEWETSON, WILLIAM T., Freeport, Illinois: 7 plant specimens (gift).

HINTON, GEORGE B., Mina El Rincón, Mexico: 3 plant specimens (gift).

HOEHNE, DR. F. C., São Paulo, Brazil: 17 plant specimens (gift).

HOOD, PROFESSOR J. DOUGLAS, Rochester, New York: 31 plant specimens (gift).

HOTTLE, W. D., Milton, Florida: 2 plant specimens (gift).

IMPERIAL FORESTRY INSTITUTE, Oxford, England: 495 specimens of plants (exchange).

INSTITUTO BIOLÓGICO, São Paulo, Brazil: 16 plant specimens (gift).

INSTITUTO DE BIOLÓGIA, Chapultepec, Mexico: 5 plant specimens (gift).

JARDIM BOTANICO, Rio de Janeiro, Brazil: 58 plant specimens (exchange).

JARDÍN BOTÁNICO, Madrid, Spain: 6,624 plant specimens (exchange).

JOHNSON, H. F., JR., Racine, Wisconsin: Collection of Amazon palm material (gift).

KENDALL, MRS. B. A., Elburn, Illinois: 1 plant specimen (gift).

KISCHE, LEO R., Columbus, Georgia: 24 wood samples (exchange).

KLUG, GUILLERMO, Iquitos, Peru: 23 plant specimens (gift).

KRIBS, DR. DAVID A., Mont Alto, Pennsylvania: 90 microscope slides of Liberian woods (exchange).

LAMB, GEORGE N., Chicago: 2 specimens of mahogany (gift).



REEF CORALS

Revised installation of marine invertebrates
Albert W. Harris Hall (Hall 18)

LEWIS, H. L., Carlsbad, New Mexico: 1 plant specimen (gift).

LITTLE, ELBERT L., JR., Globe, Arizona: 1 plant specimen (gift).

LOS ANGELES MUSEUM OF HISTORY, SCIENCE AND ART, Los Angeles, California: 1 plant specimen (gift).

LUNDY, RAY, Chicago: 1 trunk of choke-cherry (gift).

MARSHALL COLLEGE, DEPARTMENT OF BOTANY, Huntingdon, West Virginia: 100 plant specimens (exchange).

MEXIA, MRS. YNES, Berkeley, California: 33 plant specimens (gift).

MILLAR, JOHN R., Chicago: 4 samples of palm material (gift).

MUSÉE NATIONAL, SECTION DU BOTANIQUE, Prague, Czechoslovakia: 192 plant specimens (exchange).

MUSEO ARGENTINO DE CIENCIAS NATURALES, Buenos Aires, Argentina: 2 plant specimens (exchange).

MUSEO NACIONAL, San José, Costa Rica: 8,190 specimens of Costa Rican plants (gift).

NATIONAL PARK SERVICE, DEPARTMENT OF THE INTERIOR, Washington, D.C.: 230 specimens of Oklahoma plants (gift).

NATURHISTORISCHES MUSEUM, BOTANISCHE ABTEILUNG, Vienna, Austria: 596 specimens of plants (exchange).

NATURHISTORISKA RIKSMUSEET, Stockholm, Sweden: 624 specimens of plants (exchange).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York: 21 plant specimens (exchange).

OAKES, O. A., Evanston, Illinois: 21 samples of woods (gift).

OSTERHOUT, GEORGE E., Windsor, Colorado: 1 plant specimen (gift).

OWEN, REGINALD, Evanston, Illinois: 2 wood specimens (gift).

PEATTIE, DONALD CULROSS, Glenview, Illinois: 11 plant specimens (gift).

POMONA COLLEGE, Claremont, California: 91 specimens of California plants (exchange).

PURPUS, DR. C. A., Zacuapam, Mexico: 1 plant specimen (gift).

RECHENBERG, MISS ELIZABETH, Valparaiso, Indiana: 3 plant specimens (gift).

RHOADES, WILLIAM, Indianapolis, Indiana: 12 plant specimens (gift).

RIJKSHERBARIUM, Leiden, Netherlands: 500 plant specimens (exchange).

ROLLINS, REED C., Cambridge, Massachusetts: 9 plant specimens (gift).

ROYAL BOTANIC GARDENS, Kew, Surrey, England: 109 plant specimens (exchange).

SCHEIN, AUGUST, Chicago: 1 glass flower pot (gift).

SCHMOLL, DR. HAZEL M., Chicago: 7 plant specimens (gift).

SCHWEITZER, MISS BERTHA M., Chicago: study material of bearberry (gift).

SCIENTIFIC OIL COMPOUNDING COMPANY, Chicago: 3 samples of vegetable oil (gift).

SEIBERT, R. J., St. Louis, Missouri: 55 plant specimens (gift).

SHATTUCK, MRS. C. H., Idaho Falls, Idaho: 3 plant specimens (gift).

SHERFF, DR. EARL E., Chicago: 283 plant specimens, 919 negatives of type specimens (gift).

SOUKUP, PROFESSOR J., Puno, Peru: 322 specimens of Peruvian plants (gift).

STATE COLLEGE OF WASHINGTON, Pullman, Washington: 101 plant specimens (exchange).

STEFFA, MRS. GRACE, Chicago: 1 plant specimen, 3 photographic prints (gift).

STILLINGER, C. R., Spokane, Washington: 70 plant specimens (gift).

SYDOW, DR. H., Berlin, Germany: 100 plant specimens (gift).

UNITED STATES DEPARTMENT OF AGRICULTURE, BUREAU OF PLANT INDUSTRY, Washington, D.C.: 271 plant specimens (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 763 plant specimens, 44 photographic prints, 360 typewritten descriptions of new species of plants (exchange).

UNIVERSIDAD NACIONAL DE LA PLATA, INSTITUTO DEL MUSEO, La Plata, Argentina: 1 plant specimen (gift).

102 FIELD MUSEUM OF NATURAL HISTORY—REPORTS, VOL. XI

UNIVERSITÄT WIEN, BOTANISCHER GARTEN UND INSTITUT, Vienna, Austria: 170 specimens of Brazilian plants (gift).

UNIVERSITY OF ARKANSAS, DEPARTMENT OF BOTANY, Fayetteville, Arkansas: 100 plant specimens (exchange).

UNIVERSITY OF CALIFORNIA, DEPARTMENT OF BOTANY, Berkeley, California: 116 specimens of California plants (exchange).

UNIVERSITY OF CHICAGO, DEPARTMENT OF BOTANY, Chicago: 3,192 plant specimens (gift).

UNIVERSITY OF MICHIGAN, UNIVERSITY MUSEUMS, Ann Arbor, Michigan: 311 plant specimens (exchange).

UNIVERSITY OF MINNESOTA, DEPARTMENT OF BOTANY, Minneapolis, Minnesota: 317 specimens of Alaskan plants (gift).

UNIVERSITY OF TEXAS, DEPARTMENT OF BOTANY, Austin, Texas: 2,452 plant specimens (gift).

VALERIO, PROFESSOR MANUEL, San José, Costa Rica: 103 plant specimens (gift).

WILLIAMS, I. T. AND SON, New York: 20 planks of foreign woods (gift).

WORTHINGTON, DR. H. C., Oak Forest, Illinois: 1 plant specimen (gift).

WYETH, MRS. MINNIE A., Winnetka, Illinois: 1 plant specimen (gift).

YALE UNIVERSITY, SCHOOL OF FORESTRY, New Haven, Connecticut: 317 plant specimens (gift); 51 wood samples (exchange).

ZETEK, JAMES, Balboa, Canal Zone: 85 plant specimens, 12 photographic prints (gift).

ZINGG, DR. ROBERT M., Boulder, Colorado: 1 plant specimen (gift).

DEPARTMENT OF GEOLOGY—ACCESSIONS

AMERICAN MUSEUM OF NATURAL HISTORY, New York: Skeleton of *Moropus*—Agate Springs Quarry, Nebraska (exchange); cast of *Protoceratops* eggs (gift).

BARNES, R. M., Lacon, Illinois: 1 fossil vertebra—Lacon, Illinois (gift).

BARTNICK, BERNARD, Chicago: 1 specimen friction breccia in calcareous sandstone—Prairie View, Illinois (gift).

BEADLE, J. O., Marshall, Wisconsin: 3 specimens fulgurite in loam—Marshall, Wisconsin (gift).

BERRY, E. W., Baltimore, Maryland: 12 specimens fossil leaves—Patagonia (exchange).

BRIGHAM, E. M., Battle Creek, Michigan: 1 vapor vent—Hawaii; 3 faults—Michigan (exchange).

CARD, GEORGE W., New York: 1 specimen precious opal in shell—Australia (gift).

CHALMERS, WILLIAM J., Chicago: 1 kunzite crystal; 1 twenty-eight carat gem kunzite—Pala, California (gift).

CHICAGO HISTORICAL SOCIETY, Chicago: Collection of fossils—United States (gift).

CORNELL, MISS MARGARET M., Chicago: 1 pearl on clam shell—Little Powers Lake, Illinois (gift).

COWAN, CHARLES G., Chicago: 1 specimen petroleum in diabase dike—Trinidad, Colorado (gift).

EIFRIG, C. W. G., River Forest, Illinois: Palate of fossil peccary, *Platygonus*—Cumberland Cave, Maryland (exchange).

FABER, EDWIN B., Grand Junction, Colorado: Jaw of *Thryptacodon* (creodont)—De Beque, Colorado (gift).

FARQUHAR, DONALD, JR., Chicago: 1 cephalopod—Lemont, Illinois (gift).

FIELD, HENRY, Chicago: 30 specimens invertebrate fossils; 8 specimens minerals; 26 specimens rocks; 5 photographs—Europe; 5 specimens modern coral; 1 specimen modern worm borings—Boca Grande, Florida (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Sharat K. Roy: 46 specimens geological structures—Dutchess and Genesee counties, New York.

Collected by Elmer S. Riggs (Marshall Field Expedition to Alberta, Canada, 1922): Collection of dinosaurs and other fossils—Alberta, Canada.

Collected by Bryan Patterson: 2 specimens fossil crustaceans; 9 specimens fossil plants—Braidwood, Illinois.

FLESCH, MR. AND MRS. WALTER J., Chicago: 25 specimens minerals—various localities (gift).

FORNONZINI, GERVASO, Valtellina, Lanzada, Italy: 1 specimen artinite with natrolite on serpentine—Lombardy, Italy (gift).

GALBREATH, EDWIN C., Ashmore, Illinois: 30 specimens fossil vertebrates—Ashmore, Illinois (gift).

GILBERT, SAMUEL H., Chicago: 11 specimens minerals—North Carolina (gift).

HIGLEY, PROFESSOR L. A., Wheaton, Illinois: 1 septarium; 50 manganese-silica concretions—Buffalo, South Dakota (gift).

HILDEBRAND, L. E., Winnetka, Illinois: 2 specimens calcareous tufa—Hartford, Michigan (gift).

LOS ANGELES MUSEUM OF SCIENCE, HISTORY AND ART, Los Angeles, California: Model restoration of *Doedicurus*; casts of *Nothrotherium* skull, jaws, humerus, radius, ulna, hind foot and model of foot (exchange).

MAIN, OSCAR, Oakland City, Indiana: 1 antler of *Cervalces* species—Oakland City, Indiana (gift).

METCALF, H. G., Auburn, New York: 9 specimens upland diamond-bearing ground—Minas Geraes, Brazil (gift).

MUMBRUE, DAN P., Helena, Montana: 1 specimen talc—near Helena, Montana (gift).

NICHOLS, HENRY W., Chicago: 1 specimen pectolite—Paterson, New Jersey (gift).

NOË, PROFESSOR A. C., Chicago: 13 specimens coal balls—Illinois (exchange).

RAY, DR. OLAF E., Chicago: 4 octahedrite crystals; 4 specimens rutile—Jequitinhonha River, Brazil (gift).

RENIFF, Miss ELIZABETH, Chicago: 5 specimens modern coral—near Hamilton, Bermuda (gift).

ROCHE, —, Chicago: 2 specimens minerals—Chicago, Illinois (gift).

ROY, SHARAT K., Chicago: 1 specimen fluorescent agate—Arizona (gift).

SALO, O. J., Red Lodge, Montana: 19 specimens gypsum crystals; 6 specimens calcite crystals—Montana (gift).

THURSTON, DR. FREDUS A., Chicago: 1 specimen gold ore—Kenora, Ontario, Canada (gift).

UTICA HYDRAULIC CEMENT COMPANY, Utica, Illinois: 4 specimens rock and products—Illinois; 2 specimens vermiculite—North Carolina (gift).

VON DRASEK, FRANK, Cicero, Illinois: 6 specimens minerals—Arkansas (gift).

WALKER, ALBERT, Ontario, Wisconsin: 2 specimens concretions; 1 specimen hematite replacing clay—Monteba, Wisconsin (gift).

WESTERN SHALE PRODUCTS COMPANY, Fort Scott, Kansas: 6 specimens brick shales and briquettes; 5 photographs—Fort Scott, Kansas (gift).

WHARTON, G. W., Roseburg, Oregon: 1 specimen cycad leaf in matrix—Buck Mountain, Oregon (gift).

WINSTON, HARRY, New York: 1 glass replica of the Jonker diamond (gift).

WORK, MRS. JOSEPH W., Evanston, Illinois: 7 specimens precious opal—Queretaro, Mexico (gift).

DEPARTMENT OF ZOOLOGY—ACCESSIONS

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pennsylvania: 1 birdskin—Haiti (exchange).

AMERICAN MUSEUM OF NATURAL HISTORY, New York: 2 African monkeys, 1 zebra skull—Africa (exchange).

ANONYMOUS: 1 albino bobwhite (gift).

BALDWIN, ROBERT AND RICHARD, Hammond, Indiana: 1 black rail and egg—Windfall, Indiana (gift).

BANKE, MRS. FRED, Chicago: 1 woodcock—Chicago (gift).

BARKER, G. T., Suva, Fiji Islands: 1 frog, 6 snakes—Fiji Islands (gift).

BASS BIOLOGICAL LABORATORY, Englewood, Florida: 5 fishes—Florida (gift).

BAUER, LOUIS I., Chicago: 1 three-legged domestic duck—Chicago (gift).

BEECHER, WILLIAM, Chicago: 1 common loon, 1 toad, 1 garter snake, 1 painted turtle—Lake County, Illinois (gift).

BIRKS, TOM, Chicago: 8 tiger salamanders—Chicago (gift).

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BLAKE, EMMET R., Chicago: 2 birds—Chicago (gift).

BRAESTRUP, F. W., Copenhagen, Denmark: 3 rodents with 2 skeletons, 6 bats—West Africa (exchange).

BRITISH MUSEUM (NATURAL HISTORY), London, England: 1 snake—Borneo (exchange).

BROMUND, E. FRED, Chicago: 5 snakes—various localities (gift).

BROUGHMAN, WILLIAM T., Marion, Indiana: 18 frogs and toads, 1 salamander—Cook County, Minnesota (gift).

BROWER, DR. AUBURN E., Bar Harbor, Maine: 5 moths—Maine and Missouri (gift).

BROWN, PROFESSOR F. MARTIN, Colorado Springs, Colorado: 1 butterfly—Fort Churchill, Canada (gift).

BRUCE, ROBERT, Chicago: 1 brown bat—Chicago (gift).

BURT, DR. CHARLES E., Winfield, Kansas: 24 collared lizards—Winfield, Kansas; 60 salamanders, 60 toads and frogs, 43 lizards, 62 snakes—various localities (exchange).

CAGLE, FRED, Carbondale, Illinois: 75 leopard frogs—Murphysboro, Illinois (gift).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 2 birdskins, 2 mounted hawks, 6 salamanders, 2 lizards, 1 snake—various localities (exchange).

CHADWICK, R. W., Chicago: 40 frogs, 5 lizards, 4 snakes—eastern Ecuador (gift).

CHERRIE, GEORGE K., Newfane, Vermont: 29 rodents—Brownsville, Texas (gift).

CHICAGO ZOOLOGICAL SOCIETY, Brookfield, Illinois: 21 mammals, 22 birds, 39 bird skeletons, 1 frog, 12 lizards, 33 snakes, 3 turtles, 1 crocodile—various localities; 115 birds, 12 bird skeletons, 1 bat, 3 mammal skulls, 17 fishes, 25 insects, 19 other invertebrates—Greenland, Nova Scotia, and Newfoundland (gift).

CLARK, MISS EMILY, Chicago: 12 frogs, 2 lizards, 12 snakes, 1 scorpion, 1 beetle—Nigeria (gift).

COLE, LAMONT C., Chicago: 12 salamanders, 22 toads, 297 lizards, 2 snakes—Utah and Arizona (gift).

COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colorado: 1 red wolf skeleton—Brazil; 1 bird head—Guatemala (gift).

CONOVER, BOARDMAN, Chicago: 24 birdskins—various localities (gift).

DANA, MRS. DORA, West Palm Beach, Florida: 1 Abbot's bag-worm case—Florida (gift).

DANFORTH, DR. STUART T., Mayaguez, Puerto Rico: 67 lizards—West Indies (gift).

DAVIS, D. DWIGHT, Naperville, Illinois: 2 bat skins and skulls, 5 frogs, 7 snakes, 2 fishes, 149 insects—Illinois (gift).

DAVIS, MISS JANET, Homewood, Illinois: 3 salamanders, 27 frogs, 1 turtle—Three Lakes, Wisconsin (gift).

DAVIS, SPURGEON F., Barrington, Illinois: 1 green snake—Palatine, Illinois (gift).

DE PAUW UNIVERSITY, Greencastle, Indiana: 210 salamanders—Greencastle, Indiana (exchange).

DILLINGA, JOHN, Chicago: 1 night-hawk—Chicago (gift).

DUNN, DR. EMMETT R., Haverford, Pennsylvania: 1 caecilian, 42 frogs, 1 lizard, 1 snake—Panama and Costa Rica (gift).

DYBAS, HENRY, Chicago: 1 newt, 3 water-snakes—Illinois (gift).

EMERSON, DR. ALFRED E., Chicago: 33 termites—Galapagos and Solomon islands (gift).

FIELD, HENRY, Chicago: 6 lizards, 1 snake, 91 fishes, 10 insects, 37 other invertebrates—Boca Grande, Florida; 5 bats, 1 toad, 3 frogs, 88 salamanders, 16 snakes, 87 fishes, 945 insects and allies, 270 other invertebrates—England, Scotland and Wales; 5 birds—Europe; 9 salamanders, 11 lizards, 2 snakes—France; 36 mammals, 4 mammal skeletons, 27 frogs, 109 lizards, 67 fishes—Iraq (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Colin C. Sanborn: 1 beetle—Huron Mountain, Michigan.

Collected by F. J. W. Schmidt and Daniel Clark (Leon Mandel Guatemala Expedition of Field Museum): 38 insects—Guatemala.

Collected by Karl P. Schmidt (Cornelius Crane Pacific Expedition of Field Museum): 4 shells, 2,019 insects and allies—various localities.

Collected by Karl P. Schmidt: 7 frogs, 10 salamanders, 3 snakes, 14 insects and allies—southern Illinois.

Collected by Karl P. Schmidt and Colin C. Sanborn: 5 pocket gophers, 63 insects—Kankakee County, Illinois.

Collected by Karl P. Schmidt, Leon L. Walters, and D. Dwight Davis: 2 blue racers—Dune Acres, Indiana.

Collected by Third Asiatic Expedition of American Museum of Natural History, New York, with Field Museum cooperating: 15 salamanders, 359 frogs, 131 lizards, 289 snakes, 22 turtles—China.

Collected by Arthur S. Vernay and Herbert Lang (Vernay-Lang Kalahari Expedition): 126 fishes—Kalahari Desert, Africa.

Transferred from Department of Anthropology; 1 rodent skull—Sumatra; 4 shells (gift).

Purchases: 1,581 mammals, 299 birdskins, 287 salamanders, 60 toads, 12 frogs, 36 lizards, 10 snakes, 72 fishes—China; 41 mammal skins and 39 skulls—Ecuador; 1 Allen's mud snake—Florida; 2 clouded leopards—India; 20 small mammals—Manchuria; 3 salamanders—Missouri.

FLEMING, ROBERT L., Mussoorie, India: 1 gaviel skull—Ganges River, India; 1 fishing cat skin with skull, 52 insects and allies—United Provinces, India (gift).

FRANZEN, ALBERT J., Chicago: 7 birds, 1 snake, 7 insects—northern Illinois (gift).

FRANZEN, ALBERT J. AND EMMET R. BLAKE, Chicago: 6 shore birds—Cook County, Illinois (gift).

FULLMER, MRS. P. F., Aurora, Illinois: 1 bluejay—Aurora, Illinois (gift).

GALBREATH, EDWIN C., Ashmore, Illinois: 1 salamander, 3 cricket frogs, 1 hog-nosed snake—Ashmore, Illinois (gift).

GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago: 2 tiger salamanders—North Dakota; 7 tiger salamanders—Mason County, Illinois; 2 developmental sets of meadow frog and tiger salamander (gift).

GODDARD, DR. MALCOLM, Buca, British Cameroons: 3 birds—Buca and Mount Cameroon, Africa (gift).

GRANT, GORDON, Los Angeles, California: 13 salamanders, 27 tree frogs, 65 lizards, 1 snake, 643 insects and allies, 307 other invertebrates—Los Angeles, California (gift).

GRAY, CHARLES W., Chicago: 1 spider—Bennett Springs, Missouri (gift).

GREGG, CLIFFORD C., Park Ridge, Illinois: 20 insects—Burlington, Wisconsin (gift).

GUERET, EDMUND N., Chicago: 1 white-throated sparrow—Chicago; 2 snake skeletons—Rochester, New York (gift).

HAINES, T. P., Ann Arbor, Michigan: 6 snake skulls—various localities (gift).

HAMLETT, DR. G. W. D., Baltimore, Maryland: 1 lizard, 1 snake—Brazil (gift).

HANSON, HAROLD, Chicago: 1 badger—Barrington, Illinois; 1 crow—Woodstock, Illinois (gift).

HILDEBRAND, R. D., Washington, D.C.: 23 birds—Alabama (gift).

HINAUS, MRS. JOHN, Bruce, Wisconsin: 1 albino bat—Bruce, Wisconsin (gift).

HOLLEY, FRANCIS E., Lombard, Illinois: 9 insects—Illinois, Indiana, and Madagascar (gift).

JANECEK, JOHN J., Chicago: 9 frogs, 1 lizard—Webb Lake, Wisconsin (gift).

JOPSON, MRS. H. G. M., Ithaca, New York: 7 salamanders—various localities (gift).

KARLOVIC, JOHN K., Zeigler, Illinois: 5 beetles—Provo, Utah (gift).

KELLOGG, W. K., BIRD SANCTUARY, Kalamazoo, Michigan: 3 birds (gift).

KENNEDY, PROFESSOR W. P., Baghdad, Iraq: 17 fishes, 1 crustacean—Iraq (gift).

KING, JOHN ANDREWS, Lake Forest, Illinois: 9 birds—British Guiana (gift).

KLAUBER, LAURENCE M., San Diego, California: 2 leaf-nosed snakes—San Diego County, California (gift).

KOHL, ROBERT B., Chicago: 3 birds—Bristol, Wisconsin (gift).

LADD, FRED, Wakulla, Florida: 7 black sea bass—Florida (gift).

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LAYBOURNE, EDGAR G., Homewood, Illinois: 1 barn owl—Indiana; 1 frog, 15 toads, 4 lizards, 3 snakes—Austin, Texas (gift).

LEE, MRS. FRANCES, Chicago: 1 Yucatan motmot—Yucatan (gift).

LETL, FRANK, Chicago: 2 bats—Illinois (gift).

LEVY, MISS BEATRICE, Chicago: 1 hermit thrush—Chicago (gift).

LINCOLN PARK ZOO, Chicago: 11 mammals, 2 birds, 1 bullfrog, 2 lizards, 6 snakes—various localities (gift).

LOWRIE, DONALD C., Chicago: 1 bull snake—Kankakee County, Illinois (gift).

MACRERAN, JAMES, Highland Park, Illinois: 1 red bat—Highland Park, Illinois (gift).

MAHENDRA, DR. BENI C., Agra, India: 10 frogs, 10 lizards, 4 snakes—Agra, India (exchange).

MALLON, ARTHUR, Naperville, Illinois: 1 fox snake—Will County, Illinois (gift).

MARSH, ERNEST G., Austin, Texas: 1 frog, 6 lizards, 5 snakes—Coahuila, Mexico (gift).

MATHER, KING, Evanston, Illinois: 2 short-eared owls—Evanston, Illinois (exchange).

MCCAULEY, MRS. CHARLES A., Highland Park, Illinois: 1 glass sponge (gift).

MCNEIL, HENRY, Chicago: 1 red bat—Chicago (gift).

MOONEY, JAMES J., Highland Park, Illinois: 1 mink skeleton—Cook County, Illinois (gift).

MOYER, JOHN W., Chicago: 3 fishes—Miami, Florida (gift).

MUSEO DE COLEGIO SAN PEDRO NOLASCO, Santiago, Chile: 1 toad, 1 lizard, 1 snake—Santiago, Chile (gift).

MUSEO NACIONAL DE HISTORIA NATURAL, Santiago, Chile: 1 coral snake—Mendoza, Argentina (gift).

MUSÉUM NATIONAL D'HISTOIRE NATURELLE, Paris, France: 1 sole (paratype)—Bay of Suez (exchange).

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Massachusetts: 5 bats—Panama; 1 bat skin and skull—Palestine; 35 mammal skins with skulls—

Africa and South America; 18 birdskins—various localities (exchange); 5 frogs, 108 lizards, 2 snakes—Bahama Islands (gift).

NEITZEL, WILLIAM, Chicago: 3 frogs, 1 snake—Michigan (gift).

NORRIS, PROFESSOR HARRY W., Grinnell, Iowa: 5 shark jaws and parts of skin—various localities (gift).

ORIENTAL INSTITUTE SYRIAN EXPEDITION OF UNIVERSITY OF CHICAGO: 2 wild boar skins with skulls, 4 frogs, 5 turtles, 14 lizards, 17 snakes, 11 insects and allies, 10 crabs—Amouk Plain, Syria (gift).

OSGOOD, DR. WILFRED H., Chicago: 44 small mammals; 1 Lincoln sparrow, 4 frogs—Ontario, Canada (gift).

PACKER, GLENN A., Chicago: 1 hog-nosed snake—Michigan (gift).

PATTERSON, ARTHUR, East Gary, Indiana: 1 glass snake—New Chicago, Indiana (gift).

PATTERSON, BRYAN, Chicago: 9 frogs, 2 turtles—Illinois (gift).

PEARSALL, GORDON, River Forest, Illinois: 13 snakes—various localities (gift).

PEARSON, DR. J. F. W., Coral Gables, Florida: 142 bats—Bahama Islands (gift); 9 lizards, 1 snake—Bahama Islands (exchange).

PEATTIE, DONALD CULROSS, Glenview, Illinois: 2 salamanders, 2 lizards—Tryon, North Carolina (gift).

PERKINS, H. E., Huron Mountain, Michigan: 1 bobcat—Huron Mountain, Michigan (gift).

PERKINS, R. MARLIN, St. Louis, Missouri: 1 coral snake—Brazil; 1 snake skull (gift).

PETERSEN, MRS. LINA, Chicago: 1 fish—Horn Island, Mississippi (gift).

PLATH, KARL, Chicago: 1 bat, 13 birds—various localities (gift).

PRIME, PETER, Oconomowoc, Wisconsin: 1 lizard, 7 snakes—eastern Ecuador (gift).

PRINCETON UNIVERSITY, Princeton, New Jersey: 1 birdskin—Patagonia (exchange).

QUINN, JAMES H., Chicago: 1 prairie mole—Coal City, Illinois (gift).

RAZZETO, DR. OSCAR, Lima, Peru: 7 butterflies—Peru (gift).

REEVE, CAPTAIN R. D., Rantoul, Illinois: 1 gaur skull—Malay Peninsula (gift).

RIGEL, ROBERT, Waterloo, Iowa: 1 vesper rat skin and 2 skulls—Iowa (gift).

RINGLING BROTHERS AND BARNUM AND BAILEY CIRCUS, Sarasota, Florida: 1 wallaby—Australia (gift).

ROBERTS, MRS. ELMER, Chicago: 1 least bittern—Chicago (gift).

ROMEO, PAT, Chicago: 1 nighthawk—Chicago (gift).

ROSENBERG, W. F. H., London, England: 10 birdskins—various localities (exchange).

RUECKERT, ARTHUR G., Chicago: 2 European woodcocks—Denmark (gift).

RUHE, LOUIS, New York: 1 black-necked swan—Argentina (gift).

SAIKIN, SAM D., Chicago: 7 frogs—Lakeside, Michigan (gift).

SAMUELSON, C. F., Chicago: 1 rose-breasted grosbeak—Chicago (gift).

SANBORN, COLIN C., Highland Park, Illinois: 1 least bittern, 1 spider—northern Illinois (gift).

SASKO, PROFESSOR VLADIMIR, Chicago: 12 insects—Georgia and Florida (gift).

SCHESKIE, MRS. HENRY F., Highland Park, Illinois: 1 spider—Highland Park, Illinois (gift).

SCHIMMELFING, RICHARD, Highland Park, Illinois: 1 spider—Highland Park, Illinois (gift).

SCHMIDT, JOHN M., Homewood, Illinois: 2 silver-haired bats—Dune Park, Indiana (gift).

SCHMIDT, JOHN R., Plainfield, Illinois: 1 box turtle—Clay County, Kentucky (gift).

SCHMIDT, KARL P., Homewood, Illinois: 6 frogs, 8 lizards—Mexico (gift).

SCHNIERLA, DR. THEODORE C., New York: 1 marine toad—Canal Zone, Panama (gift).

SCHREIBER, PAUL, Chicago: 1 Virginia rail—Chicago (gift).

SCHWEITZER, MISS ANNA, Chicago: 1 milk snake—Matteson, Illinois (gift).

SHEDD AQUARIUM, JOHN G., Chicago: 1 manatee—Brazil; 45 fishes—various localities (gift).

SHERMAN, DR. HARLEY B., Gainesville, Florida: 7 bats—Florida (exchange).

SHOCKLEY, C., Terre Haute, Indiana: 6 frogs, 45 salamanders—Terre Haute, Indiana (gift).

SIEMEL, SASHA, New York: 1 tapir—Matto Grosso, Brazil (gift).

SIMPSON, JOHN M. AND A. WATSON ARMOUR III, Chicago: 1 markhor skin with skull—India (gift).

SMITH, TARLETON, Waco, Texas: 2 toads, 1 lizard, 9 snakes—Chisos Mountains, Texas (gift).

SNEIDERN, KJEL VON, Cauca, Colombia: 1 tanager, 1 hummingbird—Cauca, Colombia (gift).

SNYDER, L. H., Seoul, Korea: 4 salamanders, 2 toads, 10 snakes—Songdo, Korea (exchange).

SPRINGER, STEWART, Englewood, Florida: 2 rodents, 1 spotted skunk, 1 mole—Florida (gift).

STATE NATURAL HISTORY SURVEY DIVISION, Urbana, Illinois: 3 chalcid-flies—Illinois (gift).

STEVENS, GEORGE M., Mountain View, Arkansas: 1 snapping turtle—Arkansas (gift).

TOKUDA, MITOSI, Kyoto, Japan: 7 rodents, 3 moles, 10 bats—Japan (exchange).

TREFFLICH, HENRY, New York: 1 young chimpanzee—Africa (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 185 bats, 7 birdskins—various localities (exchange).

UNIVERSITY OF CHICAGO, Chicago: 1 frog, 3 lizards, 10 snakes—various localities (gift).

VACIN, EMIL F., Oak Park, Illinois: 3 trout—Washke Lake, Wyoming (gift).

VANDERSLIEE, MRS. —, Chicago: 1 paroquet (gift).

VILLALBA, GASTON S., Havana, Cuba: 6 birdskins—Cuba (exchange).

WARKE, THOMAS, Chicago: 1 white-throated sparrow—Chicago (gift).

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WATSON, DONALD K., Chicago: 2 beetles—Niles Center, Illinois (gift).

WEBER, WALTER A., Austin, Texas: 2 frogs, 2 lizards, 2 snakes—Texas (gift).

WEED, ALFRED C., JR., Chicago: 2 marine fishes—Angola, Africa (gift).

WESTBROOK, C. I., Chicago: 1 white-throated sparrow, 1 Kirkland's water-snake—Chicago (gift).

WEYMARN, MICHAEL A., Harbin, Manchukuo: 6 small mammals and 3 skulls—Manchukuo (gift).

WHEELER, LESLIE, Lake Forest, Illinois: 1 oven-bird, 38 owls, 141 hawks—various localities (gift).

WILBORNE, MRS. CARRIE, Chicago: 1 monkey (gift).

WOOD, SHERWIN F., Los Angeles, California: 27 lizards—Los Angeles and San Bernardino counties (exchange).

ZIMMERMAN, ROBERT, Chicago: 30 fishes—Andros Island, Bahamas (gift).

ZOOLOGICAL SOCIETY OF SAN DIEGO, San Diego, California: 12 Galapagos tortoise shells—Galapagos Islands (gift).

RAYMOND FOUNDATION—ACCESSIONS

ROBERTSON, CAPTAIN JACK, Oakland, California: 4 reels of 35-mm. silent film (gift).

WILLIAMSON, J. E., Lake Worth,

Florida: 4 reels of 35-mm. silent film (gift).

FIELD MUSEUM OF NATURAL HISTORY:
From Division of Photography: 674 slides.

DIVISION OF PHOTOGRAPHY—ACCESSIONS

FIELD, HENRY, Chicago: 6 negatives of natives of Iraq.

FIELD MUSEUM OF NATURAL HISTORY:
Made by Division of Photography: 43,258 prints, 1,846 negatives, 900 lantern slides, 100 enlargements, 42 transparencies, and 10 transparent labels.

Developed for expeditions: 30 negatives.

KANTOR, DR. CHARLES M., Chicago: 12 prints of ethnological views of Northern Territory, Australia.

NICHOLS, HENRY W., Chicago: 103 negatives illustrating prospecting methods and conditions in the early days of the Porcupine Mining Camp.

LIBRARY—ACCESSIONS

List of Donors of Books

INSTITUTIONS

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American Council of Learned Societies, Washington, D.C.

American Tree Association, Washington, D.C.

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Arkansas Centennial Commission, Little Rock, Arkansas.

Athens University, Athens, Greece.

Carnegie Institution, Washington, D.C.

Centro Nacional de Agricultura, San José, Costa Rica.

Chemical Foundation, New York.

Chicago Park District, Chicago.

Chicago Recreation Commission, Chicago.

Clube Zoologico, São Paulo, Brazil.

Comité Permanent International, Vienna, Austria.

Connecticut Historical Society, Hartford, Connecticut.

Crerar Library, John, Chicago.

Departamento Forestal y de Caza y Pesca, Mexico City, Mexico.

Emergency Conservation Committee, New York.

Explorers Club, New York.

Fort Wayne Historical Society, Fort Wayne, Indiana.

Geological Prospecting Petroleum Institute, Leningrad, U.S.S.R.

Gobierno de la Provincia de Buenos Aires, Argentina.

Gump, S. G., Company, San Francisco, California.

Illinois Bell Telephone Company, Chicago.

Institut National pour l'Étude Agronomique du Congo Belge, Brussels, Belgium.

YELLOW POPLAR OR TULIP TREE

FRUITED BY THE THOMAS HARRIS SCHOOL - CHICAGO - ILL. - 1914. (See also Plate XIII.)
Average height, 25 feet. Bark smooth, gray, thin, with a
characteristic crackling sound. Leaves ovate, 10 to 15
centimeters long, from base to tip, with a pointed
apex, and a distinct notch at the base. The flowers
are yellow, and the fruit is a small, round, green
capsule, which is covered with a fine, white, woolly
pubescence. The tree is native to the southern
part of the United States, and is one of the most
valuable trees for timber and for fuel.

This poplar tree attains its largest size in the
southern part of the United States, where it is
found in the mountains of the Allegheny region,
and in the valleys of the Ohio and Mississippi
rivers. It is one of the most valuable trees for
timber, and is also one of the most useful for
fuel. The wood is soft, and is easily worked,
and is used for a great variety of purposes,
such as for the construction of bridges, and
for the manufacture of paper.

It is not the same timber for a great range of
uses as the white poplar, but it is one of the
most valuable trees for timber and for fuel.
The wood is soft, and is easily worked, and
is used for a great variety of purposes, such
as for the construction of bridges, and for
the manufacture of paper.

No. B-49



LOANED BY THE THOMAS HARRIS PUBLIC SCHOOL - EXTENSION OF FIELD MUSEUM -

YELLOW POPLAR OR TULIP TREE

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No. B-49

TYPE OF CASE LOANED TO THE SCHOOLS OF CHICAGO BY THE N. W. HARRIS PUBLIC SCHOOL EXTENSION OF FIELD MUSEUM OF NATURAL HISTORY
One-sixth actual size

- Japan Society, New York.
 Kyancutta Museum, Kyancutta, South Australia.
 Lanston Monotype Machine Company, Philadelphia, Pennsylvania.
 Mauritius Institute, Port Louis, Mauritius.
 Meijikai, The, Tokyo, Japan.
 Menendez, Oscar, Mexico City, Mexico.
 Ministerio de Agricultura y Comercio, Bogotá, Colombia.
 More Game Birds in America Foundation, New York.
 Mori, Tamezo, Chosen, Japan.
 Morris Arboretum, Philadelphia, Pennsylvania.
 Museum Association of China, Peiping, China.
 Museum für Völkerkunde, Basel, Switzerland.
 National Advisory Council on Radio in Education, New York.
Nature Notes, Peoria, Illinois.
 Naturwissenschaftlicher Verein, Hamburg, Germany.
- Parker School, Francis, Chicago.
 Peabody Museum of Archaeology and Ethnology, Cambridge, Massachusetts.
 Perkins Institution, Watertown, Massachusetts.
 Photographie und Forschung, Dresden, Germany.
 Prairie Trek Expedition for Boys, Thoreau, New Mexico.
 Roumanian Legation, The, Washington, D.C.
Scientific American, New York.
 Shedd Aquarium, John G., Chicago.
 South Manchuria Railroad Company, Dairen, Manchuria.
 Texas Technological College, Lublock, Texas.
 Union League Club, Chicago.
 Universidad Central Instituto Botanico, Quito, Ecuador.
 Université de Tiflis, Georgia, U.S.S.R.
 Vanderbilt Marine Museum, New York.
 Vaughan's Seed Store, Chicago.

INDIVIDUALS

- Adams, J., Toronto, Canada.
 Alfaro, Colón Eloy, Washington, D.C.
 Ames, Oakes, Cambridge, Massachusetts.
 Andrade, Ruy de, Lisbon, Portugal.
 Arbelaez, E. P.
 Arpee, Levon Harris, Chicago.
 Babcock, Louis L., Buffalo, New York.
 Bailey, Vernon, Washington, D.C.
 Bartlett, H. H., Ann Arbor, Michigan.
 Batchelder, Charles F., Peterborough, New Hampshire.
 Beaumont, Jacques de, Lausanne, Switzerland.
 Benke, Hermann C., Chicago.
 Borodin, N., Cambridge, Massachusetts.
 Bose, B. B., Pusa, India.
 Boulton, Rudyerd, Chicago.
 Bourret, René, Hanoi, French Indo-China.
 Brandstetter, Dr. Renward, Lucerne, Switzerland.
 Breasted, Dr. Charles, Chicago.
 Brennan, Dr. James Marks, Lawrence, Kansas.
- Britton, Roswell S., New York.
 Burt, Charles E., Winfield, Kansas.
 Buschan, Georg, Stettin, Germany.
 Caso, Dr. Alfonso, Mexico City, Mexico.
 Chevasnerie, Comte A. de la, Neuilly-sur-Seine, France.
 Colyer, Sir Frank, London, England.
 Comas, Juan, Madrid, Spain.
 Conover, H. B., Chicago.
 Cornell, Margaret M., Chicago.
 Darrah, William C., Cambridge, Massachusetts.
 Davis, D. Dwight, Naperville, Illinois.
 Davis, Harry T., Raleigh, North Carolina.
 Davis, Dr. J. J., Lafayette, Indiana.
 Day, Mary B., Chicago.
 Devincenzi, Garibaldi J., Montevideo, Uruguay.
 Dickey, Mrs. Florence V. V., Ojai, California.
 Dintzes, L., Moscow, U.S.S.R.
 Dorf, Ehrling, Princeton, New Jersey.

- Erwin, A. T., Ames, Iowa.
 Field, Henry, Chicago.
 Field, Joseph N., Chicago.
 Field, Stanley, Chicago.
 Firestone, Harvey S., Jr., Akron, Ohio.
 Fontana Company, Mario A., Montevideo, Uruguay.
 Foran, Miss Ethel Ursula, Montreal, Canada.
 Fosberg, F. R., Honolulu, Hawaii.
 Francis, W. D., Brisbane, Australia.
 Frey-Wyssling, Alb., Zürich, Switzerland.
 Friedländer und Sohn, Berlin, Germany.
 Geiser, S. W., Dallas, Texas.
 Gerhard, William J., Chicago.
 Harrasser, Dr. A., Munich, Germany.
 Hendry, G. W., Berkeley, California.
 Heyser, Frank, Chicago.
 Hitchcock, C. Leo, Missoula, Montana.
 Hoffman, Clarence H., St. Paul, Minnesota.
 Huey, Laurence M., San Diego, California.
 Jacob, Heinrich Edward.
 Judd, C. S., Honolulu, Hawaii.
 Kennedy, Walter P.
 Kummerlöwe, Hans, Leipzig, Germany.
 Lewis, Dr. Albert B., Chicago.
 Lines, Jorge A., San José, Costa Rica.
 Logan, Mr. and Mrs. Frank G., Chicago.
 McCormick, Cyrus Hall, Chicago.
 MacCurdy, George Grant, Old Lyme, Connecticut.
 McKinley, William C., Peoria, Illinois.
 McNair, James B., Los Angeles, California.
 Maldonado, Bruzzone, Buenos Aires, Argentina.
 Martin, Dr. Alfred, Bad-Nauheim, Germany.
 Martin, Dr. Paul S., Chicago.
 Matthey, Dr. Robert, Lausanne, Switzerland.
 Moyer, John William, Chicago.
 Müller, Dr. Reinhold F. G., Einsiedel, Germany.
 Necker, Walter, Chicago.
 Nichols, Henry W., Chicago.
 Nininger, H. H., Denver, Colorado.
 Nobre, Augusto, Oporto, Portugal.
 Okada, Yaichiro, Tokyo, Japan.
 Olalla, A. M., Manáos, Brazil.
 Olbrechts, Frans M., Brussels, Belgium.
 Oleviera Roxo, Mathias, La Plata, Argentina.
 Oesterreich, R., Garmisch Partenkirchen, Germany.
 Oprescu, G.
 Osgood, Dr. Wilfred H., Chicago.
 Peek, George N., Moline, Illinois.
 Ramos, César Lizardi, Mexico City, Mexico.
 Ray, Eugene, Urbana, Illinois.
 Rechinger, Karl Heinz, Dresden, Germany.
 Rehn, J. A. G., Philadelphia, Pennsylvania.
 Richards, A. Glenn, Jr., Rochester, New York.
 Riggs, Elmer S., Chicago.
 Sabett, Younis S., Cairo, Egypt.
 Sanborn, Colin C., Highland Park, Illinois.
 Schmidt, Karl P., Homewood, Illinois.
 Sennen, M., Paris, France.
 Serrano, Antonio, Paraná, Argentina.
 Sharmith, Helen K., Berkeley, California.
 Sherff, Dr. Earl E., Chicago.
 Simms, Stephen C., Chicago.
 Skroztzov, B. V., Harbin, Manchukuo.
 Slavik, F., Prague, Czechoslovakia.
 Sörensen, Rev. Theodore, Norway.
 Sprague, Colonel Albert A., Chicago.
 Standley, Paul C., Chicago.
 Stillwell, Jerry E., Dallas, Texas.
 Taylor, Walter P., Washington, D.C.
 Thompson, J. Eric, Cambridge, Massachusetts.
 Thomsen, Th., Copenhagen, Denmark.
 Thorne, Mrs. James Ward, Chicago.
 Umrath, Karl, Graz, Austria.
 Uvarov, B. P., Stavropol, U.S.S.R.
 Vignati, Milciades Alejo, La Plata, Argentina.
 Vos, C. M. de, Stellenbosch, Union of South Africa.

ACCESSIONS

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- Walcott, A. B., Downers Grove, Illinois. Wheeler, Leslie, Lake Forest, Illinois.
Wardle, H. Newell, Philadelphia, Penn- Wilbur, C. Martin, Chicago.
sylvania.
Warren, E. B., Colorado Springs, Colo- Wiman, C., Moscow, U.S.S.R.
rado.
Weed, Alfred C., Chicago. Woolcock, Violet, Melbourne, Aus-
tralia.

ARTICLES OF INCORPORATION

STATE OF ILLINOIS

DEPARTMENT OF STATE

WILLIAM H. HINRICHSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A.D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSEN,
Secretary of State.

[SEAL]

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archaeology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Edward E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed)

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McCurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaat, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers,

Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, Geo. F. Bissell, John R. Walsh, Chas. Fitzsimmons, John A. Roche, E. B. McCagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Sooy Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Eliphalet W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS }
 COOK COUNTY } ss.

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,

[SEAL]

NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 3

Pursuant to a resolution passed at a meeting of the corporate members held the 10th day of May, 1920, the management of FIELD MUSEUM OF NATURAL HISTORY shall be invested in a Board of TWENTY-ONE (21) TRUSTEES, who shall be elected in such manner and for such time and term of office as may be provided for by the By-Laws. A certificate to this effect was filed May 21, 1920, in the office of the Secretary of State for Illinois.

AMENDED BY-LAWS

DECEMBER, 1936

ARTICLE I

MEMBERS

SECTION 1. Members shall be of twelve classes, Corporate Members, Honorary Members, Patrons, Corresponding Members, Benefactors, Contributors, Life Members, Non-Resident Life Members, Associate Members, Non-Resident Associate Members, Sustaining Members, and Annual Members.

SECTION 2. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such person named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of Twenty Dollars (\$20.00) or more. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SECTION 3. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

SECTION 4. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SECTION 5. Any person contributing or devising the sum of One Hundred Thousand Dollars (\$100,000.00) in cash, or securities, or property to the funds of the Museum, may be elected a Benefactor of the Museum.

SECTION 6. Corresponding Members shall be chosen by the Board from among scientists or patrons of science residing in foreign countries, who render important service to the Museum. They shall be elected by the Board of Trustees at any of its meetings. They shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 7. Any person contributing to the Museum One Thousand Dollars (\$1,000.00) or more in cash, securities, or material, may be elected a Contributor of the Museum. Contributors shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 8. Any person paying into the treasury the sum of Five Hundred Dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Life Member. Non-Resident Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees.

SECTION 9. Any person paying into the treasury of the Museum the sum of One Hundred Dollars (\$100.00), at any one time, shall, upon the unanimous vote of the Board, become an Associate Member. Associate Members shall be exempt from all dues, and shall be entitled to tickets admitting Member and members of family, including non-resident home guests; all publications of the Museum, if so desired; reserved seats for all lectures and entertainments under the auspices

of the Museum, provided reservation is requested in advance; and admission of holder of membership and accompanying party to all special exhibits and Museum functions day or evening. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of Fifty Dollars (\$50.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Associate Member. Non-Resident Associate Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to Associate Members.

SECTION 10. Sustaining Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Twenty-five Dollars (\$25.00), payable within thirty days after notice of election and within thirty days after each recurring annual date. This Sustaining Membership entitles the member to free admission for the Member and family to the Museum on any day, the Annual Report and such other Museum documents or publications as may be requested in writing. When a Sustaining Member has paid the annual fee of \$25.00 for six years, such Member shall be entitled to become an Associate Member.

SECTION 11. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Ten Dollars (\$10.00), payable within thirty days after each recurring annual date. An Annual Membership shall entitle the Member to a card of admission for the Member and family during all hours when the Museum is open to the public, and free admission for the Member and family to all Museum lectures or entertainments. This membership will also entitle the holder to the courtesies of the membership privileges of every Museum of note in the United States and Canada, so long as the existing system of cooperative interchange of membership tickets shall be maintained, including tickets for any lectures given under the auspices of any of the Museums during a visit to the cities in which the cooperative museums are located.

SECTION 12. All membership fees, excepting Sustaining and Annual, shall hereafter be applied to a permanent Membership Endowment Fund, the interest only of which shall be applied for the use of the Museum as the Board of Trustees may order.

ARTICLE II

BOARD OF TRUSTEES

SECTION 1. The Board of Trustees shall consist of twenty-one members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting of the Board, by a majority vote of the members of the Board present.

SECTION 2. Regular meetings of the Board shall be held on the third Monday of the month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SECTION 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III

HONORARY TRUSTEES

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, any Trustee who by reason of inability, on account of change of residence, or for other cause or from indisposition to serve longer in such capacity shall resign his place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees,

whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV

OFFICERS

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, the Second Vice-President, and the Third Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the third Monday of January of each year, and shall be called the Annual Meeting.

SECTION 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SECTION 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V

THE TREASURER

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

SECTION 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: the President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SECTION 3. The Treasurer shall give bond in such amount, and with such sureties as shall be approved by the Board of Trustees.

SECTION 4. The Harris Trust & Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

ARTICLE VI

THE DIRECTOR

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the Institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SECTION 2. There shall be four scientific Departments of the Museum—Anthropology, Botany, Geology and Zoology; each under the charge of a Chief

Curator, subject to the authority of the Director. The Chief Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific Departments shall be appointed and removed by the Director upon the recommendation of the Chief Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SECTION 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the Board may direct.

ARTICLE VII

THE AUDITOR

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all bills rendered for the expenditure of the money of the Corporation.

ARTICLE VIII

COMMITTEES

SECTION 1. There shall be five Committees, as follows: Finance, Building, Auditing, Pension and Executive.

SECTION 2. The Finance Committee shall consist of five members, the Auditing and Pension Committees shall each consist of three members, and the Building Committee shall consist of five members. All members of these four Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SECTION 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee, the Chairman of the Auditing Committee, the Chairman of the Pension Committee, and three other members of the Board to be elected by ballot at the Annual Meeting.

SECTION 4. Four members shall constitute a quorum of the Executive Committee, and in all standing Committees two members shall constitute a quorum. In the event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any members of the Board of Trustees to act in place of the absentee.

SECTION 5. The Finance Committee shall have supervision of investing the endowment and other permanent funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to invest, sell, and reinvest funds, subject to the approval of the Board.

SECTION 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SECTION 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of

each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the expenditures stated are authorized.

SECTION 8. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SECTION 9. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SECTION 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SECTION 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX

NOMINATING COMMITTEE

SECTION 1. At the November meeting of the Board each year, a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Auditing Committee, and the Pension Committee, and for three members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

ARTICLE X

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SECTION 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.

FOUNDER

Marshall Field*

BENEFACTORS

Those who have contributed \$100,000 or more to the Museum

Ayer, Edward E.*	Field, Stanley	Rawson, Frederick H.
Buckingham, Miss Kate S.	Graham, Ernest R.*	Raymond, Mrs. Anna Louise
Crane, Cornelius	Harris, Albert W.	Raymond, James Nelson*
Crane, R. T., Jr.*	Harris, Norman W.*	Simpson, James
Field, Mrs. E. Marshall	Higinbotham, Harlow N.*	Smith, Mrs. Frances Gaylord*
Field, Joseph N.*	Kelley, William V.*	Smith, George T.*
Field, Marshall	Pullman, George M.*	Sturges, Mrs. Mary D.*

*DECEASED

HONORARY MEMBERS

Those who have rendered eminent service to Science

Chalmers, William J.	Harris, Albert W.	Roosevelt, Kermit
Crane, Charles R.	Ludwig, H. R. H. Gustaf	Roosevelt, Theodore
Cutting, C. Suydam	Adolf, Crown Prince of Sweden	Sargent, Homer E.
Field, Mrs. E. Marshall	McCormick, Stanley	Simpson, James
Field, Marshall	Rawson, Frederick H.	Sprague, Albert A.
Field, Stanley		Vernay, Arthur S.
	DECEASED, 1936	
	Graham, Ernest R.	

PATRONS

Those who have rendered eminent service to the Museum

Armour, Allison V.	Field, Mrs. E. Marshall	Probst, Edward
Chadbourne, Mrs. Emily Crane	Field, Mrs. Stanley	Rawson, Frederick H.
Chancellor, Philip M.	Hancock, G. Allan	Roosevelt, Kermit
Cherrie, George K.	Insull, Samuel	Roosevelt, Theodore
Collins, Alfred M.	Kennedy, Vernon Shaw	Sargent, Homer E.
Conover, Boardman	Knight, Charles R.	Straus, Mrs. Oscar
Cummings, Mrs. Robert F.	Langdon, Professor Stephen	Strawn, Silas H.
Cutting, C. Suydam	Moore, Mrs. William H.	Vernay, Arthur S.
Day, Lee Garnett		Wegeforth, Dr. Harry M.
Ellsworth, Duncan S.		White, Harold A.

DECEASED, 1936

White, Howard J.

Smith, Mrs. Frances Gaylord

CORRESPONDING MEMBERS

Scientists or patrons of science, residing in foreign countries, who have rendered eminent service to the Museum

Breuil, Abbé Henri	Hochreutiner, Dr. B. P. Georges	Langdon, Professor Stephen
Christensen, Dr. Carl	Keissler, Dr. Karl	Smith, Professor Sir
Diels, Dr. Ludwig	Keith, Professor Sir Arthur	Grafton Elliot

CONTRIBUTORS

Those who have contributed \$1,000 to \$100,000 to the Museum in money or materials

<i>\$75,000 to \$100,000</i>	Gunsaulus, Dr. F. W.*	Harris, Mrs. Norman W.*
Chancellor, Philip M.	Insell, Samuel	Hutchinson, C. L.*
<i>\$50,000 to \$75,000</i>	Laufer, Dr. Berthold*	Keith, Edson*
Keep, Chauncey*	McCormick, Cyrus (Estate)	Langtry, J. C.
Rosenwald, Mrs. Augusta N.*	McCormick, Stanley	MacLean, Mrs. M. Haddon
Ryerson, Martin A.*	Mitchell, John J.*	Mandel, Leon
<i>\$25,000 to \$50,000</i>	Reese, Lewis*	Moore, Mrs. William H.
Blackstone, Mrs. Timothy B.*	Robb, Mrs. George W.	Payne, John Barton*
Coats, John*	Rockefeller Foundation, The	Pearsons, D. K.*
Crane, Charles R.	Sargent, Homer E.	Porter, H. H.*
Field, Mrs. Stanley	Scheppe, Mrs. Charles H.	Ream, Norman B.*
Jones, Arthur B.*	Smith, Mrs. George T.*	Revell, Alexander H.*
Porter, George F.*	Straus, Mrs. Oscar	Salie, Prince M. U. M.
Rosenwald, Julius*	Strong, Walter A.*	Sprague, A. A.*
Vernay, Arthur S.	Wrigley, William, Jr.*	Strawn, Silas H.
White, Harold A.	<i>\$5,000 to \$10,000</i>	Thorne, Bruce
<i>\$10,000 to \$25,000</i>	Adams, George E.*	Tree, Lambert*
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 Donohue, Edgar T.
 Douglas, James H., Jr.
 Douglass, Kingman
 Drake, Lyman M.
 Dreiske, George J.
 Drummond, James J.
 Dryden, Mrs. George B.
 Dubbs, C. P.
 Dudley, Laurence H.
 Dugan, Alphonso G.
 Dulany, George W., Jr.
 Dulsky, Mrs. Samuel
 Dunbaugh, Harry J.
 Duncan, Albert G.
 Duner, Dr. Clarence S.
 Duner, Joseph A.
 Dunham, John H.
 Dunham, Miss Lucy Belle
 Dunham, Robert J.
 Dunlop, Mrs. Simpson
 Dunn, Samuel O.
 Dupee, Mrs. F. Kennett
 Durbin, Fletcher M.
- Easterberg, C. J.
 Eastman, Mrs. George H.
 Ebeling, Frederic O.
 Eckhart, Mrs. B. A.
 Eckhart, Percy B.
 Eddy, George A.
 Eddy, Thomas H.
 Edmonds, Harry C.
 Edwards, Miss Edith E.
 Edwards, Kenneth P.
 Egan, William B.
 Ehrman, Edwin H.
 Eiselen, Dr. Frederick
 Carl
 Eisendrath, Edwin W.
 Eisendrath, Robert M.
 Eisendrath, Mrs.
 William N.
- Eisenschiml, Mrs. Otto
 Eisenstaedt, Harry
 Eisenstein, Sol
 Eitel, Max
 Elenbogen, Herman
 Ellbogen, Albert L.
 Elliot, Mrs. Frank M.
 Elliott, Dr. Charles A.
 Elliott, Frank R.
 Ellis, Howard
 Elting, Howard
 Ely, Mrs. C. Morse
 Engel, E. J.
 Engelhard, Benjamin M.
 Engstrom, Harold
 Engwall, John F.
 Erdmann, Mrs. C. Pardee
 Ericson, Mrs. Chester F.
 Ericson, Melvin Burton
 Ericsson, Clarence
 Ericsson, Dewey A.
 Ericsson, Henry
 Ericsson, Walter H.
 Ernst, Mrs. Leo
 Erskine, Albert DeWolf
 Etten, Henry C.
 Eustice, Alfred L.
 Evans, Mrs. Albert
 Thomas
 Evans, Miss Anna B.
 Evans, Mrs. David
 Evans, David J.
 Evans, Eliot H.
 Evans, Evan A.
 Ewell, C. D.
 Ewen, William R. T.
- Fabian, Francis G.
 Fabry, Herman
 Fackt, Mrs. George P.
 Fader, A. L.
 Faget, James E.
 Faherty, Roger
 Fahrenwald, Frank A.
 Faithorn, Walter E.
 Falk, Miss Amy
 Farnham, Mrs. Harry J.
 Farrell, Mrs. B. J.
 Farrell, Rev. Thomas F.
 Faulkner, Charles J., Jr.
 Faulkner, Miss Elizabeth
 Faurot, Henry
 Faurot, Henry, Jr.
 Fay, Miss Agnes M.
 Fecke, Mrs. Frank J.
 Feigenheimer, Herman
 Feiwell, Morris E.
 Felix, Benjamin B.
 Fellows, William K.
 Felsenthal, Edward
 George
 Feltman, Charles H.
- Fergus, Robert C.
 Ferguson, William H.
 Fernald, Robert W.
 Fetcher, Edwin S.
 Fetzter, Wade
 Fies, Mrs. E. E.
 Filek, August
 Findlay, Mrs. Roderick
 Finley, Max H.
 Finn, Joseph M.
 Finnerud, Dr. Clark W.
 Fischel, Frederic A.
 Fish, Mrs. Isaac
 Fishbein, Dr. Morris
 Fisher, Mrs. Edward
 Metcalf
 Fisher, Harry M.
 Fitzpatrick, Mrs. John A.
 Flavin, Edwin F.
 Fleming, Mrs. Joseph B.
 Flesch, Eugene W. P.
 Flexner, Washington
 Florsheim, Irving S.
 Florsdorf, Mrs. G. E.
 Floyd, Rev. William M.
 Follansbee, Mitchell D.
 Folonie, Mrs. Robert J.
 Folsom, Mrs. Richard S.
 Foote, Peter
 Forch, Mrs. John L., Jr.
 Foreman, Mrs. Alfred K.
 Foreman, Mrs. E. G.
 Foreman, Edwin G., Jr.
 Foreman, Harold E.
 Foresman, Mrs. W.
 Coates
 Forgan, James B., Jr.
 Forgan, Mrs. J. Russell
 Forgan, Robert D.
 Forman, Charles
 Forstall, James J.
 Fortune, Miss Joanna
 Foster, Mrs. Charles K.
 Foster, Volney
 Fowler, Miss Elizabeth
 Fox, Charles E.
 Fox, Jacob Logan
 Fox, Dr. Paul C.
 Frank, Dr. Ira
 Frank, Mrs. Joseph K.
 Frankenstein, Rudolph
 Frankenstein, William B.
 Frankenthal, Dr. Lester
 E., Jr.
 Frazer, Mrs. George E.
 Freedman, Dr. I. Val
 Freeman, Charles Y.
 Freeman, Walter W.
 Freer, Archibald E.
 French, Dudley K.
 Frenier, A. B.
 Freudenthal, G. S.

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- Freund, Charles E.
 Frey, Charles Daniel
 Freyn, Henry J.
 Fridstein, Meyer
 Friedlander, Jacob
 Friedlich, Mrs. Herbert
 Friedlund, Mrs. J. Arthur
 Friedman, Mrs. Isaac K.
 Friedman, Oscar J.
 Friend, Mrs. Henry K.
 Friestedt, Arthur A.
 Frisbie, Chauncey O.
 Frost, Mrs. Charles
 Fuller, Mrs. Charles
 Fuller, Mrs. Gretta
 Patterson
 Fuller, Judson M.
 Fuller, Leroy W.
 Furry, William S.
 Furst, Eduard A.

 Gabathuler, Miss Juanita
 Gabriel, Charles
 Gaertner, William
 Gale, G. Whittier
 Gale, Henry G.
 Gall, Charles H.
 Gall, Harry T.
 Gallagher, Vincent G.
 Gallup, Rockwell
 Galt, Mrs. A. T.
 Gamble, D. E.
 Gammage, Mrs. Adaline
 Gann, David B.
 Gansbergen, Mrs. F. H.
 Garard, Elzy A.
 Garcia, Jose
 Garden, Hugh M. G.
 Gardner, Addison L.
 Gardner, Addison
 L., Jr.
 Gardner, Henry A.
 Gardner, Mrs. James P.
 Garrison, Dr. Lester E.
 Gary, Fred Elbert
 Gately, Ralph M.
 Gates, Mrs. L. F.
 Gawne, Miss Clara J.
 Gay, Rev. A. Royal
 Gaylord, Duane W.
 Gear, H. B.
 Gehl, Dr. W. H.
 Gehrman, Felix
 Geiger, Alfred B.
 George, Mrs. Albert B.
 George, Fred W.
 Gerding, R. W.
 Geringer, Charles M.
 Gerngross, Mrs. Leo
 Gerts, Walter S.
 Gettelman, Mrs.
 Sidney H.

 Getzoff, E. B.
 Gibbs, Dr. John Phillip
 Gibson, Dr. Stanley
 Gielow, Walter C.
 Giffert, Mrs. William
 Gifford, Mrs.
 Frederick C.
 Gilbert, Miss Clara C.
 Gilchrist, Mrs. John F.
 Gilchrist, Mrs. William
 Albert
 Giles, Carl C.
 Gillette, Mrs. Ellen D.
 Gillman, Morris
 Gillson, Louis K.
 Ginther, Miss Minnie C.
 Girard, Mrs. Anna
 Glaescher, Mrs. G. W.
 Glasgow, H. A.
 Glasner, Rudolph W.
 Godehn, Paul M.
 Goedke, Charles F.
 Goehst, Mrs. John
 Henry
 Goes, Mrs. Arthur A.
 Golden, Dr. Isaac J. K.
 Goldenberg, Sidney D.
 Goldfine, Dr. Ascher H. C.
 Golding, Robert N.
 Goldstine, Dr. Mark T.
 Goldy, Walter I.
 Goode, Mrs. Rowland T.
 Gooden, G. E.
 Goodkind, Dr. Maurice L.
 Goodman, Benedict K.
 Goodman, Mrs. Milton F.
 Goodman, W. J.
 Goodman, William E.
 Goodrow, William
 Goodwin, Clarence
 Norton
 Goodwin, George S.
 Gordon, Miss Bertha F.
 Gordon, Harold J.
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 Gorrell, Mrs. Warren
 Gradle, Dr. Harry S.
 Grady, Dr. Grover Q.
 Graf, Robert J.
 Graff, Oscar C.
 Graham, Douglas
 Graham, E. V.
 Graham, Miss
 Margaret H.
 Gramm, Mrs. Helen
 Granger, Alfred
 Granger, Mrs. Everett J.
 Grant, Alexander R.
 Grant, James D.
 Grant, John G.
 Graves, Howard B.
 Grawoig, Allen

 Green, Miss Mary
 Pomeroy
 Green, Robert D.
 Green, Zola C.
 Greenberg, Andrew H.
 Greenburg, Dr. Ira E.
 Greene, Henry E.
 Greenebaum, James E.
 Greenebaum, M. E., Jr.
 Greenlee, James A.
 Greenlee, Mrs. William
 Brooks
 Greenman, Mrs. Earl C.
 Gregory, Clifford V.
 Gregory, Stephen
 S., Jr.
 Gregory, Tappan
 Grey, Charles F.
 Grey, Dr. Dorothy
 Griest, Mrs. Marianna L.
 Griffenhagen, Mrs.
 Edwin O.
 Griffith, Mrs. Carroll L.
 Griffith, E. L.
 Griffith, Melvin L.
 Griffith, Mrs. William
 Griffiths, George W.
 Grimm, Walter H.
 Griswold, Harold T.
 Grizzard, James A.
 Gronkowski, Rev. C. I.
 Groot, Cornelius J.
 Groot, Lawrence A.
 Gross, Henry R.
 Grossman, Frank I.
 Grotenhuis, Mrs.
 William J.
 Grotowski, Dr. Leon
 Gruhn, Alvah V.
 Grulee, Lowry K.
 Grunow, Mrs. William C.
 Guenzel, Louis
 Guest, Ward E.
 Gundlach, Ernest T.
 Gunthorp, Walter J.
 Gurlley, Miss Helen K.
 Gwinn, William R.

 Haas, Adolph R.
 Haas, Maurice
 Haas, Dr. Raoul R.
 Hadley, Mrs. Edwin M.
 Hagen, Mrs. Daise
 Hagen, Fred J.
 Hagens, Dr. Garrett J.
 Haggard, John D.
 Hagner, Fred L.
 Haight, George I.
 Hair, T. R.
 Hajicek, Rudolph F.
 Haldeman, Walter S.
 Hale, Mrs. Samuel

- Hale, William B.
 Hall, David W.
 Hall, Edward B.
 Hall, Mrs. J. B.
 Hallmann, August F.
 Hallmann, Herman F.
 Halperin, Aaron
 Hamill, Charles H.
 Hamill, Mrs. Ernest A.
 Hamill, Robert W.
 Hamilton, Thomas B.
 Hamlin, Paul D.
 Hammerschmidt, Mrs. George F.
 Hammitt, Miss Frances M.
 Hammond, Mrs. Idea L.
 Hammond, Thomas S.
 Hand, George W.
 Hanley, Henry L.
 Hann, J. Roberts
 Hansen, Mrs. Carl
 Hansen, Jacob W.
 Harder, John H.
 Hardie, George F.
 Hardin, John H.
 Harding, Charles F., Jr.
 Harding, George F.
 Harding, John Cowden
 Harding, Richard T.
 Hardinge, Franklin
 Harker, H. L.
 Harms, John V. D.
 Harper, Alfred C.
 Harris, Mrs. Abraham
 Harris, David J.
 Harris, Gordon L.
 Harris, Hayden B.
 Hart, Mrs. Herbert L.
 Hart, William M.
 Hartmann, A. O.
 Hartshorn, Kenneth L.
 Hartwell, Fred G.
 Hartwig, Otto J.
 Hartz, W. Homer
 Harvey, Hillman H.
 Harvey, Richard M.
 Harwood, Thomas W.
 Haskell, Mrs. George E.
 Haugan, Oscar H.
 Havens, Samuel M.
 Hay, Mrs. William Sherman
 Hayes, Charles M.
 Hayes, Harold C.
 Hayes, Miss Mary E.
 Haynie, Miss Rachel W.
 Hays, Mrs. Arthur A.
 Hayslett, Arthur J.
 Hazlett, Dr. William H.
 Healy, Mrs. Marquette A.
 Heaney, Dr. N. Sproat
 Heaton, Harry E.
 Heaton, Herman C.
 Heberlein, Miss Amanda F.
 Heck, John
 Hedberg, Henry E.
 Heide, John H., Jr.
 Heidke, Herman L.
 Heiman, Marcus
 Heine, Mrs. Albert
 Heineman, Oscar
 Heinzelman, Karl
 Heinzen, Mrs. Carl
 Heldmaier, Miss Marie
 Helfrich, J. Howard
 Heller, Albert
 Heller, John A.
 Heller, Mrs. Walter E.
 Hellman, George A.
 Hellyer, Walter
 Hemmens, Mrs. Walter P.
 Hemple, Miss Anne C.
 Henderson, Thomas B. G.
 Henkel, Frederick W.
 Henley, Dr. Eugene H.
 Hennings, Mrs. Abraham J.
 Henry, Huntington B.
 Henry, Otto
 Henshaw, Mrs. Raymond S.
 Herrick, Charles E.
 Herrick, Miss Louise
 Herrick, Walter D.
 Herron, James C.
 Herron, Mrs. Ollie L.
 Hershey, J. Clarence
 Hertz, Mrs. Fred
 Herwig, George
 Herwig, William D., Jr.
 Heun, Arthur
 Heverly, Earl L.
 Hibbard, Mrs. Angus S.
 Hibbard, Mrs. W. G.
 Higgins, John
 Higinbotham, Harlow D.
 Higley, Mrs. Charles W.
 Hildebrand, Eugene, Jr.
 Hildebrand, Grant M.
 Hill, Mrs. E. M.
 Hill, Mrs. Russell D.
 Hill, William E.
 Hille, Dr. Hermann
 Hillebrecht, Herbert E.
 Hillis, Dr. David S.
 Hills, Edward R.
 Himrod, Mrs. Frank W.
 Hinkle, Ross O.
 Hinman, Mrs. Estelle S.
 Hinrichs, Henry, Jr.
 Hinsberg, Stanley K.
 Hintz, John C.
 Hird, Frederick H.
 Hirsch, Jacob H.
 Hiscox, Morton
 Histed, J. Roland
 Hixon, Mrs. Frank P.
 Hodgkinson, Mrs. W. R.
 Hoffman, Glen T.
 Hoffmann, Miss Caroline Dickinson
 Hoffmann, Edward
 Hempstead
 Hogan, Robert E.
 Hohman, Dr. E. H.
 Hoier, William V.
 Holden, Edward A.
 Holland, Dr. William E.
 Holliday, W. J.
 Hollingsworth, R. G.
 Hollis, Henry L.
 Hollister, Francis H.
 Holmes, George J.
 Holmes, Miss Harriet F.
 Holmes, Mrs. Maud G.
 Holmes, William
 Holmes, William N.
 Holt, Miss Ellen
 Homan, Miss Blossom L.
 Honnold, Dr. Fred C.
 Honsik, Mrs. James M.
 Hoover, F. E.
 Hoover, Mrs. Frank K.
 Hoover, Mrs. Fred W.
 Hoover, H. Earl
 Hoover, Ray P.
 Hope, Alfred S.
 Hopkins, Farley
 Hopkins, Mrs. James M.
 Hopkins, John L.
 Horan, Dennis A.
 Horcher, William W.
 Horner, Dr. David A.
 Horner, Mrs. Maurice L., Jr.
 Hornung, Joseph J.
 Horst, Curt A.
 Horton, George T.
 Horton, Hiram T.
 Horton, Horace B.
 Hosbein, Louis H.
 Hosmer, Philip B.
 Hottinger, Adolph
 Howard, Mrs. Elmer A.
 Howard, Willis G.
 Howe, Charles Arthur
 Howe, Clinton W.
 Howe, Warren D.
 Howe, William G.
 Howell, Albert S.
 Howell, William
 Howse, Richard
 Hoyne, Thomas Temple

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- Hoyt, Frederick T.
Hoyt, Mrs. Phelps B.
Hubbard, George W.
Huber, Dr. Harry Lee
Hudson, Mrs. H. Newton
Hudson, Walter L.
Hudson, William E.
Huey, Mrs. A. S.
Huff, Thomas D.
Huggins, Dr. Ben H.
Hughes, George A.
Hughes, John E.
Hughes, John W.
Hulbert, Mrs. Charles Pratt
Hulbert, Mrs. Milan H.
Hume, John T.
Humphrey, H. K.
Huncke, Herbert S.
Huncke, Oswald W.
Hunter, Samuel M.
Hurley, Edward N., Jr.
Huston, W. L.
Huston, Ward T.
Huszagh, R. LeRoy
Huszagh, Ralph D.
Hutchinson, Foye P.
Hutchinson, Samuel S.
Hyatt, R. C.
Hynes, Rev. J. A.
- Ickes, Raymond
Idelman, Bernard
Ilg, Robert A.
Inlander, Samuel
Irons, Dr. Ernest E.
Isaacs, Charles W., Jr.
Isham, Henry P.
Ives, Clifford E.
- Jackson, Allan
Jackson, Archer L.
Jacobi, Miss Emily C.
Jacobs, Hyman A.
Jacobs, Julius
Jacobs, Louis G.
Jacobs, Walter H.
Jacobson, Raphael
Jaeger, George J., Jr.
Jaffe, Dr. Richard Herman
Jaffray, Mrs. David S.
James, Edward P.
James, William R.
Jameson, Clarence W.
Janusch, Fred W.
Jaques, Mrs. Louis Tallmadge
Jarchow, Mrs. C. E.
Jarchow, Charles C.
Jarratt, Mrs. Walter J.
- Jefferies, F. L.
Jenkins, David F. D.
Jenkins, Mrs. John E.
Jenkinson, Mrs. Arthur Gilbert
Jenks, William Shippen
Jennings, Ode D.
Jennings, Mrs. Rosa V.
Jerger, Wilbur Joseph
Jetzinger, David
Jirka, Dr. Frank J.
Jirka, Dr. Robert H.
John, Dr. Findley D.
Johnson, Albert M.
Johnson, Alvin O.
Johnson, Arthur L.
Johnson, Mrs. Harley Alden
Johnson, Isaac Horton
Johnson, Joseph F.
Johnson, Nels E.
Johnson, Mrs. O. W.
Johnson, Olaf B.
Johnson, Philip C.
Johnson, Ulysses G.
Johnston, Arthur C.
Johnston, Edward R.
Johnston, Mrs. Hubert McBean
Johnstone, Mrs. M. L.
Johnstone, Dr. A. Ralph
Johnstone, George A.
Johnstone, Dr. Mary M. S.
Jones, Albert G.
Jones, G. Herbert
Jones, James B.
Jones, Lester M.
Jones, Dr. Margaret M.
Jones, Melvin
Jones, Miss Susan E.
Jones, Warren G.
Joseph, Louis L.
Joy, Guy A.
Joyce, David G.
Joyce, Joseph
Judah, Noble Brandon
Judson, Clay
Juergens, H. Paul
Julien, Victor R.
Junker, Miss Elsa W.
Junkunc, Stephen
- Kaercher, A. W.
Kahn, Gus
Kahn, J. Kesner
Kahn, Louis
Kaine, James B.
Kane, Jerome M.
Kanter, Jerome J.
Kaplan, Nathan D.
Karpen, Michael
- Kaspar, Otto
Katz, Mrs. Sidney L.
Katzenstein, Mrs. George P.
Kauffman, Mrs. R. K.
Kauffmann, Alfred
Kavanagh, Clarence H.
Kavanagh, Maurice F.
Kay, Mrs. Marie E.
Keefe, Mrs. George I.
Keehn, George W.
Keene, Mrs. Joseph
Keeney, Albert F.
Kehl, Robert Joseph
Keith, Stanley
Kelker, Rudolph F., Jr.
Kellogg, John L.
Kelly, Edward T.
Kelly, Mrs. Haven Core
Kelly, James J.
Kemp, Mrs. E. M.
Kempner, Harry B.
Kempner, Stan
Kendall, Mrs. Virginia H.
Kendrick, John F.
Kennedy, Mrs. E. J.
Kennedy, Miss Leonore
Kennedy, Lesley
Kenneily, Martin H.
Kent, Dr. O. B.
Keogh, Gordon E.
Kern, Trude
Kersey, Glen B.
Kerwin, Edward M.
Kesner, Jacob L.
Kestnbaum, Meyer
Kiessling, Mrs. Charles S.
Kilbourne, L. B.
Kile, Miss Jessie J.
Kimbark, Mrs. Eugene Underwood
Kimbark, John R.
King, Joseph H.
Kingman, Mrs. Arthur G.
Kinney, Mrs. Minnie B.
Kinsey, Frank
Kinsey, Robert S.
Kintzel, Richard
Kircher, Rev. Julius
Kirchheimer, Max
Kirkland, Mrs.
Kirkmouth
Kitchell, Howell W.
Kittredge, R. J.
Kitzelman, Otto
Klein, Arthur F.
Klein, Henry A.
Klein, Mrs. Samuel
Kleinpell, Dr. Henry H.
Kleist, Mrs. Harry
Kleppinger, William H.
Kleutgen, Dr. Arthur C.

- Kline, Sol
 Klinetop, Mrs.
 Charles W.
 Klink, A. F.
 Knott, Mrs. Stephen R.
 Knox, Harry S.
 Knutson, George H.
 Koch, Paul W.
 Koch, Raymond J.
 Kochs, August
 Kochs, Mrs. Robert T.
 Kohl, Mrs. Caroline L.
 Kohler, Eric L.
 Kohlsaat, Edward C.
 Komiss, David S.
 Konsberg, Alvin V.
 Kopf, William P.
 Kosobud, William F.
 Kotal, John A.
 Kotin, George N.
 Koucky, Dr. J. D.
 Kovac, Stefan
 Kraber, Mrs. Fredericka
 Kraft, C. H.
 Kraft, James L.
 Kraft, Norman
 Kralovec, Emil G.
 Kralovec, Mrs. Otto J.
 Kramer, Leroy
 Kraus, Peter J.
 Kraus, Samuel B.
 Krause, John J.
 Kretschmer, Dr.
 Herman L.
 Kritchevsky, Dr. Wolff
 Kroehl, Howard
 Kropff, C. G.
 Krost, Dr. Gerard N.
 Krueger, Leopold A.
 Krutckoff, Charles
 Kuehn, A. L.
 Kuh, Mrs. Edwin J., Jr.
 Kuhl, Harry J.
 Kuhn, Frederick T.
 Kuhn, Dr. Hedwig S.
 Kunka, Bernard J.
 Kunstadter, Albert
 Kunstadter, Sigmund
 Kurtzon, Morris

 Lacey, Miss Edith M.
 LaChance, Mrs.
 Leander H.
 Lafin, Mrs. Louis E.
 Lafin, Louis E., Jr.
 Lampert, Wilson W.
 Lamson, W. A.
 Lanahan, Mrs. M. J.
 Landry, Alvar A.
 Lane, F. Howard
 Lane, Ray E.
 Lane, Wallace R.

 Lang, Edward J.
 Lang, Mrs. W. J.
 Lange, Mrs. August
 Langenbach, Mrs.
 Alice R.
 Langhorne, George
 Tayloe
 Langworthy, Benjamin
 Franklin
 Lanman, E. B.
 Lansinger, Mrs. John M.
 Larimer, Howard S.
 Larson, Bror O.
 Lashley, Mrs. Karl S.
 Lasker, Albert D.
 Lau, Max
 Lauren, Newton B.
 Lauritzen, C. M.
 Lauter, Mrs. Vera
 Lautmann, Herbert M.
 Lavezzorio, Mrs. J. B.
 Lavidge, Arthur W.
 Lawless, Dr. Theodore K.
 Lawson, A. J.
 Lawson, Mrs. Iver N.
 Lawton, Frank W.
 Laylander, O. J.
 Leahy, Thomas F.
 Learned, Edwin J.
 Leavell, James R.
 Leavitt, Mrs. Wellington
 Lebold, Foreman N.
 Lebold, Samuel N.
 Lebolt, John Michael
 Lederer, Dr. Francis L.
 Lee, Mrs. John H. S.
 Lefens, Miss Katherine J.
 Lefens, Walter C.
 Lehmann, Miss
 Augusta E.
 Leichenko, Peter M.
 Leight, Mrs. Albert E.
 Leistner, Oscar
 Leland, Miss Alice J.
 Leland, Mrs. Roscoe G.
 LeMoon, A. R.
 Lenz, J. Mayo
 Leonard, Arthur G.
 Leonard, Arthur T.
 Letts, Mrs. Frank C.
 Leverone, Louis E.
 Levinson, Mrs. Salmon O.
 Levitan, Benjamin
 Levitetz, Nathan
 Levy, Alexander M.
 Levy, Arthur G.
 Lewis, David R.
 Lewy, Dr. Alfred
 Libby, Mrs. C. P.
 Liebman, A. J.
 Ligman, Rev. Thaddeus
 Lillie, Frank R.

 Lindahl, Mrs. Edward J.
 Linden, John A.
 Lindheimer, B. F.
 Lindholm, Charles V.
 Lindquist, J. E.
 Lingle, Bowman C.
 Linton, Ben B.
 Lipman, Robert R.
 Liss, Samuel
 Little, Mrs. E. H.
 Littler, Harry E., Jr.
 Livingston, Julian M.
 Livingston, Mrs.
 Milton L.
 Llewellyn, Mrs. John T.
 Llewellyn, Paul
 Lloyd, Edward W.
 Lloyd, William Bross
 Lobdell, Mrs. Edwin L.
 Lockwood, W. S.
 Loeb, Mrs. A. H.
 Loeb, Hamilton M.
 Loeb, Jacob M.
 Loeb, Leo A.
 Loesch, Frank J.
 Loewenberg, Israel S.
 Loewenberg, M. L.
 Loewenstein, Sidney
 Loewenthal, Richard J.
 Logan, John I.
 Logan, L. B.
 Long, Mrs. Joseph B.
 Long, William E.
 Lord, Arthur R.
 Lord, Mrs. Russell
 Loring, Edward D.
 Loucks, Charles O.
 Louer, Albert S.
 Love, Chase W.
 Lovell, William H.
 Lovgren, Carl
 Lownik, Dr. Felix J.
 Lucey, Patrick J.
 Ludington, Nelson J.
 Ludlam, Miss Bertha S.
 Ludolph, Wilbur M.
 Lueder, Arthur C.
 Luehr, Dr. Edward
 Lufkin, Wallace W.
 Luria, Herbert A.
 Lurie, H. J.
 Lustgarten, Samuel
 Lutter, Henry J.
 Lydon, Mrs. William A.
 Lyford, Harry B.
 Lynch, William Joseph
 Lyon, Charles H.
 Lyon, Frank R.

 Maass, J. Edward
 Mabee, Mrs. Melbourne
 MacCardle, H. B.

- MacDonald, E. K.
 MacDougal, Mrs. T. W.
 Mackey, Frank J.
 Mackinson, Dr. John C.
 MacLeish, Mrs. Andrew
 MacLellan, K. F.
 Magan, Miss Jane A.
 Magill, Henry P.
 Magill, Robert M.
 Magnus, Albert, Jr.
 Magnus, August C.
 Magnuson, Mrs. Paul
 Maher, Mrs. D. W.
 Main, Walter D.
 Malone, William H.
 Manaster, Harry
 Mandel, Mrs. Aaron W.
 Mandel, Edwin F.
 Mandel, Mrs. Emanuel
 Mandel, Miss Florence
 Mandel, Mrs. Robert
 Manegold, Mrs. Frank W.
 Manierre, Francis E.
 Manierre, Louis
 Manley, John A.
 Mann, Albert C.
 Mann, John P.
 Manson, David
 Marcus, Maurice S.
 Mark, Mrs. Cyrus
 Marks, Arnold K.
 Marquis, A. N.
 Marsh, A. Fletcher
 Marsh, John
 McWilliams, II
 Marsh, Mrs. John P.
 Marsh, Mrs. Marshall S.
 Martin, Mrs. Franklin H.
 Martin, George F.
 Martin, Samuel H.
 Martin, W. B.
 Martin, Wells
 Marx, Frederick Z.
 Marzluff, Frank W.
 Marzola, Leo A.
 Mason, Phelps
 Mason, Willard J.
 Masee, B. A.
 Massena, Roy
 Massey, Peter J.
 Masterson, Peter
 Mathesius, Mrs. Walther
 Matson, J. Edward
 Matter, Mrs. John
 Matthiessen, Frank
 Matz, Mrs. Rudolph
 Maurer, Dr. Siegfried
 Maxwell, Lloyd R.
 Mayer, Frank D.
 Mayer, Mrs. Herbert G.
 Mayer, Isaac H.
 Mayer, Oscar F.
 Mayer, Theodore S.
 McAllister, Sydney G.
 McAuley, John E.
 McBirney, Mrs. Hugh J.
 McBride, Mrs. Walter J.
 McCahey, James B.
 McCarthy, Edmond J.
 McCarthy, Joseph W.
 McClellan, Dr. John H.
 McCluer, William
 Bittinger
 McClun, John M.
 McCord, Downer
 McCormack, Professor
 Harry
 McCormick, Mrs.
 Alexander A.
 McCormick, Mrs.
 Chauncey
 McCormick, Fowler
 McCormick, Howard H.
 McCormick, Leander J.
 McCormick, Robert
 H., Jr.
 McCoy, Herbert N.
 McCrea, Mrs. W. S.
 McCready, Mrs. E. W.
 McCreight, Miss Gladys
 Elizabeth
 McCreight, Louis Ralph
 McDonald, Lewis
 McDougal, Mrs. James B.
 McDougal, Mrs. Robert
 McDougall, Mrs.
 Arthur R.
 McErlean, Charles V.
 McGarry, John A.
 McGrath, George E.
 McGraw, Max
 McGurn, Mathew S.
 McHugh, Mrs. Grover
 McIntosh, Arthur T.
 McIntosh, Mrs. Walter G.
 McKeever, Buell
 McKinney, Mrs. Hayes
 McLaury, Mrs. C. W.
 McLaury, Walker G.
 McMenemy, L. T.
 McMillan, James G.
 McMillan, John
 McMillan, W. B.
 McMillan, William M.
 McNamara, Louis G.
 McNulty, Joseph D.
 McQuarrie, Mrs. Fannie
 McVoy, John M.
 Mead, Dr. Henry C. A.
 Medsker, Dr. Ora L.
 Melchione, Joseph
 Melendy, Dr. R. A.
 Melnick, Leopold B.
 Merrell, John H.
 Merriam, Miss Eleanor
 Merrill, Henry S.
 Merrill, William W.
 Merz, Edward E.
 Metz, Dr. A. R.
 Metzler, Mrs. Albert J.
 Meyer, Mrs. A. H.
 Meyer, Abraham W.
 Meyer, Albert
 Meyer, Charles Z.
 Meyer, Sam R.
 Meyer, William
 Meyercord, George R.
 Michaels, Everett B.
 Midowicz, C. E.
 Milhening, Frank
 Milhening, Joseph
 Miller, Charles B.
 Miller, Mrs. Clayton W.
 Miller, Mrs. Darius
 Miller, Mrs. F. H.
 Miller, Hyman
 Miller, John S.
 Miller, Dr. Joseph L.
 Miller, Mrs. Olive Beaupre
 Miller, Oscar C.
 Miller, Mrs. Phillip
 Miller, R. T.
 Miller, Walter E.
 Miller, Mrs. Walter H.
 Miller, William S.
 Mills, Allen G.
 Mills, Fred L.
 Mills, John, Sr.
 Mills, Mrs. William S.
 Miner, Dr. Carl S.
 Miner, H. J.
 Minotto, Mrs. James
 Minturn, Benjamin E.
 Mitchell, Charles D.
 Mitchell, George F.
 Mitchell, John J.
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 Mitchell, Leeds
 Mitchell, Oliver
 Mock, Dr. Harry Edgar
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 Moeling, Mrs. Walter G.
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 Moffatt, Mrs.
 Elizabeth M.
 Mohr, William J.
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 Molloy, David J.
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 Monroe, William S.
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 Albert H.
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 Moore, Philip Wyatt
 Moos, Joseph B.

- Moran, Brian T.
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 Morey, Charles W.
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 Morgan, Alden K.
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 Kendrick E.
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 Morris, Mrs. Seymour
 Morrison, Mrs.
 Charles E.
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 Morrison, Matthew A.
 Morrison, James W.
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 Morse, Leland R.
 Morse, Mrs. Milton
 Morse, Robert H.
 Mortenson, Mrs. Jacob
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 Morton, William Morris
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 Moss, Jerome A.
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 Mowry, Louis C.
 Mudge, Mrs. John B.
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 Charles
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 Mueller, J. Herbert
 Mueller, Paul H.
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 Jae
 Mulholand, William H.
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 Munroe, Moray
 Murphy, Robert E.
 Musselman, Dr. George H.
- Newhall, R. Frank
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 Nichols, S. F.
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 Novak, Charles J.
 Noyes, A. H.
 Noyes, Allan S.
 Noyes, David A.
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 Nusbaum, Mrs. Carl B.
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- Oates, James F.
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 Oberfelder, Walter S.
 O'Brien, Frank J.
 O'Brien, Miss Janet
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 Odell, William
 R., Jr.
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 Offield, James R.
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 O'Leary, John W.
 Oliver, Gene G.
 Oliver, Mrs. Paul
 Olson, Gustaf
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 Ortmayer, Dr. Marie
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 Augustus
 Otis, J. Sanford
 Otis, Joseph E.
- Otis, Joseph Edward, Jr.
 Otis, Ralph C.
 Otis, Raymond
 Otis, Stuart Huntington
 Otis, Mrs. Xavier L.
 Ouska, John A.
 Owings, Mrs.
 Nathaniel A.
- Paasche, Jens A.
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 Page-Wood, Gerald
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 Pam, Miss Carrie
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 Parker, Dr. Gaston C.
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 Parker, Troy L.
 Parks, C. R.
 Parmelee, Dr. A. H.
 Partridge, Lloyd C.
 Paschen, Mrs. Henry
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 Pauling, Edward G.
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 Peabody, Howard B.
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 Pearse, Langdon
 Pearson, F. W.
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 Albert, Jr.
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 Peet, Mrs. Belle G.
 Peirce, Albert E.
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 Mortimer
 Perkins, A. T.
 Perkins, Mrs. Herbert F.
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 Perry, I. Newton
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 Peterkin, Daniel
 Peters, Harry A.
 Petersen, Jurgen
 Petersen, Dr. William F.
 Peterson, Albert
 Peterson, Alexander B.
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 Peterson, Arthur J.
 Peterson, Axel A.

- Peterson, Mrs. Bertha I.
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 Phemister, Dr. Dallas B.
 Phillips, Dr. Herbert
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 Pierce, Paul, Jr.
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 Arthur
 Poole, George A.
 Poole, Mrs. Ralph H.
 Poor, Fred A.
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 Pope, Henry
 Pope, Herbert
 Poppenhagen, Henry J.
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 Pottenger, Miss
 Zipporah Herrick
 Powell, Isaac N.
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 Prince, Leonard M.
 Proxmire, Dr.
 Theodore Stanley
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 Prussing, Mrs. R. E.
 Puckey, F. W.
 Pulver, Hugo
 Purcell, Joseph D.
 Purdy, Sparrow E.
- Pusey, Dr. William Allen
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- Quigley, William J.
 Quinlan, Dr. William W.
- Raber, Franklin
 Radau, Hugo
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 Randall, Rev. Edwin J.
 Randall, Irving
 Randle, Mrs. Charles H.
 Randle, Guy D.
 Raney, Mrs. R. J.
 Rankin, Miss Jessie H.
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 Howard D.
 Razim, A. J.
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 Reach, William
 Redington, F. B.
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 Reed, Norris H.
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 Reed, T. J.
 Reeve, Mrs. Earl
 Reeve, Frederick E.
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 Regensteiner, Theodore
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 Reichmann, Alexander F.
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 Rich, Elmer
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- Riddle, Herbert H.
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 Munsell
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 Clifford
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- Sackley, Mrs. James A.
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 Sargent, John R. W.
 Sargent, Ralph
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 Schafer, O. J.
 Schaffer, Dr. David N.
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 Schaffner, Robert C.
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 Schlake, William
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 Schmidt, Mrs. Minna
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 Schmitz, Nicholas J.
 Schneider, F. P.
 Schnering, Otto Y.
 Schnur, Ruth A.
 Scholl, Dr. William M.
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 Schroeder, Dr. George H.
- Schukraft, William
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 Schulze, Mrs. Mathilde
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 J., Jr.
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 Schwartz, Charles P.
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 Seeberger, Miss Dora A.
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 Seifert, Mrs. Walter J.
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 Seipp, Clarence T.
 Seipp, Edwin A.
 Seipp, William C.
 Sello, George W.
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 Seng, Frank J.
 Seng, V. J.
 Senne, John A.
 Sennekohl, Mrs. A. C.
 Shaffer, Carroll
 Shaffer, Charles B.
 Shambaugh, Dr. George E.
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 Shannon, Angus Roy
 Shapiro, Meyer
 Sharpe, N. M.
 Shaw, Alfred P.
 Shaw, Mrs. Howard
 Shaw, Theodore A.
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 Sherman, Mrs. Francis
 C., Sr.
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 Shoan, Nels
 Shorey, Clyde E.
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 Short, Miss Shirley Jane
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 Shumway, Mrs. Edward
 DeWitt
 Sidley, William P.
- Siebel, Mrs. Ewald H.
 Sigman, Leon
 Silander, A. I.
 Silberman, Charles
 Silberman, David B.
 Silberman, Hubert S.
 Sills, Clarence W.
 Silverthorne, George M.
 Simond, Robert E.
 Simonds, Dr. James P.
 Sincere, Benjamin E.
 Sinclair, Dr. J. Frank
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 Sitzer, Dr. L. Grace
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 Sleeper, Mrs. Olive C.
 Smith, Mrs. Charles R.
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 Smith, Franklin P.
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 Smith, Jens
 Smith, Jesse E.
 Smith, Mrs. Katherine
 Walker
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 Smith, Miss Marion D.
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 White
 Smith, Walter Bourne
 Smith, Walter Byron
 Smith, Mrs. William A.
 Smith, Z. Erol
 Smullan, Alexander
 Snow, Edgar M.
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 Snyder, Harry
 Socrates, Nicholas
 Solem, Dr. George O.
 Sonnenschein, Hugo
 Sonnenschein, Dr. Robert
 Sonneveld, Jacob
 Soper, Henry M.
 Soper, James P., Jr.
 Sopkin, Mrs. Setia H.
 Soravia, Joseph
 Sorensen, James
 Spencer, Mrs. Egbert H.
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 Frederick W.
 Spiegel, Mrs. Mae O.
 Spitz, Joel
 Spitz, Leo
 Spitzglass, Mrs.
 Leonard M.
 Spohn, John F.
 Spooner, Charles W.
 Spoor, Mrs. John A.

- Sprague, Dr. John P.
 Squires, John G.
 Staack, Otto C.
 Stacey, Mrs. Thomas I.
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 Stanton, Dr. E. M.
 Stanton, Edgar
 Stanton, Henry T.
 Starbird, Miss Myrtle I.
 Stark, Mrs. Harold
 Starrels, Joel
 Stearns, Mrs. Richard I.
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 Steffey, David R.
 Stein, Benjamin F.
 Stein, Dr. Irving
 Stein, L. Montefiore
 Stenson, Frank R.
 Sterba, Dr. Joseph V.
 Stern, Alfred Whitall
 Stern, David B.
 Stern, Felix
 Stern, Maurice S.
 Stern, Oscar D.
 Stevens, Delmar A.
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 Stevens, Elmer T.
 Stevens, Harold L.
 Stevens, Mrs. James W.
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 Stevenson, Dr.
 Alexander F.
 Stevenson, Engval
 Stewart, Miss Agnes
 Nannie
 Stewart, Miss Eglantine
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 Stewart, James S.
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 Graeme
 Stibolt, Mrs. Carl B.
 Stiger, Charles W.
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 Stone, Mrs. Jacob S.
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 Straus, David
 Straus, Martin L.
 Straus, Melvin L.
 Straus, S. J. T.
 Strauss, Dr. Alfred A.
 Strauss, Henry X.
 Strauss, John L.
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 Stromberg, Charles J.
 Strong, Edmund H.
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 Struby, Mrs. Walter V.
 Stulik, Dr. Charles
 Sturges, Solomon
 Sullivan, John J.
- Sulzberger, Frank L.
 Sutcliffe, Mrs. Gary
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 Sutton, Harold I.
 Swan, Oscar H.
 Swanson, Joseph E.
 Swartchild, Edward G.
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 Swenson, S. P. O.
 Swett, Robert Wheeler
 Swiecinski, Walter
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 Swift, Edward F., Jr.
 Sykes, Mrs. Wilfred
- Taft, John H.
 Taft, Mrs. Oren E.
 Tarrant, Robert
 Tatge, Mrs. Gustavus J.
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 Taylor, George Halleck
 Taylor, J. H.
 Teagle, E. W.
 Templeton, Stuart J.
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 Templeton, Mrs. William
 Terry, Foss Bell
 Teter, Lucius
 Thatcher, Everett A.
 Theobald, Dr. John J.
 Thomas, Emmet A.
 Thomas, Frank W.
 Thomas, Mrs. Harry L.
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 Thompson, Arthur H.
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 Thompson, Edward F.
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 Thompson, Floyd E.
 Thompson, Dr. George F.
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 Thompson, John R., Jr.
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 Thorne, Hallett W.
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 Thornton, Dr. Francis E.
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 Thresher, C. J.
 Thulin, F. A.
 Tibbetts, Mrs. N. L.
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 Tilden, Averill
 Tilden, Louis Edward
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 Touchstone, John Henry
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- Trainer, J. Milton
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 Tripp, Chester D.
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 Turner, Alfred M.
 Turner, Tracy L.
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 Tuttle, Henry Emerson
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 Tyrrell, Mrs. Percy
- Uhlmann, Fred
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 Ullmann, Herbert S.
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- Valentine, Joseph L.
 Valentine, Mrs. May L.
 Valentine, Patrick A.
 VanCleaf, Mrs. Noah
 VanCleaf, Paul
 VanDeventer, Christopher
 VanNess, Gardiner B.
 VanSchaack, R. H., Jr.
 VanSchaick, Gerard
 VanWinkle, James Z.
 VanZwoll, Henry B.
 Vaughan, Leonard H.
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 Vehe, Dr. K. L.
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 VonGlahn, Mrs. August
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- Wagner, Fritz, Jr.
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- Wallace, Robert Y.
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Warren, J. Latham
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Warren, Paul G.
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Washburne,
Hempstead, Jr.
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Waterman, Dr. A. H.
Watson, William Upton
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Wayman, Charles A. G.
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Weaver, Charles A.
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Webster, Henry A.
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Weil, Martin
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Weissenbach, Mrs.
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Weisskopf, Dr. Max A.
Welles, Mrs. Donald P.
Welles, Mrs. Edward
Kenneth
Wells, Arthur H.
Wells, Harry L.
Wells, John E.
Wells, Preston A.
Wells, Thomas E.
- Wells, Mrs. Thomas E.
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Wendell, Miss
Josephine A.
Werner, Frank A.
West, J. Roy
West, Miss Mary Sylvia
Westerfeld, Simon
Westrich, Miss T. C.
Wetten, Albert H.
Wettling, Louis E.
Weymer, Earl M.
Whealan, Emmett P.
Wheeler, George A.
Wheeler, Leo W.
Wheeler, Leslie
Wheeler, Leslie M.
Wheeler, Mrs. Robert C.
Whinery, Charles C.
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White, James E.
White, Joseph J.
White, Richard T.
White, Sanford B.
White, Selden Freeman
Whitehouse, Howard D.
Whiting, Mrs. Adele H.
Whiting, Lawrence H.
Wiborg, Frank B.
Widdicombe, Mrs. R. A.
Wieland, Charles J.
Wieland, Mrs. George C.
Wienhoeber, George V.
Wilder, Harold, Jr.
Wilder, Mrs. John E.
Wilder, Mrs. T. E.
Wilker, Mrs. Milton W.
Wilkey, Fred S.
Wilkins, George Lester
Wilkins, Miss Ruth
Wilkinson, Mrs.
George L.
Wilkinson, John C.
Willey, Mrs. Charles B.
Williams, Dr. A.
Wilberforce
Williams, Miss Anna P.
Williams, Harry Lee
Williams, J. M.
Williamson, George H.
Willis, Paul, Jr.
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Willner, Benton Jack, Jr.
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Wilms, Herman P.
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Wilson, Harry Bertram
Wilson, Mrs. John R.
- Wilson, Miss Lillian M.
Wilson, Morris Karl
Wilson, Mrs. Robert
Conover
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Wilson, William
Winans, Frank F.
Windsor, H. H., Jr.
Winston, Mrs.
Bertram M.
Winston, Hampden
Winston, James H.
Winter, Irving
Wojtalewicz, Rev.
Francis M.
Wolf, Mrs. Albert H.
Wolf, Walter B.
Wolff, Louis
Wood, Mrs. Gertrude D.
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Wood, John H.
Wood, Kay, Jr.
Wood, Robert E.
Wood, William G.
Woodmansee, Fay
Woodruff, George
Woods, Weightstill
Worcester, Mrs.
Charles H.
Work, Robert
Worth, Miss Helen E.
Wright, H. C.
Wright, Warren
Wrigley, Mrs. Charles W.
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Wyeth, Harry B.
- Yegge, C. Fred
Yerkes, Richard W.
Yondorf, John David
Yondorf, Milton S.
Yondorf, Milton S., Jr.
Young, Mrs. Caryl B.
Young, E. Frank
Young, George W.
Young, Hugh E.
- Zabel, Max W.
Zapel, Elmer
Zerk, Oscar U.
Zerler, Charles F.
Ziebarth, Charles A.
Zimmer, Mrs. Rudolph E.
Zimmerman, Herbert P.
Zimmerman, Louis W.
Zinke, Otto A.
Zork, David
Zulfer, P. M.

DECEASED, 1936

- Alling, Mrs. VanWagenen
Baldwin, William W.
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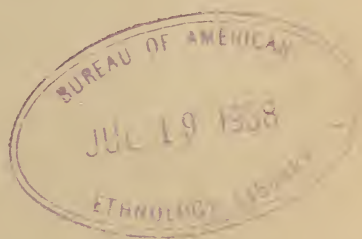
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ANNUAL REPORT OF THE DIRECTOR
TO THE
BOARD OF TRUSTEES

FOR THE YEAR 1937



REPORT SERIES
FIELD MUSEUM OF NATURAL HISTORY
VOLUME XI, NUMBER 2
JANUARY, 1938

PUBLICATION 413

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STEPHEN CHAPMAN SIMMS
1863-1937

Director and Trustee of the Museum from July 16, 1928, until his death on January 28, 1937.
He first joined the Staff in 1894 as an Assistant Curator; in 1912 he became the first Curator
of the N. W. Harris Public School Extension

ANNUAL REPORT OF THE DIRECTOR
TO THE
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FOR THE YEAR 1937



REPORT SERIES
FIELD MUSEUM OF NATURAL HISTORY
VOLUME XI, NUMBER 2
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JULIAN A. STEYERMARK, *Assistant Curator, Herbarium*
LLEWELYN WILLIAMS, *Curator, Economic Botany*
SAMUEL J. RECORD, *Research Associate, Wood Technology*
A. C. NOË, *Research Associate, Paleobotany*
E. E. SHERFF, *Research Associate, Systematic Botany*
EMIL SELLA, *Assistant, Laboratory*
MILTON COPULOS, *Assistant, Laboratory*

DEPARTMENT OF GEOLOGY

HENRY W. NICHOLS, *Chief Curator*
ELMER S. RIGGS, *Curator, Paleontology*
BRYAN PATTERSON, *Assistant Curator, Paleontology*
PHIL C. ORR, *Assistant, Paleontology*
JAMES H. QUINN, *Assistant, Paleontology*
SHARAT K. ROY, *Curator, Geology*

DEPARTMENT OF ZOOLOGY

WILFRED H. OSGOOD, *Chief Curator*
COLIN CAMPBELL SANBORN, *Curator, Mammals*
RUDYERD BOULTON, *Curator, Birds*
C. E. HELLMAYR, *Associate Curator, Birds*
EMMET R. BLAKE, *Assistant Curator, Birds*
H. B. CONOVER, *Research Associate, Birds*
ELLEN T. SMITH, *Associate, Birds*
R. MAGOON BARNES, *Curator, Birds' Eggs*
KARL P. SCHMIDT, *Curator, Amphibians and Reptiles*
ALFRED C. WEED, *Curator, Fishes*
WILLIAM J. GERHARD, *Curator, Insects*
EMIL LILJEBLAD, *Assistant Curator, Insects*
EDMOND N. GUERET, *Curator, Anatomy and Osteology*
D. DWIGHT DAVIS, *Assistant Curator, Anatomy and Osteology*

TAXIDERMISTS

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L. L. PRAY
ARTHUR G. RUECKERT

C. J. ALBRECHT
LEON L. WALTERS
JOHN W. MOYER

ASSISTANT TAXIDERMISTS

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FRANK C. WONDER

W. E. EIGSTI

FRANK H. LETL, *Preparator of Accessories*

DEPARTMENT OF THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

JOHN R. MILLAR, *Acting Curator*
A. B. WOLCOTT, *Assistant Curator*

THE LIBRARY

EMILY M. WILCOXSON, *Librarian*
MARY W. BAKER, *Associate Librarian*

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HENRY F. DITZEL

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PUBLIC RELATIONS COUNSEL

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SUPERINTENDENT OF MAINTENANCE

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CHIEF ENGINEER

W. H. CORNING

WILLIAM E. LAKE, *Assistant Engineer*

STEPHEN CHAPMAN SIMMS

March 22, 1863—January 28, 1937

Elected Director July 16, 1928

The Trustees of Field Museum of Natural History desire to express and record their deep sorrow at the grievous loss which has come to them and to the institution in the death, on January 28, 1937, of their fellow Trustee, Secretary of the Board, and Director of the Museum, Stephen Chapman Simms.

Few men have had such qualifications, based on native ability combined ideally with years of varied experience, for the position of director of a great museum. His was a splendid career, and one which may well serve as a model and inspiration to all museum workers, in this institution and elsewhere. His broad outlook, his unflagging devotion to the Museum not in the mere sense of duty, but as something he loved and to which he consecrated the entire energy of his life, his remarkable understanding of the ways in which the Museum could be made most useful and valuable to the public, and his kindness and sympathy with his associates on the Staff, will leave a lasting impress on the institution, and in the memories of all who knew him.

Mr. Simms had been a member of the Museum Staff since 1894, or almost from the time of the institution's founding. He was first assigned to the position of Assistant Curator of Industrial Arts, and later became Assistant Curator of Ethnology. He conducted a number of successful expeditions for the Department of Anthropology, notably among the American Indians of the west, and in the Philippine Islands. The collections he made remain as permanent and valuable features of the Museum's exhibits and study collections.

In 1912, when the Department of the N. W. Harris Public School Extension was established, Mr. Simms was appointed its Curator. Under his direction the work of this Department rapidly developed into one of the Museum's most important educational activities. He originated and organized the system whereby the institution is now in daily contact with Chicago's 500,000 school children by means of traveling exhibits circulated among their schools; and he supervised the creation of more than 1,200 such exhibits. The value of this work, and the success with which it was administered, has been attested year after year in the praises

which have come to the Museum from thousands of school officials, teachers, and the children themselves. Moreover, this work, embracing all of the sciences with which the Museum is concerned, gave Mr. Simms an experience which was to prove invaluable when, in 1928, the Trustees elected him as Director.

Mr. Simms' administration as Director was marked by two distinct and important periods of the Museum's history. The first embraced years which, by reason of the unprecedented number of far-flung major expeditions, and the tremendous progress made in expanding exhibits and all Museum activities, must always be remembered as among the years of the institution's greatest development. The second period consisted of several years which were among the most trying and difficult in the Museum's history, due to the long protracted world financial depression which had its inevitable effects upon the Museum's revenues and thus upon its continued progress. In both periods Mr. Simms administered wisely and well: in the first, guiding the Museum to the heights of its success as a scientific and educational institution; in the second, carrying on in the face of previously unparalleled difficulties, and managing to maintain the maximum service to the public possible under the circumstances, with a minimum of disruption to the Museum's activities and a minimum of suffering among its personnel.

We might write many thousands of words in eulogy, yet all that should be said could not be told—Stephen Chapman Simms' accomplishments live after him, a better memorial than any that can be written.

Therefore, be it resolved, that this testimonial of our esteem and affection for our departed Director be placed in the permanent records of the Board of Trustees of Field Museum of Natural History, to perpetuate his memory;

And be it further resolved, that our deepest sympathy be conveyed to his widow and the bereaved family, and that a copy of this resolution be sent to them.

CLIFFORD C. GREGG, Secretary
May 17, 1937

STANLEY FIELD, President



FREDERICK HOLBROOK RAWSON

May 30, 1872—February 5, 1937

Elected a Trustee June 20, 1927. Resigned October 21, 1935

With deep regret the Trustees of Field Museum of Natural History have learned of the death on February 5, 1937, of Frederick Holbrook Rawson, former member of the Board, and a Benefactor of the Museum. Mr. Rawson had been one of the most active and able men of the group charged with guiding the progress of this institution, and his wise counsel and respected advice have been sorely missed by his fellow Trustees ever since ill health forced him to retire from the Board in 1935.

Because of his high standing as one of Chicago's leading bankers, Mr. Rawson was placed on the Finance Committee, shortly after his election to the Board in 1927. His services on that Committee were of incalculable value to the Museum, especially during the recent years of depression when the institution's very existence was more than ever before dependent upon the sagacity with which its financial affairs were managed in the face of the extreme difficulties of the times.

The benefactions which the Museum owes to Mr. Rawson began even before he became connected with the Board of Trustees. On several occasions he contributed large amounts of money to the institution for the carrying out of projects important to its growth and progress. In 1926 he organized, and presented funds for, the First Rawson-MacMillan Subarctic Expedition of Field Museum, and in the following year he made possible the larger Second Rawson-MacMillan Expedition, the members of which were enabled through his generosity to spend fully fifteen months in Labrador and Baffinland, making collections and conducting researches for the Museum. Both of these expeditions, under the leadership of Mr. Rawson's friend, the eminent Arctic explorer Lieutenant-Commander Donald B. MacMillan, obtained valuable results for the Museum's Departments of Anthropology, Geology, and Zoology.

In 1929 Mr. Rawson sponsored a third expedition, the Frederick H. Rawson-Field Museum Ethnological Expedition to West Africa, which explored parts of that continent in which little previous work had been done by anthropologists, and secured extensive collections of value for the Museum's exhibits and for use in research work.

A few years later Mr. Rawson contributed many more thousands of dollars toward the cost of groups restoring types of prehistoric man, thus taking his place among the foremost of those who enabled this Museum to create its Hall of the Stone Age of the Old World, which ranks as an achievement without parallel among the museums of the world.


Field Museum was not alone as a beneficiary of Mr. Rawson's philanthropy. He was a wholehearted civic leader who was ever ready to aid to the best of his ability any worthy cause. Libraries, hospitals, homes for the unfortunate, and universities all benefited by his generous gifts, and his devotion of his time and efforts to the promotion of their interests. In his business activities, too, he was well known as a great leader—one who possessed not only the qualities which brought him success, but also a full measure of warmth and human kindness.

Therefore, be it resolved, that this testimonial be placed in the permanent records of the Board of Trustees of Field Museum, to perpetuate his memory, and the high esteem in which we held him;

And be it further resolved, that our deepest sympathy be conveyed to his widow and his bereaved family, and that a copy of this resolution be sent to them.

CLIFFORD C. GREGG, Secretary
May 17, 1937

STANLEY FIELD, President



LESLIE WHEELER

May 17, 1892—February 27, 1937

Elected a Trustee June 18, 1934

The untimely death of Leslie Wheeler, on February 27, 1937, is a severe loss to Field Museum of Natural History, which will be felt equally by his colleagues on the Board of Trustees, and his associates on the Scientific Staff. Mr. Wheeler had devoted himself wholeheartedly to the interests of the Museum, both as a Trustee and as a Research Associate in the field of ornithology, which had for years claimed his enthusiastic attention. He was, in addition, a Contributor to the Museum, and as a result of his generosity the institution's bird collections have been augmented by more than one thousand specimens of hawks, owls, and other birds, many of them rare and valuable, obtained from almost every part of the world.

Mr. Wheeler's active interest in and association with the Museum began in 1933 when he undertook the difficult and important task of building up and adding to the collection of birds of prey. He was soon devoting a great deal of time to this work, and his efforts were attended with splendid results. His election to the Board, and honorary appointment as a member of the Staff, followed shortly as a recognition of the value of these activities. Before long, Mr. Wheeler had organized a system of contacts with agents and collectors in many countries, including some of the most remote and inaccessible regions, and a constant stream of much-needed specimens flowed into the Museum from these sources. The benefits of the relationships he established for the Museum will continue even now after his passing from our midst.

As Research Associate, Mr. Wheeler spent many hours at the Museum almost every day, studying and working on the birds of prey which he presented to the institution. Shortly before his last illness, he brought to practical completion for publication his first formal research, a taxonomic revision of a group of South American wood-owls, together with the scientific description of a new species from Chiloe Island off the coast of Chile. His researches were directed both upon the biological significance and the economic aspects of the many species he studied. The knowledge he gained in his field enabled him to make an important contribution to ornithological

literature, and to answer many requests for information reaching the Museum from others interested in this subject.


Mr. Wheeler's position in the Museum was unique. As a member of the Scientific Staff he obtained a direct insight into the workings of the institution as a whole, and the plans and problems involved. Thus, as a Trustee, he was able to convey to his fellows on the Board a clearer and more comprehensive view of the needs of the Museum. His scholarship and achievements brought him the highest regard of both the Trustees and the Staff, and resulted in his election as a Fellow of the American Geographical Society, a high honor. But even greater was the affection he won by the charm and gentleness of his character, and his spirit of good comradeship.

Therefore, be it resolved, that this expression of our admiration and esteem for Mr. Wheeler, and our grief over the loss of his counsel and companionship, be spread upon the permanent records of the Board;

And be it further resolved, that our deep sympathy be conveyed to his bereaved family, and that a copy of this resolution be sent to his widow.

CLIFFORD C. GREGG, Secretary
May 17, 1937

STANLEY FIELD, President



ANNUAL REPORT OF THE DIRECTOR

1937

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1937.

The uncertainty of financial support continues to be the chief problem of the Museum. There is great need for a larger Scientific Staff, more nearly proportioned to the scope of the institution. Additional Staff members could give to the public far greater use of the splendid collections now in the Museum, through expansion and improvement of exhibits, further extension of educational activities, development of research facilities, increased production of publications, and various other means.

There is great need of a pension fund adequate to meet the requirements of a Staff most of whom have spent many years in the service of the institution. A splendid beginning on such a fund was made through the original contributions of President Stanley Field many years ago. Various other urgent needs of the institution since that time have taken all available funds, so that the pension fund is now woefully inadequate.

The need of increased endowments becomes more marked year after year. Were it not for the generous support of Mr. Marshall Field, Mr. Stanley Field, Mrs. James Nelson Raymond, Mrs. Diego Suarez, and a few others, the activities of the Museum would necessarily be curtailed at once. Rigid economies are required in any case under present-day conditions.

The year was a successful one from the standpoint of service rendered by the Museum, as there was an increase in attendance, and notable accomplishments were made in various activities for the public and for the advancement of science.

However, the period was saddened by the deaths of several of the institution's most valued supporters and friends. The first of these losses was by the death on January 28 of Mr. Stephen C. Simms, Director of the Museum since 1928, and one of the oldest members of the Staff in length of service.

Early the following month Mr. Frederick H. Rawson, who had been a member of the Board of Trustees from 1927 until his ill health necessitated his resignation in 1935, died at his home

in the west. Mr. Rawson had been the sponsor of two expeditions to the Subarctic and one to Africa, and he had devoted much time, effort and money to the welfare of the Museum for many years. In addition to being a Trustee he was also a Benefactor of the Museum.

Within the same month that his fellow Trustee, Mr. Rawson, died, Mr. Leslie Wheeler passed away. Mr. Wheeler was interested in the Museum not only as a Trustee but as an active co-worker in the Division of Ornithology, and his passing removed from the ranks of the younger scientists an able and promising man.

Resolutions of the Board of Trustees on the deaths of Messrs. Simms, Rawson and Wheeler will be found in pages of this book preceding the Report proper.

Noted also with extreme regret is the passing of Mrs. Charles H. Schweppe, well-known philanthropist, whose interest in Field Museum prompted her gift to the institution of the triad of figures called the "Unity of Mankind," which occupies the center of Chauncey Keep Memorial Hall.

Late in the year Miss Kate S. Buckingham died after a long and useful life largely dedicated to philanthropic work. Miss Buckingham was a Benefactor of Field Museum, having contributed \$100,000 as an endowment toward the costs of general operation, and many other gifts.

The death on May 20 of Dr. Stephen Langdon, Professor of Assyriology at Oxford University, England, was noted with regret at Field Museum. Dr. Langdon had been Director of the Field Museum-Oxford University Joint Expedition to Mesopotamia from 1923 to 1932, and during two seasons of work he personally supervised the excavations. He was a noted archaeologist whose passing was felt as a severe blow by scholars all over the world.

While the loss of these many friends of the Museum is a sad blow, it is felt that they can be best honored by making every effort to continue at the institution the high ideals for which they lived.

For the first time since 1933 the Museum showed a substantial increase in attendance. The total figure of 1,290,023 visitors was a gain of a little more than 100,000 over the year before. More gratifying was the fact that the proportion of paid to total admissions increased from less than 6 per cent during 1936 to 7.3 per cent during 1937.

On August 4 the Museum received its twenty millionth visitor since the present building was first opened on May 2, 1921. The

fortunate visitor, admitted at the north entrance, was John Ladd, a youth of fourteen years, whose home is in New York City. In commemoration of this event a certificate of life membership in the Museum was presented to him. He was then escorted to the office of President Stanley Field, who presented him with a miniature of the bronze sculpture by Miss Malvina Hoffman in Chauncey Keep Memorial Hall typifying the Vedda of Ceylon.

The arrival of the twenty millionth visitor emphasized the fact that the average attendance in this building has been one and one-quarter million persons per year, contrasted with 228,000 annually at the former location in Jackson Park occupied by the Museum from 1894 to 1920.

To indicate the progress the institution has made since its founding, a special exhibit was arranged in Stanley Field Hall during August and part of September. This exhibit, by means of graphs, charts, photographs, and specimens, made apparent the principal developments in many fields which have occurred in the forty-four years of the Museum's existence.

Attendance at the Museum itself does not indicate fully the scope of the institution's service to the general public, as will be realized by perusal of other sections of this Report, particularly the pages devoted to the work of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, and the Department of the N. W. Harris Public School Extension. In those pages will be found details of how the Harris Extension, for example (which in November completed its twenty-fifth year of service), benefited some 500,000 children by the circulation of nearly a thousand traveling exhibits among more than 400 Chicago schools. Likewise outlined there are the manifold activities of the Raymond Foundation, such as the presentation of spring and autumn series of educational motion pictures, the conducting of parties of children on guide-lecture tours of the exhibits, and the sending of lecturers into hundreds of school classrooms and assembly halls to address large groups of children. Nearly a quarter million children were reached by the Raymond Foundation with Museum instruction supplementing their regular studies.

A good example of the special educational service which the Museum constantly seeks to render, especially to children, is worth citing here. During the International Live Stock Exposition held at the Union Stock Yards in Chicago in December, the Museum co-operated with authorities of the exposition and the National

Four-H Club Congress. As a result, enthusiastic groups totaling 610 girls and 742 boys from American farms, delegates to the Four-H Congress, were brought on visits to Field Museum. They were conducted on tours of the exhibits by members of the Staff of the James Nelson and Anna Louise Raymond Foundation. Following their visits, there was received a flood of letters from these children and youths expressing appreciation for the entertainment and instruction provided by the Museum and its Staff. These letters came from many widely separated states, ranging from Maryland on the Atlantic Coast to Oregon on the Pacific, and from Montana near the Canadian border to Texas near the Mexican boundary.

In the field of adult education, the Museum presented its usual spring and autumn courses of illustrated lectures in the James Simpson Theatre, and its daily guide-lecture tours of exhibits. In addition, a series of special Sunday guide-lecture tours constituted an innovation of the year. Statistics and other details regarding these activities will be found elsewhere in this Report.

The influence of the Museum was spread further by the Library, the effectiveness of which was augmented by acquisitions of new books and periodicals through gifts, exchanges and purchases. The Library's resources in scientific literature for reference purposes are becoming better known, and increasing use of its collection, now numbering more than 110,000 volumes, was made by the general public in 1937. To the Staff of the Museum, and to other scientists and students of Chicago and vicinity, the Library, of course, is indispensable.

Valuable reference material, for teachers, students, and others engaged in various forms of research, was provided also by the study collections maintained for this purpose in each of the scientific Departments of the Museum. As in other years, these attracted many users.

As has been pointed out in past Annual Reports, there is also a vast public the extent of which it is impossible to gauge in statistics, but which must number hundreds of thousands, or even millions of persons, who are reached by published accounts of Museum activities. These include not only those who have access to the publications and leaflets issued and distributed from Field Museum Press, and the monthly bulletin *Field Museum News*, but also the untold numbers who read articles about the institution in daily newspapers and periodicals the world over, and who hear radio programs in which the Museum is publicized.

Throughout the year the story of the accomplishments of Field Museum was kept constantly before the public through the generous co-operation of the Chicago newspapers and the radio stations of the city. The volume of the published accounts of the Museum's activities was greater than had been attained for many years.

During 1937 Field Museum, for the first time, used the radio in a carefully planned program to carry the message of a natural history museum to the people of the United States. With the co-operation of the University Broadcasting Council, a series of thirteen programs was presented on the coast-to-coast network of the Mutual Broadcasting System, with station WGN as the outlet in Chicago. These broadcasts consisted of dramatizations of expeditions, followed by interviews with some of the men prominently associated with each enterprise. This entire radio series was made possible by a gift from President Stanley Field, who also took an active part in formulating the plans for the programs.

Widespread favorable response was attracted by these broadcasts, presented under the title "From the Ends of the Earth." Many letters and postcards praising them were received from listeners in all parts of the country. The radio critic of *Variety*, outstanding theatrical weekly, in a review of some length characterized the programs as "a beautifully produced dramatic production," with "action and human interest to rank it with the top fiction-drama programs on the air" although at the same time evidencing "absolute authenticity, not only in subject matter of script, but even in details such as savages' drum rhythm."

Many visitors were attracted to the Museum by these radio programs, most enthusiastic among whom was Robert Kroening, a twelve-year-old boy of Kirkwood, Missouri, who traveled the several hundred miles from his home to Chicago especially to join one of the special lecture-tours offered at the Museum in connection with each broadcast.

In recognition of their various gifts during their lifetimes, and their subsequent bequests to the Museum, the late Mr. and Mrs. Martin A. Ryerson were posthumously elected as Benefactors of the Museum (a designation applied to all whose gifts total \$100,000 or more) at a meeting of the Board of Trustees held on October 18. The gifts of the Ryersons dated from the year 1895 and continued intermittently throughout their lives. Mr. Ryerson was a Trustee, and First Vice-President of the Museum, from 1894 to 1932.

Three names were added to the list of Contributors to the Museum (a membership classification designating those whose gifts in money or materials reach a value between \$1,000 and \$100,000). The new Contributors are Mr. Alfred A. Look, of Grand Junction, Colorado, Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, and the late William N. Rumely, of Chicago and LaPorte, Indiana. Mr. Look is the donor of valuable additions to the paleontological collections, including the skeleton of an important fossil mammal new to science. Dr. Osgood personally financed and conducted an expedition to French Indo-China during several months of 1937, with resulting large and important additions to the Museum's zoological collections. From the Estate of Mr. Rumely the Museum received as a gift a meteorite specimen, exceedingly rare in type, and of high value.

Five new Life Members were elected during 1937. They are: Mr. Walter J. Cummings, Mrs. Walter P. Hemmens, and Mrs. C. Morse Ely, all of Chicago; Mrs. Leslie Wheeler, of Lake Forest, Illinois, and Mr. John Ladd, of New York City. The election of Mr. Ladd was honorary, as a result of his having been the twenty millionth visitor to enter the present Museum building.

A list of Members in all classes will be found beginning on page 276 of this Report. On December 31 the total number of memberships was 4,266 as compared with 4,238 on the same date in the preceding year. While the increase was thus only 28, actually more than that number of new Members were enrolled, but the net gain was reduced by a greater than normal number of losses by deaths and cancellations of older Members.

All Officers who had served the Museum in 1936 were re-elected for 1937 at the Annual Meeting of the Board of Trustees, held on January 19. Due to the death later that same month of Director Simms, President Stanley Field appointed Mr. Clifford C. Gregg (formerly Assistant to the Director) as Acting Director; and on May 17, at their regular meeting, the Trustees formally elected Mr. Gregg as Director and Secretary of the Museum. No action has been taken by the Trustees to fill the two vacancies on the Board caused by the deaths of Mr. Simms and Mr. Leslie Wheeler.

Continued actively throughout 1937 were installations of new exhibits, as well as reinstallations and improvements of many of those originally placed on display in previous years. Details of these will be found in a section of each of the departmental reports contained in this book; therefore brief reference will be made here to

only a few of the more important ones. In the Department of Zoology there were opened to the public an unusually large number of new habitat groups—three of birds and four of mammals, Two of these are in Carl E. Akeley Memorial Hall (Hall 22)—a group of the tiny African antelopes known as klipspringers, and another of the bizarre guereza monkeys of Ethiopia. A habitat group of the harbor seals of the Pacific was installed in the Hall of Marine Mammals (Hall N). To William V. Kelley Hall (Hall 17) there was added a group of the Asiatic takin, one of the most difficult of all animals to hunt. In the Hall of Birds (Hall 20) the habitat groups completed are: birds of the Kalahari Desert, composed of specimens collected by the Vernay-Lang Kalahari Expedition (1930) and presented to the Museum by Mr. Arthur S. Vernay, of New York and London; bird life of Mount Cameroon, and village weaver-birds of Africa. The latter two are both composed of specimens collected by the Straus West African Expedition of Field Museum (1934), sponsored by Mrs. Oscar Straus, of New York. In addition to the habitat groups, numerous additions were made to the screens and single mounts of mammals, birds, reptiles, and skeletons in the systematic collections displayed in various halls.

The most noteworthy addition to the exhibits in the Department of Anthropology consisted of three new cases of jades, containing seventy-five pieces, each a masterpiece of color and carving, installed in the Hall of Jades (Hall 30). These are part of the extensive collection of Chinese art objects bequeathed to the Museum by the late Mrs. George T. (Frances Ann Gaylord) Smith, of Chicago.

In Ernest R. Graham Hall (Hall 38), containing the paleontological collections of the Department of Geology, there was installed a skeleton of a South American ground sloth designated as *Hopalops*, a name derived from Greek and meaning "gentle face."

In the Department of Botany, various additions were made to the series of reproductions of plants in the Hall of Plant Life (Hall 29), to the economic botany halls, and to the wood collections. In this Department, however, the major efforts of the preparators were devoted to elaborate habitat groups which will not be completed until 1938.

After an extended lull in expeditionary work because of adverse economic conditions, several small expeditions were sent into the field during 1937. Of these, the continuation of the project begun in 1929 for the photographing of type specimens of plants in Europe by Mr. J. Francis Macbride, Associate Curator of the Herbarium,

was the only one of which the expenses were paid with Museum funds.

Dr. Wilfred H. Osgood, Chief Curator of Zoology, left in January for French Indo-China, where he spent several months collecting birds, mammals, and reptiles. This expedition netted approximately five hundred mammal skins, including a suitable selection for a habitat group of gibbons. Another splendid group will result from this expedition's collecting of specimens of the green peacock. Before returning to Field Museum, Dr. Osgood completed a trip around the world, stopping for several days at the British Museum in London en route. The entire cost of this expedition was contributed by Dr. Osgood from his own funds.

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, spent the summer in collecting the flora of Missouri, on his own time and at his own expense.

Another staff member to contribute funds of his own toward a Museum expedition was Mr. Karl P. Schmidt, Curator of Reptiles, who journeyed to western Texas accompanied by Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology, in search of herpetological specimens.

Through the generosity of President Stanley Field, many members of the Staff were enabled to proceed in search of specimens for which a definite need has been felt. Thus Curator Schmidt made another expedition, accompanied by Staff Taxidermist Leon L. Walters, to collect reptiles in Arizona and California. Dr. Paul S. Martin, Chief Curator of Anthropology, resumed his archaeological excavations in southwestern Colorado, discovering material which furnishes direct evidence of the migrations of Indian tribes some 1,500 years ago. Mr. Llewelyn Williams, Curator of Economic Botany, went to Mexico whence he brought a systematic collection of the woods of the Isthmus of Tehuantepec and other localities in the states of Oaxaca and Veracruz. Mr. Emmet R. Blake, Assistant Curator of Birds, left early in January for British Guiana, where he collected ornithological specimens until early in the summer. He then went to Brazil for further collecting and at the close of the year was on his way back to Chicago. Mr. Sharat K. Roy, Curator of Geology, obtained in Colorado several valuable specimens for the exhibits pertaining to structural geology. An expedition to Colorado, led by Mr. Bryan Patterson, Assistant Curator of Paleontology, collected specimens of fossil mammals. Mr. J. H. Quinn, Assistant in Paleontology, accompanied the expedition, and Mr. Elmer S.



EARLY SLAB HOUSE, SOUTHWESTERN COLORADO
Excavated in 1937 by the Field Museum Archaeological Expedition to the Southwest

Riggs, Curator of Paleontology, joined the party for a few weeks. Mr. Alfred C. Weed, Curator of Fishes, accompanied by Staff Taxidermist L. L. Pray, collected fish specimens along the coast of Maine for a proposed undersea group. Staff Taxidermist C. J. Albrecht, through the co-operation of the United States Biological Survey, was enabled to visit the Pribilof Islands, where he collected specimens for a complete group of fur seals. Although, under government regulations, Mr. Albrecht was not permitted to kill a single seal nor to land firearms on the Pribilofs, officials made it possible for him to obtain the specimens needed from among the animals taken in regular sealing operations. The co-operation of the government in this undertaking is sincerely appreciated.

It is worthy of note that a great deal was accomplished on these expeditions with a minimum expenditure of money. This was possible because of foresight and skillful planning on the part of the expeditionary personnel, and their thorough understanding of methods and objectives.

Gifts of money, and of material for the scientific collections and the Library, are herewith gratefully acknowledged. Among those who contributed funds during the year may be mentioned the following:

Mrs. Diego Suarez, of New York, gave the sum of \$50,000, to be used toward payment of general operating expenses of the Museum.

President Stanley Field contributed sums totaling \$37,661.37, to be applied, in accordance with his directions, toward the costs of constructing built-in exhibition cases in the halls of birds (Halls 20 and 21), and for the purchase of other cases likewise for zoological exhibits; purchase of plate glass required for various cases; construction of a mezzanine on the fourth floor to augment zoological storage facilities, and purchase of storage equipment for this mezzanine; expenses of various expeditions; and the expense involved in the presentation of the thirteen radio broadcasts, "From the Ends of the Earth."

Early in the year Mr. Marshall Field contributed \$28,750 to be used to wipe out an anticipated operating deficit.

Mrs. James Nelson Raymond was the donor of \$6,000 toward the operating expenses of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. This was a continuation of her splendid generosity which so often has been manifested in the years since 1925, when she established the Raymond Foundation by providing a large endowment fund.

Mr. H. Boardman Conover, Research Associate in the Division of Birds, presented \$400 toward the expenses of the zoological expedition to Brazil conducted during the year by Assistant Curator Emmet R. Blake.

From Mr. Henry J. Patten, of Lake Forest, Illinois, a gift of \$250 was received. Other sums of varying amounts were received as contributions from Mrs. Hermon Dunlap Smith, of Lake Forest; Mrs. Leslie Wheeler, of Lake Forest; Mr. Edward L. Dawes, of Chicago; Mr. Clarence B. Mitchell, of Chicago; Mr. Benjamin L. Bolling, of Mason City, Iowa; Mr. William J. Weldon, of Chicago; and Mr. H. F. Johnson, Jr., of Racine, Wisconsin.

A substantial, but as yet undetermined, sum will accrue to the Museum as a result of the bequests, previously mentioned, from the late Mr. and Mrs. Martin A. Ryerson. The estates are still in process of administration, and a definite figure regarding the amount of the bequests is therefore not yet available.

A fellowship grant of \$500 was received from the Carnegie Corporation, New York, to pay traveling expenses for Mr. Sharat K. Roy, Curator of Geology, on a trip to other American scientific institutions for purposes of research.

The death of Miss Kate S. Buckingham, who in 1925 had established an endowment of \$100,000, releases the Museum of its obligation to pay an annuity of \$5,500. In future the income of this fund will be used for general operating purposes.

By a payment of \$20,375.80 to the Northern Trust Company the Museum reduced to \$36,000 its indebtedness to that bank.

From the Chicago Park District the Museum received, as its share, authorized by the state legislature, of collections made during 1937 under the tax levies for 1936 and preceding years, sums aggregating \$92,122.69.

In the departmental sections of this Report, and in the complete List of Accessions beginning on page 254, will be found details of the many gifts of material for the collections received by the Museum during the year. A few outstanding ones have been selected for mention here, as follows:

A star sapphire, valued at \$1,550, was received from Mrs. William J. Chalmers, of Chicago.

An iron meteorite of the rare hexahedrite type, valued at \$1,500, was presented by the Estate of the late William N. Rumely, of Chicago, through Mr. Richard L. Rumely, son of the original owner.

The Polish-American Chamber of Commerce in Warsaw, with the Polish government co-operating, presented specimens of white storks, with a nest and other accessory material for the creation of a habitat group in the Hall of Birds (Hall 20). The Museum is indebted to Dr. Waclaw Gawronski, Consul-General of Poland in Chicago, and Mr. Jerzy Bojanowski, an official of the Consulate, for making arrangements for the collection of the birds and accessories. Further, through the co-operation of the Polish-American Chamber of Commerce, the Polish Government, the Consulate-General, and a large number of individuals and scientific institutions both in this country and Poland, a collection of varied specimens for all Departments was received. This material was brought from Poland by Mr. Anthony Mazur, an employe of the Museum, who himself contributed toward the collection.

From Messrs. Spencer W. Stewart and Robert J. Sykes, of New York, the Museum received the skin of a whale shark taken at Acapulco, Mexico. This animal represents what is probably the largest living species of fish-like creatures, reaching a size equal to or greater than that of some of the smaller whales.

Mr. Leon Mandel, of Chicago, as a result of West Indian cruises on his yacht *Buccaneer*, presented the Museum with specimens of "wahoo fish" (*Acanthocybium petus*), flying fish, other marine inhabitants, valuable birds, and a rare lizard. Mr. Rudyerd Boulton, Curator of Birds, was a guest on one of these cruises, and participated in the collecting.

An important collection of leaves, flowers and fruits of palms gathered in the Amazon region was received as a gift from Mr. H. F. Johnson, Jr., of Racine, Wisconsin. Some of the leaves are as much as thirty-five feet long, and clusters of fruit weigh as much as one hundred pounds.

Mr. Michael Lerner, of New York, presented a mounted specimen of blue marlin, otherwise known as "sword fish," which will make a valued addition to the exhibits planned for the hall of fishes (Hall O). The specimen, caught by Mr. Lerner at Bimini, Bahama Islands, is of record size, and weighed 537 pounds.

As for a number of years past, the John G. Shedd Aquarium, the Lincoln Park Zoo, the Chicago Zoological Society, and the General Biological Supply House, of Chicago, all contributed numerous valuable zoological specimens to the Museum.

Among distinguished visitors entertained at Field Museum in 1937 were: Dr. Oswald Menghin, Professor of Prehistoric Archaeology

at the University of Vienna; Dr. H. R. von Koenigswald, paleontologist of Bandoeng, Java; Dr. V. Gordon Childe, Professor of Prehistoric Archaeology at the University of Edinburgh; Dr. Dorothy A. E. Garrod, research fellow of Newnham College, Cambridge, England; Dr. Paul B. Sears, head of the department of botany at the University of Oklahoma; Dr. Kiyoshi Kominani, Professor of Botany at the Imperial University of Tokyo; Dr. Georg Steindorff, Professor Emeritus of Egyptology, University of Leipzig; Dr. E. I. Musgrave, Director of the City Art Gallery and Museum, Wakefield, Yorkshire, England; Dr. M. B. Hodge, Keeper of Bankfield Museum, Halifax, England; Dr. Robert Broom, paleontologist of Victoria College, Pretoria, South Africa; Dr. T. S. Westall, ichthyologist of the University of London; Dr. Wolfram Eberhard, anthropologist of the Museum für Völkerkunde, Leipzig, Germany; Dr. Rudolf Florin, paleontologist of the Stockholm Museum in Sweden; Colonel Theodore Roosevelt, of New York; Mr. Gerald Lightfoot, Secretary of the Council for Scientific Industrial Research, Melbourne, Australia; Mr. William Henry Claffin, Jr., Treasurer of the Museum of Fine Arts in Boston, and Curator of Southeastern Archaeology at the Peabody Museum of Harvard University; Dr. Walter Robyns, Director of the Jardin Botanique de l'Etat in Brussels, Belgium; Dr. Frederick P. Keppel, President of the Carnegie Corporation, New York; M. Marcel Olivier, President of the Museum National d'Histoire Naturelle, Paris; Mr. Gilbert Archey, Director of the Auckland Institute and Museum in New Zealand; Mr. J. R. Kinghorn, zoologist of the Australian Museum in Sydney; Mr. E. D. Hester, Economic Adviser to the High Commissioner of the Philippine Islands; Dr. J. M. Menzies, head of the department of archaeology at Cheeloo University, Shantung Province, China; Mrs. Franklin Delano Roosevelt, wife of the President of the United States; Mr. J. O. Brew, specialist in archaeology of the American Southwest, on the staff of the Peabody Museum, Harvard University; Mr. Earl Morris, of the staff of the Carnegie Institution of Washington, D.C., and Dr. Harold S. Colton, of the Museum of Northern Arizona at Flagstaff.

In addition to the election of a new Director, reported elsewhere, a number of other Staff changes occurred during the year:

Mr. Richard A. Martin was appointed Curator of Near Eastern Archaeology, and Dr. Julian A. Steyermark was appointed Assistant Curator of the Herbarium. Mr. David Gustafson was employed as an editor and proofreader in the Division of Printing. Mr. John R.



CHIPPING STONE IMPLEMENTS

Exhibit illustrating a method employed by North American Indians for making tools
(Hall B)

Millar, who had been on the staff of the Department of Botany since 1918, was transferred to the Department of the N. W. Harris Public School Extension, where he was appointed Acting Curator. Mr. A. L. Stebbins was appointed Bookkeeper.

Changes were made in a number of the titles of Staff members, in order better to designate their duties, as follows: Mr. C. Martin Wilbur, from Curator of Sinology to Curator of Chinese Archaeology and Ethnology; Mr. Edmund N. Gueret and Mr. D. Dwight Davis from Curator and Assistant Curator respectively of Invertebrate Skeletons, to Curator and Assistant Curator respectively of Anatomy and Osteology; Mrs. Mary W. Baker, from Assistant Librarian to Associate Librarian, and Mr. A. A. Miller from Photogravurist to Collotyper. The title Public Relations Counsel was adopted for Mr. H. B. Harte of the Division of Public Relations.

Under the provisions of the Field Museum Employes' Pension Fund, insurance was paid in the amounts indicated to the following beneficiaries of employes and pensioners who died during 1937: \$6,000 to Mrs. Stephen C. Simms, widow of the late Director Simms; \$4,000 to the widow of Mr. Thomas J. Larkin, former Museum guard; and \$3,000 to four sons of Mr. Burchard Tiemann, a former employe of the Museum's Division of Printing. Mr. John Buettner, preparator-carpenter in the N. W. Harris Public School Extension, retired from active service and was placed on the pension roll.

Mr. Henry Field, Curator of Physical Anthropology, received the degree of doctor of science from Oxford University in June. He went to England and participated in the ceremonies connected with conferring of this honor. The degree is in recognition of Dr. Field's vast amount of research conducted at Field Museum, the work he performed on several expeditions for this institution, and the many comprehensive scientific reports he has written and had published by Field Museum Press.

Members of the Museum Staff engaged in various scientific research projects, outlined in the departmental sections of this Report, and attended a number of important meetings of learned societies during the year. Assistant Curator Julian A. Steyermark presented a botanical paper at the meeting of the American Association for the Advancement of Science held in December at Indianapolis, Indiana. Dr. Paul S. Martin, Chief Curator of Anthropology, attended the meeting of the Academy of Natural Sciences in Philadelphia in March, and presented a report on the Field Museum Archaeological Expedition to the Southwest at the meetings of the

American Anthropological Association held at Yale University in December. Dr. Martin also visited a number of eastern museums for purposes of study. Curator C. Martin Wilbur presented a paper on a phase of Chinese archaeology at the meeting of the American Oriental Society held at Cleveland, Ohio, March 31 to April 2; Curator Richard A. Martin attended the same meeting. Curator Rudyerd Boulton attended the convention of the American Ornithologists' Union held at Charleston, South Carolina, in November. Later Mr. Boulton began a visit of several weeks in the east to make special studies on the taxonomy and distribution of the birds of Angola (Portuguese West Africa), working principally at the American Museum of Natural History, New York, and the Carnegie Museum of Pittsburgh. Mr. Elmer S. Riggs, Curator of Paleontology, attended conferences of the Geological Society of America, and the Paleontological Society of America, at Washington, D.C., in December. Curator Colin C. Sanborn made an eastern trip during the course of which he attended the meeting of the American Society of Mammalogists held at Washington, D.C., in the spring, and engaged in studies at Boston and New York scientific institutions. Curator Sharat K. Roy spent several weeks in studies at eastern museums and universities to collect data for a forthcoming monograph on the geology and paleontology of southeastern Baffin Land, completing research in which he was engaged as a member of the Second Rawson-Macmillan Expedition to the Subarctic (1927-28). His traveling expenses were provided by a fellowship awarded by the Carnegie Corporation, New York.

Mr. Karl P. Schmidt, Curator of Reptiles, has been elected Herpetological Editor of *Copeia*, quarterly journal of the American Society of Ichthyologists and Herpetologists. Conducting this work in addition to his activities at the Museum, he is kept in close contact with fellow scientists all over the world.

Director Clifford C. Gregg, in the course of a western trip during the summer, camped with two of the Museum's expeditions in the field, and participated in their work. He first visited the site of operations of the Field Museum Paleontological Expedition to Colorado, and afterwards joined the members of the Field Museum Archaeological Expedition to the Southwest. Following reconnaissance at the latter site, he traveled with the expedition leader, Dr. Paul S. Martin, Chief Curator of Anthropology, to Mesa Verde National Park, the Laboratory of Anthropology at Santa Fe, New Mexico, Gila Pueblo at Globe, Arizona, and the excavations at

Jeddito, Arizona, of an expedition dispatched by the Peabody Museum of Harvard University under the leadership of Mr. J. O. Brew. These visits resulted in contacts of value in continuing the cordial co-operation existing between Field Museum and various institutions and individuals. Mr. Gregg later went alone for similar purposes to the Colorado Museum of Natural History in Denver, and the Museum of the University of Iowa at Iowa City. The visits of the Director to the Museum's expeditions served to establish closer contact between the executive offices and the men engaged in the institution's extra-mural activities, and it is hoped to continue this practice in future.

On December 2, at the time of the reopening of the Hall of Jades (Hall 30) with the addition of a collection bequeathed by the late Mrs. George T. (Frances Ann Gaylord) Smith, a special lecture on jades was given in the Museum's small lecture hall by Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology. The lecture was illustrated with natural color stereopticon slides made and presented to Field Museum by Mr. Clarence B. Mitchell. The audience was composed of members of the American Friends of China, and others especially interested in Oriental art.

Members of the Museum and their guests, and invited groups from garden clubs and universities, attended a special showing of colored motion pictures, still photographs, and water color paintings of flowers of Panama, in the James Simpson Theatre on November 8. The pictures were the work of Mrs. H. H. Evans, of Balboa Heights, Canal Zone, who gave a lecture in connection with them.

Attention should be called to the splendid and effective work being done at Field Museum by a loyal and earnest group of volunteer workers. For many years Dr. E. E. Sherff and Mr. H. Boardman Conover have been identified with Field Museum as accomplished Research Associates in the fields of systematic botany and ornithology respectively. During the present year five other volunteers have joined the Staff in various capacities.

Mr. Clarence B. Mitchell, an Associate of the Royal Photographic Society, has for several months been carrying on experiments at the Museum in the field of natural color photography. Through this medium he has prepared a series of stereopticon slides featuring rare and beautiful jades selected from the Museum's collection. The fidelity with which color, texture, and finish have been portrayed has won wide commendation from art lovers throughout the city. Mr. Mitchell, as Research Associate in Photography on the Museum

Staff, is continuing his work in other difficult fields among the institution's collections.

Mr. Paul G. Dallwig, at a great expenditure of time and money, has prepared a series of lectures which he, as the "Layman Lecturer," offers free to the public on Sunday afternoons. These lectures are given in the halls of the Museum and present the story of certain sections of the exhibits in such a fascinating manner that the attendance has been more than could be accommodated, necessitating the requirement of advance registrations by participants. The limit, set at 100 persons for each lecture, has been reached repeatedly. At times reservations must be made as much as four weeks in advance.

Mrs. Hermon Dunlap (Ellen Thorne) Smith, of Lake Forest, Illinois, has been active for many months as Associate in the Division of Ornithology. Starting with limited knowledge of birds but a real desire for accomplishment in this field of study, she has rapidly progressed to a point where her services are highly regarded by her associates on the Staff of the Department of Zoology.

In the Department of Anthropology, Mrs. Edna Horn Mandel joined the Staff as an Associate because of her deep interest and wide knowledge in the field of Chinese art. At Field Museum she has given splendid service in describing, classifying, and cataloguing a diversified collection of paintings, and many rubbings taken from monuments of archaeological interest.

Miss Elizabeth McM. Hambleton has given valuable aid in the classification of early Pueblo pottery. As an Associate on the Staff she has been particularly useful in the study of the collections brought to the Museum from the Southwest.

In the number of copies of publications produced, and in the quantity of other miscellaneous matter printed, Field Museum Press exceeded even its 1936 productivity, which had been the largest in the history of the Museum. Elsewhere in this Report, under the heading "Division of Printing," will be found a complete list of the publications issued. Information concerning the distribution of these, nationally and internationally, will be found under the heading "Division of Publications."

To the list of books published under auspices other than those of Field Museum, but sold at this institution, two new titles were added. One of these is *Ecological Animal Geography*, translated by Curator Karl P. Schmidt from an original work in German by Dr. Richard Hesse of the University of Berlin. In revision of the translated book Mr. Schmidt had as his associate Dr. W. C. Allee, Professor of

Ecology at the University of Chicago. The publisher is John Wiley and Sons, New York. The other new title on this list is *Su-Lin*, a story for children about the young giant panda at the Brookfield zoological park of the Chicago Zoological Society. Ruth Ann Waring and Helen Wells are the authors; Rand McNally and Company, Chicago, is the publisher.

Six small books for children known as "The Footprint Series," with texts based entirely on material in Field Museum, and written by Mr. H. B. Harte, the Museum's Public Relations Counsel, were adopted during 1937 by the Chicago Board of Education as reading material recommended to teachers to supplement regular textbooks. They are illustrated with pictures of habitat groups of animals at the Museum. The Orthovis Company, Chicago, is publisher.

The number of men and women employed by the Works Progress Administration on the project at Field Museum during 1937 ranged from 167 to 199. Their aggregate working time amounted to 240,000 hours, and the total amount of wages paid to them by the federal government was \$174,200. It is interesting to note in comparison that the regular employes of Field Museum totaled about 160.

Although the efforts of the WPA workers have been utilized chiefly in routine tasks such as cataloguing, typing, filing, cleaning specimens, mounting photographs, and assisting in the manufacture of accessory material for groups, there have also been many persons who possessed scientific training and knowledge qualifying them for more important undertakings. It follows naturally that because of the co-operation of this organization the Museum has been far better able to serve the people of Chicago and the world. A great deal of scientific material held in storage for many years has been properly cleaned and prepared so as to be available for exhibition and study. More scientific reports have been published and distributed to institutions around the world as a result of WPA assistance in the Division of Printing and the Division of Publications.

Much of the effect of adverse economic conditions on the Museum has been counteracted by the activity of the WPA workers. The value and importance of their accomplishments can scarcely be emphasized sufficiently. They have undertaken tasks that could not have been attempted for many years by the regular staff of the institution, as every staff member has been, and is, fully occupied and unable to assume additional burdens. It should be noted that in no case has a regular Museum employe been displaced by a WPA

worker. The entire effect of the opportunity provided by the assignment of WPA workers has been one of expansion of Museum activities, and not in the least a substitution of personnel. WPA officials in charge of assignments and supervision have given the Museum a wholehearted co-operation which is deeply appreciated, and the project has been characterized by marked efficiency and smoothness of operation.

Field Museum was again host, as it has been each year since 1922, to the Art Research Classes conducted in co-operation with the Art Institute of Chicago. The same instructor who originated this work, Mr. John Gilbert Wilkins, a member of the faculty of the School of the Art Institute, was again in charge. Exhibits in Field Museum are used by students in these classes as suggestive material for their creations in charcoal, crayons, water-colors, oils, and plastics. Members of the classes are advanced students, and many graduates have become successful designers, illustrators, teachers, and creative painters and sculptors. The Saturday School of the Art Institute also continued to send classes of young children as for the past several years. The pupils in these range from children of the fourth elementary grade to those of high school age.

Despite long illness of the Superintendent of Maintenance, the Museum building and equipment were maintained in good order under the supervision of the Chief Engineer. Details of some of the more notable improvements during the year are outlined herewith:

For the Department of Anthropology fifteen exhibition cases were remodeled to accommodate material to be shown in Hall K on the ground floor, which is to be devoted to archaeological collections from Kish resulting from the Field Museum-Oxford University Joint Expedition to Mesopotamia. A plaster frieze of enlarged impressions from Babylonian and other ancient seal cylinders was installed on the walls of the same hall. Two new exhibition cases were built for the jade exhibits in Hall 30, and one new case for the exhibition of flints in Hall B. On the third floor improved lighting was installed in the office of the Chief Curator.

For the Department of Botany a built-in exhibition case for the accommodation of a habitat group of alpine plants of the Rocky Mountains (in preparation) was completed in the Hall of Plant Life (Hall 29). Two more mural paintings of exotic plants were installed on the walls of the same hall. In the Herbarium on the third floor, eight large new storage cases were provided.

For the Department of Geology a new exhibition case was provided for the reinstallation of the model of the Natural Bridge of Virginia. A new exhibition screen was furnished for material added to Ernest R. Graham Hall (Hall 38). On the third floor a partition was removed between Rooms 105 and 106 in order to provide more extensive working quarters for certain members of the Staff. In the chemical laboratory a new exhaust fan was installed for removing fumes.

For the Department of Zoology two new wall cases were installed and equipped, one each in Halls 19 and 21. Seven cases were completed for the exhibition of marine invertebrates. New cases were provided in Carl E. Akeley Memorial Hall (Hall 22) for the okapi and guereza monkey exhibits. The sable antelope exhibit in the same hall was relocated. A new screen was provided for the lemur exhibit in Hall 15. Ten built-in cases were constructed for the accommodation of habitat groups of birds in Hall 20, and six for fish habitat groups in Hall O. The groundwork was prepared for the habitat group of Asiatic takin which was opened during the year in William V. Kelley Hall (Hall 17). All exhibition cases were treated with preservative poison. Various improvements were made in the Department's offices and workshops on the third and fourth floors. A large wall bookcase was installed in Room 90. Twelve especially designed packing cases for the shipment of specimens were constructed for expeditions which the Department had in the field during the year. By building walls around surplus space in one of the corridors a new room was provided for the storage of eggshell specimens. Eighteen steel cases, complete with trays, were installed for the storage of mounted insects. New steel cases were provided for the storage of alcoholic specimens in certain Divisions. Eight storage cases were installed on the east side of the fourth floor for the study collection of birds, and sixty-seven storage trays were also provided.

An extensive project, undertaken to enlarge and improve storage facilities for the study collections of the Department of Zoology, was practically completed by the end of the year. This involved the construction of a mezzanine thirteen and one-half feet wide on the west side of the fourth floor, extending from the taxidermy shop to the paint shop, a distance of 280 feet, and the installation of an additional series of 123 large steel storage cases, bringing the total number of cases in this location to 249. This important improvement was made possible through the generosity of President Stanley

Field. By it the storage facilities on the fourth floor are approximately doubled, and it is estimated that accommodations are thus provided for all zoological accessions which are likely to be received during the next ten years. The cases are of a type suitable for storage of birds, small mammals, bones, and alcoholic specimens of reptiles.

A large new table was made for the reading room of the Library. A book-binders' press in the Division of Printing was rebuilt. Throughout the building window screens which required it were overhauled. A new double door was installed in the corridor at the west end of Hall K. The room provided for student guards was enlarged and rearranged.

In the James Simpson Theatre, sound motion picture projection equipment was installed. A beaded screen and fan blowers for the cooling of stereopticon slides were installed in the small lecture hall, this equipment having been presented to the Museum by Mr. Clarence B. Mitchell. To prevent seepage of light into this hall the windows were blocked up.

Electrical work included the wiring of fifteen cases for Hall K, seven cases for Hall O, and also a built-in case in the latter. Eleven new electrical outlets were installed for wall cases in Hall 21. Electric clocks were installed in the cafeteria and in the fourth floor taxidermy shop. Nine electrically operated water coolers were installed in various parts of the building. A new clutch was installed on the planer in room 38 (one of the third floor workshops of the Department of Anthropology). New brake controls were installed on the passenger elevator.

Due to the rearrangement of the automobile drives passing the Museum, it was necessary to lay 125 feet of new eight-inch cast iron water main under the west drive. Steam return lines in Hall O were considerably altered on account of the construction of new exhibition cases.

A large number of exhibition cases, including all those in Stanley Field Hall and Hall J (the Egyptian Hall) were lifted and cleaned, and many cases in various halls of the Department of Zoology were opened and cleaned. Eleven cases were temporarily installed in Stanley Field Hall.

The walls of twelve halls, five offices, four corridors, and the entrance to the James Simpson Theatre, were washed and starched. Considerable painting was done, especially in Hall K, the south corridor of the ground floor, the third floor shop of the Division of

Printing, and the ground floor carpenter and other shops of the Division of Maintenance. In the Division of Printing partitions were erected to create a new office for the head of the Division. Four downspouts to conduct water off the roof were repaired. Six aisle lights were made for the Simpson Theatre.

Rooms 106 and 108 on the third floor were fitted up as a photographic studio for the use of Mr. Clarence B. Mitchell, Research Associate in Photography, who is engaged at the Museum in the making of natural color pictures of various exhibits.

The brick work on all boilers was overhauled; a feed water meter was installed; a zoning damper was installed on the No. 2 boiler; the coal conveyor was overhauled and equipped with new slides and buckets; and the sump pump rotor in the boiler room was repaired. A saving of several hundred dollars was accomplished by using boiler compound prepared by the Museum's own engineering force. A number of additional radiators were installed for heating in various parts of the building.

Under the contracts in force for a number of years, the Museum's heating plant continued to furnish steam required by the John G. Shedd Aquarium and Soldier Field, 13,930,834 pounds of steam being furnished to the former, and 8,767,997 to the latter.

The Museum again benefited by favorable rates for electrical current under the "peak load contract" which has been in effect with the Commonwealth Edison Company for several years. This contract imposes certain restrictions on the use of electric light and power during the period from November 1 to February 28.

Reports in detail of the year's activities in each of the Museum's Departments and Divisions will be found in the pages which follow:

DEPARTMENT OF ANTHROPOLOGY

EXPEDITIONS AND RESEARCH

Archaeological field work in southwestern Colorado, suspended since 1934, was resumed, in 1937, under the leadership of Chief Curator Paul S. Martin. The expedition was financed through the generosity of President Stanley Field.

Mr. Carl T. Lloyd, of Harvard University, was in charge of photography and the archaeological reconnaissance, and Mr. Alexander Spoehr, of the University of Chicago, of the surveying and excavating. The Museum gratefully acknowledges the work done by three volunteer assistants: Mr. Charles Di Peso, Mr. Frank

Gregg, and Mr. John Harpham. Acknowledgment is likewise due to Mr. and Mrs. Clyde D. Long, of Ackmen, who kindly permitted the expedition again to use their ranch for camp headquarters; and to Mr. Ben Williford, of Ackmen, who allowed the excavation of four ruins on his ranch. The Museum also wishes to thank Mr. B. L. Bolling, of Mason City, Iowa, for his co-operation.

In previous years Dr. Martin had excavated in this region one large site, known as the Lowry Ruin, and various smaller ones known as unit-type houses. This work shed some light on the cultural history of the area during the period from about A.D. 950 to 1100. But nothing was known about the earlier history of this locality.

It was Dr. Martin's aim, therefore, during the 1937 season, to excavate various small ruins and seek clues concerning the earlier history of the region. An intensive survey of the Ackmen-Lowry area was first undertaken. The first three weeks were entirely devoted to this task; later, it was continued intermittently. In order to obtain significant data which could be handled quantitatively and which could be fairly compared, it was considered necessary to do two things: (1) to cover practically every square foot of ground in the area being examined, collecting 100 sherds from every ruin; and (2) to work equal land areas. If these two rules were observed, the survey would be made objective, ignoring the unproven idea that the Indians preferred certain topographic conditions for their habitations. Furthermore, by surveying equal areas of land in each section of a township, one would obtain data which could be handled quantitatively, and could, by all rules, be fairly compared. As lack of time made it impossible to survey complete township sections, such thorough activity was restricted to the northwest and the southeast quarters of each section. In this way sixteen and one-fourth square miles in the Ackmen-Lowry region were carefully examined, and 180 sites in all were discovered. Mr. Lloyd's report on this work will be published with Dr. Martin's.

The survey, to which a theoretical approach was worked out, produced a number of interesting problems. This may have many ramifications and result in a definite contribution to survey methods.

After devoting three weeks to survey work, some excavations were started on what appeared to be sites of the periods designated by archaeologists as "Pueblo I" or "Pueblo II" sites.

Site 1 consisted of a slab structure and an associated proto-kiva or pit house. There was no way of telling whether the pit structure was used for ceremonies, for habitation, or for both. The roof of

the kiva-pit house was supported by four posts set in the floor. A low bench encircled a part of the outer zone. A *sipapu* or hole in the floor through which communication with the spirits was believed possible, as well as a rectangular firepit, and a ventilator, were discovered. No deflector was observed.

The slab structure was small (about six feet wide), and may have been used for storage purposes. Fragments of masonry were found on top of some of the slabs.

Just north of the slab house, a number of postholes were discovered. These were used for holding posts which may have formed a lean-to, the purpose of which is unknown.

Site I may possibly be classified as Pueblo I or developmental Pueblo.

Site 2 included a proto-kiva and two surface rooms. This proto-kiva contained a masonry banquette, on which were crude stone pilasters. The walls above the banquette were of dirt. Neither *sipapu* nor deflector was noted.

The walls of the above-ground rooms were of exceedingly crude horizontal masonry. The stones were of all sizes and were not cut, shaped, or trimmed in any manner. It cannot be stated definitely whether or not these rooms were used for habitation. They were large enough certainly.

Site 3, which appeared more like an early unit-type pueblo, consisted of four rooms and probably two kivas. One kiva was excavated. It was "primitive" in some ways, for the walls were of earth and a bench was lacking; but on the south was a typical southern recess such as was so common in later unit-type and Mesa Verde kivas. The roof was supported by four posts. A deflector in the normal position was noted, but no *sipapu*.

The walls of the rooms were composed of horizontal masonry, and were the best found during the season. It is possible that these rooms were used for domiciliary purposes.

Site 4 was, most likely, occupied twice, the first occupation representing a culture older probably than any other found during the season. The original complex comprised two unconnected, wattle-and-daub structures, and a proto-kiva. The proto-kiva was nearly round. The roof had been supported by five posts, and no deflector or *sipapu* was noted.

As the proto-kiva later had been cleaned out, enlarged and reoccupied, it is difficult to decide whether it was associated during

its first occupation with the two wattle-and-daub rooms. The people who later occupied it added a mud bench on which were placed six masonry pilasters, and some masonry in the wall around the ventilator tunnel. At the same time, the size of the ventilator opening was reduced.

The method used in excavating was as follows: Each site was staked out in two-meter squares. Digging was done by squares and by levels, each level being 20 centimeters deep.

A report on the work of this expedition is being prepared by Dr. Martin for publication early in 1938.

At the Museum, Curator Albert B. Lewis finished research necessary for installing material from Korea, Japan, eastern Siberia, Ceylon, Andaman and Nicobar Islands, and India for Hall K during the early part of the year.

Curator Richard A. Martin spent most of the year cleaning, cataloguing, and sketching specimens from Kish and in research upon them. Under his supervision several hundred pieces of Sasanian stucco were restored, and their installation is now in progress.

Curator Henry Field continued his leave of absence, begun in 1936, until June, 1937, in order to attend Harvard University where he took two courses in physical anthropology under Dr. E. A. Hooton. There he also prepared statistical data for publication in reports on the physical anthropology of the peoples of Iraq, Iran, and Georgia (U.S.S.R.). In addition, he has almost completed his report, *Contributions to the Anthropology of Iran*, which is scheduled for publication in 1938.

The degree of doctor of science was conferred upon Curator Field in June by Oxford University, in recognition of his published research work on the physical anthropology and prehistory of southwestern Asia, and his monograph, *Arabs of Central Iraq, Their History, Ethnology, and Physical Characters*, published by Field Museum Press. Curator Field went to England to receive the degree.

Curator Wilfrid D. Hambly spent most of the year supervising the publication of his *Source Book for African Anthropology*. Dr. Hambly also continued anthropometric work on a large series of skulls from New Guinea. This collection was made by Dr. Albert B. Lewis, leader of the Joseph N. Field Expedition (1910-13). A beginning was made with the study and statistical treatment of anthropometric data collected by Curator Hambly among men of the Ovimbundu tribe of Angola, during the Frederick H. Rawson-Field Museum Ethnological Expedition to West Africa (1929-30).

Curator C. Martin Wilbur catalogued the collection of nearly seven hundred Chinese art objects bequeathed to the Museum by Mrs. George T. (Frances Ann Gaylord) Smith. The jades in this collection were placed on exhibition in the Hall of Jades (Hall 30).

Editorial work was completed by Mr. Wilbur on one of the manuscripts left unfinished by the late Dr. Berthold Laufer, former Curator of Anthropology. The outline of an analytic index of the extensive Chinese collections was drawn up, and the indexing was completed, under Mr. Wilbur's guidance, by Mrs. Arthur Willis, junior archaeologist assigned to the Museum by the Works Progress Administration.

Mrs. Edna Horn Mandel, Associate on the Chinese Collections, engaged in a volunteer project for the systematic study of Field Museum's collection of Chinese paintings, with Mr. Wilbur cooperating. An important preliminary phase of this project was the planning and construction of an adequate yet simple storage case, designed by Mrs. Mandel, for several hundred paintings of various dimensions. Mrs. Mandel also devised and established a clever cataloguing system especially adapted to Chinese paintings and rubbings.

Mr. Wilbur assisted Mr. Clarence B. Mitchell, Research Associate in Photography, in the selection of Chinese jades for photographing in full natural color. Mr. Mitchell's photographs are of superb quality, and will be of great use and value to the Museum for purposes of record, lectures, publicity, and other uses.

Invaluable aid has been rendered the Department by Miss Elizabeth McM. Hambleton, Associate in Southwestern Archaeology. Miss Hambleton has catalogued several large collections of southwestern pottery, has classified and computed the percentages on more than 15,000 pieces of pottery from the 1937 Expedition to Southwestern Colorado, has compiled these data statistically and graphically, and has edited and rewritten portions of reports submitted for publication.

Among the anthropological publications issued during the year by Field Museum Press were *Skeletal Material from San José Ruin, British Honduras*, and *A Source Book for African Anthropology*, both by Curator Wilfrid D. Hambly. Dr. Hambly has worked on the text of the latter book, which is in two large volumes, since 1930. It offers a comprehensive survey of the ethnology, archaeology, physical anthropology, and modern social problems of Africa. Such a textbook and work of reference has been needed for teaching institutions, museums, and public libraries for many years. The publication con-

tains 111 illustrations, five maps, and a large bibliography, which is classified by authors and subjects. The text, bibliographies, and indexes fill almost a thousand pages.

Also published were *Textiles of the Early Nazca Period*, by Dr. Lila M. O'Neale, and *Canete Valley*, by Dr. A. L. Kroeber. These publications constitute Numbers 3 and 4 of Volume II of the Anthropology Memoirs Series. The Leaflets, *Races of Mankind*, and *Prehistoric Man*, by Curator Henry Field, were revised and republished.

A vast amount of the time of the Department staff has been spent in answering a wide variety of lay inquiries, which constantly pour in by letter and by telephone. Assistance has been rendered in identifying and attributing specimens brought in by visitors. Likewise, much help has been given various students and scholars seeking special aid in assembling data on specimens, photographs, and bibliographies in connection with writing or research in which they are engaged. A great amount of time is also given to supervising various useful tasks upon which Works Progress Administration workers are engaged.

Thirty-one articles were contributed by the staff of this Department to *Field Museum News*. The staff also supplied data used in twenty-four newspaper articles.

Material collected in 1928 by the Field Museum-Oxford University Joint Expedition to Mesopotamia (Iraq) figured in important research whereby Professor Wolfgang Amschler, of the College of Agriculture, Vienna, Austria, established that the history of the domestic horse dates back a thousand years earlier than had previously been believed. Professor Amschler identified teeth and bones excavated by the Museum expedition from the Early Dynastic I (ca. 3000-2800 B.C.) tombs at Kish, Iraq, as those of *Equus caballus*. The earlier theory was that the horse was introduced into Babylonia by the Kassites during the early portion of the second millennium B.C.

ACCESSIONS—ANTHROPOLOGY

Accessions received and recorded during the year amount to twenty-six, of which twenty-three were acquired as gifts, one was acquired by exchange, one by purchase, and one by a Museum expedition. The total number of objects included in these accessions is 16,313.

A complete list of Accessions will be found at the end of this Report. Some outstanding ones require special mention here:

From Mr. Harold S. Gladwin, Director of Gila Pueblo, Globe, Arizona, was acquired an important type collection of pottery from the southwestern United States. The estate of Mrs. E. D. Christie, of Chicago, was the donor of an embroidered Persian shawl of great beauty and value. From Miss Mary I. Jones, of Detroit, Michigan, a gift of twenty-three pieces of Chinese jewelry was received. Mr. Homer E. Sargent, of Pasadena, California, an ever generous donor, added, to the already priceless collection which he has gathered and presented to the Museum over a long period, twenty-two excellent baskets made by Indians of California, Oregon, and Washington. Mr. F. O. Thompson, of Des Moines, Iowa, made a gift of twenty pairs of silver earrings from Toluca, Mexico. Mr. N. Dwight Harris, of Evanston, Illinois, presented two images of Chinese deities, one of brass and one of wood. About 15,000 specimens were acquired as a result of the Field Museum Archaeological Expedition to the Southwest. These consist mainly of potsherds taken from various levels of the four excavated sites, but include also many restorable pots and some bone and stone tools. A number of charred logs were likewise recovered, and these have been sent to Dr. Emil W. Haury of the University of Arizona, at Tucson, for dating.

CATALOGUING, INVENTORYING, AND LABELING—ANTHROPOLOGY

Entries were made for fourteen of the twenty-six accessions received during the year. Likewise, there were entered twenty-one accessions of previous years.

The number of catalogue cards prepared during the year total 8,561, of which 1,792 were entered. The total number of catalogue cards entered from the opening of the first volume is 216,070.

The catalogue cards for the current year were distributed as follows: North American archaeology and ethnology, 1,405; Central and South American, and Mexican archaeology and ethnology, 24; European archaeology and ethnology, 50; Chinese archaeology and ethnology, 718; African ethnology, 3; Kish archaeology, 6,355; Persian ethnology, 1; East Indian ethnology, 2; physical anthropology, 3.

The Division of Printing supplied a total of 2,162 labels for use in exhibition cases. These labels were distributed as follows: Hall of the Races of Mankind, 813; North American archaeology, 20; ethnology of the Southwest, 26; Lowry Ruin, 2; Ainu, Burma, Ceylon, Korea, and eastern Siberia, 437; India, 326; China, 240; Greece and Rome, 1; Andaman and Nicobar Islands, 287; and for a

special exhibit, 10. The Division of Printing also supplied 4,700 catalogue cards, 26,000 index cards, 2,200 record sheets, and other similar material.

The number of additional photographs mounted in the departmental albums is 372. One new photograph album was opened.

Workers assigned to the Department by the Works Progress Administration of the federal government accomplished an extraordinary amount of useful work in cleaning, repairing, and cataloguing specimens, preparation of exhibition material, and clerical duties.

INSTALLATIONS AND REARRANGEMENTS—ANTHROPOLOGY

Installation of materials for a new Hall of Asiatic Ethnology (covering regions outside of China and Japan) has continued throughout the year. The specimens to be exhibited have never before been shown. It has been necessary for Curator Lewis to sort the collections, catalogue many of the specimens, and engage in special research in order to write correct labels. During 1937 Dr. Lewis, with the assistance of Preparator J. William Harrison, finished fourteen cases. These contain objects from Korea, India, Nicobar Islands, Andaman Islands, Siberia, and the islands of Yezo and Sakhalin.

Curator Wilbur, assisted by Mr. Harrison, installed three cases of jade in the Hall of Chinese Jades (Hall 30). The specimens were bequeathed to the Museum in 1936 by the late Mrs. George T. (Frances Ann Gaylord) Smith. By means of special case lighting the variety of colors of the jades is brought out, and the translucency and internal structure of some of the specimens is revealed.

In Hall B (archaeology of North America), a special exhibit illustrating a method of manufacturing chipped stone implements was planned, prepared, and installed by Mr. L. L. Pray, of the Department of Zoology, assisted by Preparator Herbert E. Weeks and Miss Nell Starkson (employed for the Museum by the federal Works Progress Administration). Chief Curator Martin supervised the creation of this exhibit.

Preparator Weeks installed several cases of lower invertebrates for the Department of Zoology.

Sorting, cleaning, repairing, and identifying of specimens in storage were continued under the direction of Mr. Paul Warner, a competent ethnologist employed by the federal Works Progress Administration.

A subject index of specimens was begun by Mrs. Elizabeth Willis, anthropologist employed by the Works Progress Administration.



DRAGON-BLOOD TREE OF TENERIFFE

Mural painting by Charles A. Corwin

Hall of Plant Life (Hall 29)

All specimens from the Near and Far East have already been indexed and their location in the Museum noted.

Mr. Tokumatsu Ito, who is in charge of special repair work for the Department, treated, repaired and restored 275 objects. Mr. Robert Yule, assistant and letterer in the Department, marked identification numbers on 2,247 objects, made many drawings needed for publication, and assisted the Chief Curator in many other ways.

DEPARTMENT OF BOTANY

EXPEDITIONS AND RESEARCH

Late in January Mr. Llewelyn Williams, Curator of Economic Botany, sailed from New Orleans, for Coatzacoalcos, or Puerto Mexico, in the state of Veracruz, to make a general botanical collection on the Isthmus of Tehuantepec and to bring together a representative collection of wood specimens for study purposes. The region in which operations were conducted embraces parts of the states of Veracruz and Oaxaca, where a variation of vegetative zones and a wealth of plant species are found within a comparatively small area.

The first ten weeks, from early February to April, were spent in various mahogany camps at Fortuño, a tract of forest land measuring about 270 square miles between the Rivers Coatzacoalcos and Coachapan. The task of obtaining herbarium and wood specimens was greatly simplified by following the men who were felling mahogany, Spanish cedar, primavera, and other woods exported to the United States.

From the middle of April until late in June collecting was continued farther south at Uvero and Tolosita, in the state of Oaxaca. The terrain here is more hilly than at Fortuño, and the vegetation shows some distinction. Several species of plants that had not been reported previously from Fortuño were collected in this area. During May a trip was made also to Salto de Agua and Palenque, in northern Chiapas, a region rich in mahogany and chicle trees, the latter the source of latex used in the manufacture of chewing gum.

Late in June collecting was begun at Salina Cruz on the Pacific coast. Unlike the wet climate and dense tall forest growth on the side of the isthmus facing the Gulf of Mexico, the climate around Salina Cruz is extremely dry, resulting in the stunted vegetation of cacti, armed shrubs, and small trees characteristic of arid zones. The next collecting center was Tehuantepec, a historic city about

thirty miles inland, surrounded by the cloud-covered ranges of the Sierra Madre. At Almoloya, about halfway between Uvero and Salina Cruz, an opportunity was provided to obtain specimens of pine and several species of oak which abound on the upper slopes of the hills encircling the plain on which this small village stands.

Assistance greatly facilitating the work was given by various American individuals and concerns operating in Mexico, and Field Museum wishes to express its cordial appreciation for the co-operation extended by them. Special acknowledgment should be made to Mr. Frederick J. Riker, President of the Maderas Tropicales, at Minatitlán, Veracruz, through whose interest and generosity accommodations and native help were provided during the time spent by Mr. Williams at Fortuño, on the Coatzacoalcos River. The Museum is likewise grateful to Messrs. Bruce L. Hoover, James Barker, and D. C. Crawley for the hospitality and generous help given to Curator Williams during his stay of several weeks at Uvero and Tolosita, Oaxaca.

As a result of the expedition there were obtained 1,650 herbarium specimens, including several new or rare species, in most instances with one or more duplicates. Also obtained were more than 500 specimens of woods, each one having corresponding herbarium material; numerous specimens of fruits, seeds, and gums for addition to the economic collections; and 462 photographic negatives of trees and other subjects.

It has long been the desire of the Department of Botany to obtain for its exhibits a specimen of *Welwitschia*, a remarkable woody plant of great botanical interest, existing in limited numbers only in some localities in southeast Africa where it is now protected by law. This year the Portuguese government granted permission to Field Museum to obtain a specimen in Angola, and Professor H. Humbert, Director of the Division of Phanerogams, of the Muséum d'Histoire Naturelle in Paris, kindly agreed to visit, on his way to Madagascar, the Portuguese African colony on behalf of Field Museum. Making several excursions into the Mossamedes Desert, he obtained a complete collection of dried and preserved material of this extraordinary gymnosperm. The carefully packed specimens arrived in the United States Customs House in Chicago a few days before the end of the year.

The Museum acknowledges special indebtedness not only to Professor Humbert for his services, and for his detailed observations and notes on this plant, but also to Dr. M. A. Pimentel Teixeira,

of Mossamedes, and to officials of the colonial forest and irrigation service of Angola, for their co-operation with Dr. Humbert in securing and shipping this material.

In Europe, Associate Curator J. Francis Macbride, continuing his work described in previous Reports (1929 to 1936 inclusive), of photographing tropical American plant type specimens, divided his time during 1937 between the herbaria at Geneva and Paris. At the Conservatoire et Jardin Botaniques of Geneva he was enabled, through continued co-operation of Dr. B. P. G. Hochreutiner, Director, to photograph further types from the rich collections of that institution. He also had photographed there a large number of specimens lent for the purpose by the herbaria of Vienna and Madrid.

Material at Vienna had been selected for photographing during the previous year, and its loan was made possible by the interest of Dr. Karl Keissler, of the Naturhistorisches Museum. Similarly, the Madrid specimens had been selected during a visit to the Jardin Botánico before the beginning of the civil war in Spain. Permission to forward them to Geneva, where they could be photographed more conveniently, was then generously extended by the Director, Dr. Antonio García Varela.

A particularly important series of negatives, obtained by Mr. Macbride in Geneva, is that of copies made there more than a century ago of the drawings of the Sessé and Mociño collection of Mexican plants. The originals of these drawings are lost, but the copies, made by De Candolle, are the basis for descriptions of numerous new species. Previously there have existed in the United States only poor tracings of some of these plates, which are important for study of the Mexican flora. It is hoped that these photographs may facilitate the recognition of some of the Sessé and Mociño plants whose identity has long been uncertain. They will be particularly valuable in study of the Sessé and Mociño Herbarium, now on loan at Field Museum, having been sent here by the Jardin Botánico of Madrid early in 1936. The story of the Sessé and Mociño Expedition, incidentally, served as the topic for one of Field Museum's radio broadcasts during the summer of 1937.

At the end of 1937 there had been received at the Museum 5,789 negatives made under Mr. Macbride's supervision during the past two years. The total number of such negatives of type specimens now at hand is 34,289, illustrating almost as many species of tropical American plants. Together they represent the majority of species

known from South America, and form a study series which for completeness is equaled in few if any other institutions.

The practical utility of these photographs is realized by all botanists who have seen them, and they are constantly in demand for monographic research in both America and Europe. Similar photographic work upon so extensive a scale has never before been undertaken by any botanical institution. Prints from the negatives are made available by the Museum to botanists generally. During the past year 3,115 such prints have been furnished at cost of production to institutions in North and South America, and many others have been sent in exchange for similar type photographs desired by Field Museum.

Collections received for determination and study from widely scattered sources have occupied fully the time of the Herbarium staff throughout the year. Care of the Herbarium has been greatly facilitated by the employment throughout 1937 of a large number of workers supplied by the Works Progress Administration of the federal government. Although direction of the WPA workers has consumed much of the time of the staff, this is justified by the results accomplished. There have been mounted and added to the Herbarium 40,255 sheets of specimens and photographs, and more than 12,400 printed or typewritten descriptions of new species of plants. These figures indicate rapid growth, and compare well with similar data for other large herbaria of the world. The total number of specimens now in the Herbarium is 894,500. All work of mounting has been brought up to date, and only current collections remain. These are handled promptly, the mounted specimens being distributed into the permanent study collections within a few weeks of receipt, making new accessions quickly available for consultation.

Good progress has been made at cleaning and repairing sheets in the general Herbarium. Several persons were occupied with this task during the year, to the great benefit of the collections. Many hundreds of new covers for genera and species were written, data upon the sheets were corrected and amplified, and search was made for misplaced specimens such as occur, in spite of all care, in every large herbarium.

Considerable work was also done in rearrangement, according to recent literature, of certain groups of plants. The greater part of the grasses, for instance, was thus rearranged in accordance with recently published manuals and floras. A large amount of surplus



GOLDEN SHOWER

Flowering and fruiting branch of *Cassia fistula*, a leguminous tree of India, reproduced from nature
Hall of Plant Life (Hall 29)

palm material, originally collected for the exhibits, was cut up and prepared for incorporation into the Herbarium.

There were submitted to the Herbarium for study and determination more than 13,280 specimens of plants, principally from tropical America and the United States, but representing also various other regions. While part of this material was returned to the senders after determinations had been made, the larger portion was retained for preservation in the Herbarium. Besides, there were named but not retained for the collections many plant specimens from the Chicago region and elsewhere that were brought or mailed to the Museum by visitors, teachers, and students. Hundreds of inquiries regarding the most varied botanical matters were answered by mail and telephone.

During 1937 the Herbarium has been consulted by many visiting botanists, not only from the Chicago region but from near and remote parts of the United States, and also from foreign countries. It has been used frequently by scientists and students from the several large universities in or near Chicago and elsewhere in Illinois or neighboring states. Its use is intensified by the fact that it is the only large herbarium existing within a radius of several hundred miles. The staff of the Museum's own Department of Botany, of course, utilizes it constantly as a source of information and as the basis of original studies.

Botanical publications of 1937 much exceeded, in number of pages, those of any previous year in the Museum's history, and included one complete volume of the Botanical Series. Among them is Number 3 of Volume IX, *Useful Plants and Drugs of Iran and Iraq*, by Dr. David Hooper of Wellcome Historical Medical Museum, London, with notes by Dr. Henry Field, Curator of Physical Anthropology at Field Museum. This publication is based on the economic part of the collection of plants and notes made by the latter on the Field Museum Anthropological Expedition to the Near East (1934).

Of Volume XIII, *Flora of Peru*, by Associate Curator J. Francis Macbride, two parts were issued. This work is intended to be a descriptive account of all flowering plants known from Peru, and is based primarily on the Museum's extensive Peruvian collections obtained chiefly by its botanical expeditions to that country. When completed, this work will consist of six large volumes, of which six scattered parts have been issued to date. In the parts published during 1937, accounts of certain families were contributed by the

Rev. Mr. F. E. Wimmer, of Vienna, Dr. R. Pilger, of Berlin, and Mr. Ellsworth P. Killip, of Washington, D.C.

Volume XVI, issued in 1937, contains more than 700 pages and 189 text figures. It is devoted to an account of the genus *Bidens*, by Dr. E. E. Sherff, Research Associate in Systematic Botany at Field Museum. The genus, with 233 species, is one of the largest of the vast family Compositae, and is represented in tropical and temperate regions of almost the whole earth. The volume represents many years of research, based upon material from all the larger herbaria of both hemispheres.

Of Volume XVII three parts were published during 1937. Number 1 is *The North American Species of Rumex*, by Dr. K. H. Rechinger, Jr., of the Naturhistorisches Museum, Vienna. Numbers 2 and 3, *Studies of American Plants*, Parts VII and VIII, by Curator Paul C. Standley, are devoted principally to descriptions of new species of tropical American plants.

Volume XVIII, by Curator Standley, enumerating and describing the *Flora of Costa Rica*, is based upon studies in both field and herbarium. The two parts published, consisting of 790 pages, cover perhaps three-fifths of the plants known from that small Central American republic, which possesses one of the most varied floras of all tropical regions.

During the year Curator Standley published in various periodicals three short articles on American plants. He also contributed accounts of several families to the *Flora of Peru*, and descriptions of new species that appeared in papers published by other authors.

Two additions were made to the Museum's series of Botanical Leaflets. Number 20, *House Plants*, by Robert Van Tress, Horticulturist at Garfield Park Conservatory, illustrates and describes, with directions for their care, about thirty ornamental plants most commonly sold and used for window-gardening and home decoration. In addition, it lists some fifty others, less usual, that may be grown for the same purpose. Number 21, *Tea*, by Mr. Llewelyn Williams, Curator of Economic Botany, deals briefly with the history of the tea plant, its cultivation in the various tea-growing countries, and methods of classifying tea and preparing it for market.

Members of the Department staff prepared for the periodical *Tropical Woods* a large number of abstracts and reviews of current literature relating to woody plants of the tropics. They contributed many articles for *Field Museum News*, as well as data for various newspaper articles.

ACCESSIONS—BOTANY

During 1937 the Department of Botany received 303 accessions, comprising 53,551 specimens. Both the number of accessions, and the number of specimens included in them, were much larger than in the preceding year, and their value was apparently much greater. The accessions included specimens for the exhibits, for the Herbarium, and for the wood and economic collections. Of the total number, 15,192 were gifts, 22,307 were acquired in exchange, 3,053 were purchased, 11,970 were obtained by Museum expeditions, and the remainder were received from miscellaneous sources.

The most important single accession for the exhibits received during the year was of paleobotanical character, viz., one of the well-known fossil cycad trunks collected years ago in the Black Hills of South Dakota by the late President T. H. Macbride, of the University of Iowa. This was obtained, by exchange, through the friendly co-operation of Mr. Fred Thompson, of Des Moines, and the courtesy of Dean G. F. Kay, of the University of Iowa. These remarkably preserved plant fossils have been made famous through the monograph on them by Professor G. R. Wieland, of Yale University. The Museum's specimen will serve as the basis for a three-dimensional restoration to which will be assigned an appropriate place in the botanical exhibits.

To the collections of economic material and woods there were added 704 specimens. Almost two hundred of these were contributed by individuals, and scientific or commercial institutions, as gifts or exchanges. The remainder, including a trunk of a Mexican rubber tree for the rubber exhibit in Hall 28, and some five hundred specimens of woods, were assembled by the Field Museum Botanical Expedition to Southern Mexico. The names of all contributors will be found in the list of Accessions (p. 254); particular mention of a few follows herewith.

Mr. B. A. Krukoff, of New York, who has done much collecting in the Amazon region and elsewhere, presented several samples of Pará rubber, barks of trees, roots used for fish poison, and latex from various species of trees, all assembled by him during 1933 in Brazil. The Hammermill Paper Company, Erie, Pennsylvania, furnished samples of unbleached, bleached and colored paper pulp and machine stock to replace material which had deteriorated or become discolored after being on display for several years. Friends of the Western Mountains, through their secretary, Mr. C. E. Graves, gave the Museum photographs of red alder and

Sitka spruce, required to complete the exhibits of those woods in Charles F. Millspaugh Hall (Hall 26). Through the courtesy of Mr. O. A. Oakes, Evanston, Illinois, there were received four large planks of important commercial woods of New Zealand. These are particularly appreciated because heretofore no material from that country has been available for exhibition in the Hall of Foreign Woods (Hall 27). From Mr. S. M. Le Barron, New Orleans, Louisiana, there were received several planks of woods from Mexico, including walnut and primavera.

Of the total receipts, specimens for the Herbarium amounted to 52,682, including plant material, photographs, and typed descriptions. A large amount of exceptionally valuable herbarium material was received through exchange. First in importance was a sending of 4,709 specimens from the Naturhistorisches Museum, Vienna, transmitted by Dr. Karl Keissler, Director of the Botanical Section. This large series consisted in major part of old collections from Brazil and Peru, representing type material of several hundred species discovered by the earlier collectors, and not represented previously in American herbaria. Another exchange of similarly valuable material, amounting to 665 specimens from tropical America, was received from the Muséum d'Histoire Naturelle (Phanérogamie), Paris, through the courtesy of Professor H. Humbert. The Conservatoire et Jardin Botaniques, Geneva, in continuation of previous generous sendings of plants, transmitted 1,837 specimens of historical interest, which supplement admirably the series of type photographs made in that institution by Associate Curator Macbride. This new shipment was made possible by the courtesy of the Director, Dr. Hochreutiner.

Other important receipts of specimens through exchange included 357 specimens of Mexican plants, from the Arnold Arboretum, Jamaica Plain, Massachusetts; 406 specimens of California plants, from the California Academy of Sciences, San Francisco; 378 specimens of Utah plants, from the Carnegie Museum, Pittsburgh; 2,078 specimens from Guatemala and the United States, from the Department of Botany, Cornell University, Ithaca, New York; 339 specimens collected in Glacier National Park, Montana, from the Department of Botany, De Pauw University, Greencastle, Indiana; 550 specimens of Hawaiian plants, from Dr. F. Raymond Fosberg, Philadelphia; 412 specimens of United States and Brazilian plants, from the Gray Herbarium of Harvard University; 204 specimens of Argentine plants, from the Instituto de Botánica Darwinion, San Isidro, Argentina; 521 specimens and photographs of unusual his-

torical interest from the Národní Museum, Prague, Czechoslovakia; 360 specimens of North Dakota plants, from the North Dakota Agricultural College; 668 specimens and photographs, representing chiefly species of tropical America, from the United States National Museum; 587 specimens, chiefly of Mexico and Central America, from the Herbarium of the University of Michigan; 851 specimens of United States plants from the Department of Botany, University of Minnesota; and 627 specimens of Canadian plants, from the Department of Botany, University of Montreal.

Among numerous gifts of herbarium material accessioned during the year are many of outstanding value, particularly from tropical America. Among these may be mentioned 335 Mexican plants, from the Bailey Hortorium, Cornell University, Ithaca, New York; 134 specimens of Costa Rican plants, from the Department of Botany, Carleton College, Northfield, Minnesota; 228 specimens of Colombian plants, from the Rev. Brother Elias, Barranquilla; 730 beautifully prepared specimens from Jardim Botânico de Bello Horizonte, Brazil; 567 specimens of Guatemalan plants from Dr. John R. Johnston, Chimaltenango; 667 specimens of Brazilian plants, from Mr. Boris A. Krukoff, New York; 1,085 specimens of Costa Rican plants, from the Museo Nacional, San José, through its director, Professor Juvenal Valerio Rodriguez; 184 specimens from Professor J. Soukup, Puno, Peru; 237 specimens from Professor Manuel Valerio, San José, Costa Rica; 219 specimens of Peruvian plants, from Dr. César Vargas, Cuzco; 325 specimens of Brazilian plants from the Museu Paraense Emilio Goeldi, Pará; and 218 specimens of plants of Honduras, from Professor T. G. Yuncker, Greencastle, Indiana.

The Department of Botany of the University of Texas, through Professor B. C. Tharp, presented 1,431 specimens, chiefly from western Texas and northeastern Mexico, most of which were named at Field Museum. In continuation of his practice of former years, Professor Samuel J. Record, of the Yale School of Forestry, New Haven, Connecticut, forwarded 258 specimens representing woody plants of South America, Africa, and the Pacific Islands. The largest single gift of the year consisted of 4,078 specimens from Missouri, presented by Assistant Curator Julian A. Steyermark. This material is chiefly from the Ozark region, and was obtained during an intensive survey carried on during the past summer. Mr. J. S. Daston, Chicago, contributed twenty-four specimens of cacti collected by him in the southwestern United States and in Mexico.

Other gifts include 315 specimens from the United States and Europe, being the private herbarium of the late Mrs. Abigail Butler, presented by Mr. McCrillis Butler, Chicago; 236 specimens from the central states, by Mr. Hermann C. Benke, Chicago; 850 specimens of Utah plants, from Dr. Helen Dixon, Chicago; 438 specimens of New Mexico plants, from Sister M. Marcelline, Grand Rapids, Michigan; 165 specimens of Texas plants, from Mr. Ernest G. Marsh, Jr., Austin; 357 specimens of Missouri plants, from Mr. George Moore, Lebanon; and 566 plants of various regions, from Dr. E. E. Sherff, Chicago.

CATALOGUING, INVENTORYING AND LABELING—BOTANY

Workers assigned to the Department by the federal Works Progress Administration rendered great assistance in the reorganization and arrangement of reference and exchange material, of herbarium and economic specimens, and of woods. They also performed many and varied tasks of typing. More than 257,000 catalogue cards were written by them for permanent and temporary files, some of which, when completed, will be of extraordinary practical value. Many thousands of herbarium and wood collection labels were prepared for the permanent collections and for duplicates sent out as exchanges.

The economic collections, stored in large part in the lockers under the exhibition cases in Halls 26, 27, 28 and 29, were again thoroughly gone over. For convenience in future reference, each locker was supplied with a typed list of its contents, checked against the existing catalogues of this material.

During 1937 there were distributed, to institutions and individuals, forty-five lots of material, including 11,437 herbarium specimens, wood specimens, photographs, and typed descriptions of new species. These were sent to numerous institutions and individuals in North and South America, and Europe. Sixty-three lots of specimens were lent for study to institutions and individuals in North and South America, and Europe, and fifty-one lots were received on loan, for study or determination.

INSTALLATIONS AND REARRANGEMENTS—BOTANY

An important improvement for the botanical exhibits was made early in the year by the construction of built-in cases in the unoccupied north end of the Hall of Plant Life (Hall 29) to provide exhibition place for three of six ecological groups planned for this hall.

The three groups which will occupy this end of the hall are designed to represent characteristic aspects of the vegetation of the frigid and temperate zone. Those planned for the south end will illustrate plant formations of the tropics and subtropics.

Work on two of the groups has been under way for some time. Material for the first one, a large diorama of an alpine meadow with a special variety of arctic vegetation, selected for its ready accessibility, was collected first in 1927. Work on it was then carried on for some months, but was halted in favor of completing the Carboniferous forest reconstruction now on exhibition in Ernest R. Graham Hall (Hall 38) of the Department of Geology. Resumed in 1936, work on the alpine group was brought near to completion in 1937, with the aid of workers supplied by the Works Progress Administration.

Material, photographs and observations on which the group is based were obtained in the Medicine Bow Range in Wyoming at an altitude of 12,000 feet above sea level, near the University of Wyoming summer camp about forty miles from Laramie. The exhibit, a twenty-five foot diorama, when completed will represent a Rocky Mountain summer landscape at the timber-line, where alpine conditions determine the character of the vegetation. The painted background will show an extensive plain with snow-capped mountains in the distance. In the foreground reproductions of the flora of the alpine meadow will illustrate its late midseason condition—early spring flowers still in contact with remaining snow on the one hand, while on the other, farthest removed from the snow, vegetation far advanced and beginning to assume aspects ranging from those of late summer to autumn. The simultaneous presence of spring, summer and autumn conditions is characteristic of such a habitat. Lingering snow retards the blooming of the spring flora, while at the same time the quick growth and rapid succession demanded by the shortness of the growing period brings into flower and fruit, in the space of a few weeks, a tufted carpet of low-growing, flowering herbs, along with some stunted juniper and prostrate spruces as the only representatives of the woody vegetation below.

The preparation of this group, including all details involved in the collection of botanical specimens and other material and data, as well as the reproduction of the large number of individual plants of more than thirty species represented, has throughout been in charge of Mr. Emil Sella, of the Plant Reproduction Laboratories staff. The painted background is the work of Museum staff artists. The preliminary sketches were made by Mr. Charles A. Corwin, and are

being carried out and elaborated on a large scale by Mr. Arthur G. Rueckert.

The second ecological group under way, well advanced with the help of WPA workers, is one representing a spring woodland scene such as was once typical of the Chicago area, and may still be found in a few undisturbed spots beyond the limits of the city.

A third exhibition project, carried on during the year with the aid of skilled WPA workers under the supervision of Mr. John R. Millar, of the Department staff (until his transfer late in the year to the Department of the N. W. Harris Public School Extension), is also not quite completed. It is a reproduction of a nipa palm for Hall 25. The preserved botanical material and data for this was obtained in the Georgetown Botanic Gardens by the Stanley Field Expedition to British Guiana (1922).

Several other exhibits to which the labor of WPA workers under the supervision of Mr. Millar has contributed in greater or less degree are under way. One of them is a small-scale diorama of a cassava starch mill for the food plant exhibits in Hall 25. Another is a reproduction of a clump of epiphytic bee-swarm orchid, a species of *Cyrtopodium*, for the Hall of Plant Life (Hall 29).

The case devoted to the rose family, to which belong most of the well-known fruits and berries of the temperate zone, received some special attention with the preparation of further material. A branch of sour cherry, reproduced by Mr. Milton Copulos of the Laboratories staff, is the latest addition.

The exhibition case devoted to the royal palm and its allies was reinstalled early in the year, with the addition of new material and photographs. Several transparencies of scenes pertaining to food plants were prepared for the windows of Hall 25.

In Charles F. Millspaugh Hall of North American Woods (Hall 26), two new installations were made, namely, Idaho white pine, material of which was presented several years ago by the Panhandle Lumber Company, Boise, Idaho; and sycamore, for which the Keith Lumber Company, Chicago, and the Eastman-Gardiner Hardwood Company, Laurel, Mississippi, gave material in 1931 and 1935. Photographic enlargements were also added to the exhibits of incense and western red cedar. Of the eighty-four species of North American trees selected for display in this hall, on the basis of the commercial value of their wood, there now remain to be added only the three western species: Sitka spruce, noble fir, and red alder.



IGNEOUS INTRUSIONS

Model showing types of injections into sedimentary strata

Clarence Buckingham Hall (Hall 35)

In the Hall of Foreign Woods (Hall 27), there was installed one case of woods of Mexico, consisting of twelve planks representative of some of the commercial species of southern Mexico which are now imported into the United States. These were presented in 1935 by Mr. Bruce Hoover, of Mexico City.

DEPARTMENT OF GEOLOGY

EXPEDITIONS AND RESEARCH

An expedition to western Colorado, under the leadership of Assistant Curator Bryan Patterson, spent three months collecting vertebrate fossils. Mr. James H. Quinn, of the paleontology laboratories staff, accompanied Mr. Patterson. Curator Elmer S. Riggs joined the expedition for a part of the season, and two volunteers, Mr. Clayton A. Quinn, of Ainsworth, Nebraska, and Mr. Theodore Burdish, of Hazelcrest, Illinois, contributed valuable services. Many specimens were collected from the Upper Paleocene beds of Plateau Valley, and others were collected from Lower Eocene formations. The more important specimens include a mountable skeleton of a new genus of tusked amblypod (discovered by Mr. Alfred A. Look, of Grand Junction, Colorado), the anterior half of the skeleton of a second new amblypod, a skull and other parts of a new untathere, the skull and jaws of a Paleocene species of *Phenacodus*, the skull and jaws of a large *Coryphodon*, and good specimens of crocodiles.

The expedition made a collection also of fossil plants and gastropods from the Upper Cretaceous and Paleocene formations. It is expected that this collection of fossil plants will disclose specimens new to science, and that it will be an important aid in arriving at a better understanding of the stratigraphy of the area in which they were collected. A study of this collection should reveal much about the vegetation contemporaneous with the Paleocene vertebrates collected by the expedition, and provide a clearer picture of the surroundings under which these animals lived.

The success enjoyed by the expedition was in no small measure due to the friendliness and generous co-operation of residents in the region. Among these, Messrs. Edwin B. Faber and Alfred A. Look, of Grand Junction; Messrs. J. Edwin and Douglas Harris, and Miss Julia Harris, of Mesa; Mr. Hatton Edgerly, of De Beque; Mr. Charles Deardorff and Miss Hazel Deardorff, of Silt; and Messrs. William B. Hilton and G. Bradley Harris, of Rifle, should be especially

mentioned. It is safe to say that the results of the expedition would have fallen far short of what was actually accomplished had it not been for the aid given by these and other persons in the donation of specimens and in the ready granting of facilities for working.

Curator Sharat K. Roy spent five weeks during July and August in northwestern Colorado collecting specimens needed for the installation of an enlarged collection illustrating structural and physical geology in Clarence Buckingham Hall (Hall 35). Besides collecting examples of rock folding, which was the principal object of the expedition, other specimens needed for later stages of this installation, as well as a number of fine zeolite minerals, were obtained. Much of the success of the expedition was due to the active co-operation of Dr. P. G. Worcester, of the University of Colorado, who has carried on field work in the region for many years.

Mr. Roy, working under a grant-in-aid from the Carnegie Corporation, New York, spent two months visiting eastern museums and universities. The purposes of the trip were: (1) Comparative studies of Ordovician arctic fossils collected by Mr. Roy during the Rawson-MacMillan Subarctic Expedition (1927-28) with fossils of the same age from North America; (2) consultations with specialists in Ordovician stratigraphy and paleontology; (3) study of methods of classification and exhibition of igneous rocks; (4) study of methods of exhibition of invertebrate paleontology and physical geology; (5) study of general museum technique relating to geology. The studies and comparisons of Ordovician fossils were undertaken to increase the value of Mr. Roy's monograph on the geology and paleontology of Baffin Land, in which he is incorporating the results of his work as a member of the Rawson-MacMillan Expedition. The other studies were undertaken in connection with revisions of exhibited collections now under way or contemplated. During this trip Mr. Roy visited the following institutions, in all of which he received the most hearty co-operation: the American Museum of Natural History, New York; Columbia University, New York; Yale University, New Haven, Connecticut; United States National Museum, Washington, D. C.; Rutgers University, New Brunswick, New Jersey; Princeton University, New Jersey; and the Peabody Museums at Harvard University, Cambridge, Massachusetts, and at Yale. All the studies and observations were successfully and profitably carried out.

Many of the fossil mammals from the Marshall Field Paleontological Expeditions to South America (1922-25 and 1926-27) and from the more recent expeditions to Colorado, are new species and in

some cases new genera, or are from species inadequately studied in the past. Concurrently with the preparation of these specimens, which has been the principal task of the vertebrate paleontologists for several years, Curator Riggs and Assistant Curator Patterson have continued studies of them. The results of such studies as have been completed appear in four papers published during the year. Three of these—*A Mounted Skeleton of Homaladotherium*, by Mr. Riggs; *A New Genus Barylambda for Titanoides Faberi, Paleocene Amblypod*, by Mr. Patterson; and *A Soricid and Two Erinaceids from the White River Oligocene*, by Mr. Patterson in collaboration with Mr. Paul O. McGrew, of the University of Chicago—were published by the Museum. One, *A New Pleistocene Bog Deposit and Its Fauna*, by Mr. Riggs, was published by the Illinois State Academy of Science. A fifth paper, also by Mr. Riggs, *The Stratigraphy of the Catamarcan Pliocene Deposits*, is to be published by the Second Argentine Congress of Natural Scientists, at Mendoza, Argentina.

Curator Roy published a paper "Additional Notes on Living Bacteria in Meteorites," in *Popular Astronomy*, and is now incorporating the results of his studies in eastern museums in his monograph on the geology and paleontology of Baffin Land, which he expects to complete in 1938.

Dr. Albert J. Walcott, working under a special arrangement, made a detailed study of all minerals in the Museum showing asterism. He incorporated the results in a paper, published by the Museum, on the cause of this phenomenon in gem minerals.

ACCESSIONS—GEOLOGY

The number of accessions recorded during the year was sixty-nine. The number of specimens included in these accessions was 1,259. Of these, 692 were gifts, 117 were obtained by exchange, 449 came from expeditions or were collected by members of the staff, and one was purchased. This represents an increase of nearly one-third in the number of accessions, and of nearly two-thirds in the number of specimens received, as compared with the preceding year. There was likewise a noteworthy improvement in the quality of the specimens received by gift.

A most attractive addition to the gem collection is a large star sapphire, mounted in a white gold ring, presented by Mrs. William J. Chalmers, Chicago.

A group of 248 small opals of exceptional quality, the gift of Mr. Jerome Von Rappaport, Chicago, is another valued addition to the

gem collection. It illustrates the beautiful effects that can be obtained by a massed assembly of small but brilliant stones.

A gift from Mr. H. V. Schiefer, Cleveland Heights, Ohio, added nine specimens of cabochon-cut chalcedony of fine quality to the display of semi-precious stones. Mr. August Rassweiler, Chicago, presented a cabochon-cut green aventurine.

Mr. Haruyoshi Tokuno, of Fushun, Manchukuo, presented a figure of the Daruma Buddha, carved by a native artist from jet mined in Manchukuo.

The most important addition to the meteorite collection was a gift, by the Estate of William N. Rumely, of Chicago and La Porte, Indiana, of a meteorite weighing thirty-two pounds, found years ago near La Porte.

Other gifts for addition to the meteorite collection include a specimen of the Lake Labyrinth (Australia) meteorite, from Dr. H. H. Nininger, of Denver, Colorado; and an individual of the Pultusk (Poland) meteorite from the Industrial and Agricultural Museum of Warsaw, Poland. The collection was further enlarged by the addition of fourteen meteorites obtained by exchange.

A collection of twenty-three industrial minerals of Poland, presented by the Industrial and Agricultural Museum in Warsaw, is an important addition to the economic exhibits. It includes a full series of the minerals of the salt and potash mines of that country.

A gift from Mr. Tokumatsu Ito of the Museum staff, of twenty specimens of coals and their products, as well as amber and other industrial minerals of Manchukuo, is another valued addition to the economic collections.

A specimen of salt and a salt stalactite from Palestine, presented by Mr. Morris G. Morrison, Evanston, Illinois, is of interest as it comes from the region where, according to the Biblical account, Lot's wife was changed to a pillar of salt.

Two polished specimens of bird's-eye quartz, a variety new to the collections, were presented by Mr. J. R. Wharton, Roseburg, Oregon. Mr. Frank Von Drasek, Cicero, Illinois, added, to his gifts of former years, forty-two specimens of minerals and ores from New Mexico and Arkansas. Mr. J. W. Jennings, Eureka Springs, Arkansas, added six minerals from Arkansas to his earlier gifts. A collection of 106 minerals was presented by Miss Marguerite Simmons, Chicago.

An unusual occurrence of concretions is represented by a gift of eighteen specimens from Mr. Dan P. Mumbrue, Helena, Montana.

The value of these is enhanced by the fact that a full description of their mode of occurrence accompanied them. Other concretions, each with some aspect of special interest, were presented by Mr. and Mrs. Alexander Darragh, Chicago; Mr. A. F. Setterle, Cicero, Illinois; Mrs. Dorothy K. Young, South Haven, Michigan; Mr. Elmer L. Rembold, Chicago; Mr. W. E. Matthews, West Terre Haute, Indiana; Mr. Lloyd Cannon, Olmsted, Illinois; and Mr. G. B. Calhoun, Chicago. All of these differ in several ways from those now in the collections.

An attractive group of iridescent fossil shells imbedded in limestone, presented by Mr. Ray C. Gruhlke, of Olympia, Washington, was especially welcomed because it came at a time when it was needed to complete an installation. Another important addition to the collections was a gift from Mr. Anthony Mazur, Chicago, of geological specimens and fossils from Poland.

Gifts to the economic collection include copper ores from Mr. Frank P. Reagan, Chicago; barite from the firm of Levin and Rubin, Chicago; and four specimens of gold ore containing free gold from Mr. A. M. Bilsky, Toronto, Canada. The Standard Oil Company (Indiana), Chicago, replaced sixteen deteriorated specimens in the petroleum exhibit.

Gifts of vertebrate fossils were numerous and important. The unusual number was due largely to gifts from Colorado residents who assisted the 1937 Paleontological Expedition to Colorado. Important among these are two fossil skeletons and the jaw of a fossil lizard, presented by Mr. Alfred A. Look, of Grand Junction. The skeletons are of a new species, as yet unnamed, of amblypod—an early mammal of medium size. Another important specimen, presented by Mr. Edwin B. Faber, also of Grand Junction, is the lower jaw of an early fossil mammal and the foot bones of another. Other gifts of fossil vertebrates from Colorado friends of the expedition came from Mr. Hatton Edgerly, De Beque; Miss Hazel Dear-dorff, Silt; Mr. Myron A. Kaempfer, Denver, and Messrs. William B. and Oliver Hilton, and G. Bradley Harris, of Rifle. Messrs. Harris and Hilton also presented a collection of fossil leaves from the Paleocene of Colorado, to which Miss Julia Harris added a specimen from the Eocene of Colorado. Mr. Gail Orr, of Winterset, Iowa, also contributed material to the collections of this expedition.

Mr. James H. Quinn, Assistant in Paleontology, presented five vertebrate fossils from the Tertiary of Nebraska, collected before he joined the Museum staff. From Mr. Paul O. McGrew, of the Uni-

versity of Chicago, the Museum received the jaw of a three-toed horse and the jaw of an Oligocene opossum.

Mr. Edwin C. Galbreath, of Ashmore, Illinois, added in 1937 to the large collection of Illinois Pleistocene fossils he presented in 1936, fossil bones of musk-ox, giant beaver, and ground sloth. Other gifts of vertebrate fossils came from Mr. Homer Mooney, Carson City, Nevada, and Mr. William Callahan, Aurora, Kansas.

The American Museum of Natural History, New York, presented a cast of the mandible and palate of *Dryopithecus*. From the same institution there came, by exchange, a cast of the lower jaw of a holotype of *Griphodon*; a cast of the skeleton of the large fossil bird *Diatryma*, and thirty-one fossil plants.

Fossil bones of horse, bison, rhinoceros and elephant, the gift of Mr. Michael A. Weymarn, of Harbin, Manchukuo, are of special interest because fossils from that distant part of the world are needed for comparison with specimens from regions previously represented in the Museum collections.

Skulls of four Oligocene mammals, and two large and rare Oligocene shells, were added to the collections by an exchange with Mr. George F. Sternberg, of Hays, Kansas.

Specimens of fossil leaves and bark were presented by Mr. G. W. Wharton, Roseburg, Oregon; Mr. R. H. Stewart, Ironton, Ohio; and Mr. E. M. Cole, Audubon, Iowa.

Specimens of fossil wood, presented by Mr. L. B. Roberts, of Batesville, Arkansas, are of interest due to the fact that the wood has changed to oxide of iron but some of the woody structure has been preserved. Mr. J. Atkinson Conrow, Baltimore, Maryland, presented twelve fossil shells; Mr. A. C. Helwig, Keokuk, Iowa, a fossil coral; and Mr. James Gerritson, Kankakee, Illinois, two cephalopods.

By exchange with Mr. E. Mitchell Gunnell, Galesburg, Illinois, and Mr. Martin Ehrmann, New York, seventeen specimens of exceptionally choice minerals have been added to the mineral collection. Seventeen specimens of scenery agate, obtained by exchange with Mr. Oscar U. Zerk, of Chicago, have greatly improved the agate collection. Another specimen of this mineral was secured by exchange with Mr. Earl L. Calvert, San Gabriel, California.

Although there were no expeditions especially for the collection of minerals, twenty-two mineral specimens were collected by the Department's expeditions organized for other purposes, and seven more came from expeditions of other Departments of the Museum.

CATALOGUING, INVENTORYING AND LABELING—GEOLOGY

There were 1,567 new entries in the Department catalogues, which now comprise twenty-eight volumes. Adding these to previous entries, the total becomes 197,178. All specimens received during the year have been catalogued. During the checking of the collections, currently in progress, a few unrecorded specimens have been found and they have also been entered in the catalogues.

Copy for 1,609 specimen labels was prepared and sent to the Division of Printing, and all labels received from the Division were installed in the cases. There were 196 labeled prints of photographs added to the Department albums, which now contain 8,724 prints. One hundred twenty-one United States Geological Survey maps were received, filed and labeled, bringing the number of these maps now available to 4,519.

The classified card catalogue of photographs, and the card index of meteorites, have been kept up to date. Work on the card catalogue of minerals has continued, and this catalogue is now nearly complete. Its preparation has involved much labor, as each mineral is inspected before entry, and checked against previous records. All doubtful specimens are re-identified.

In the vertebrate paleontology section attention has been given to building up detailed, classified catalogues of the collections. The catalogue of the books and papers which constitute the working library on this subject has been brought to date. The bibliography of South American literature on fossil vertebrates, begun by Mr. Patterson as an individual undertaking, has received substantial additions.

The workers assigned by the Works Progress Administration to this Department have made the preparation of these detailed records possible. Collections secured during earlier years of the Museum's activity and entered in various catalogues have been brought together, many of them have been renumbered, and they have been re-entered compactly in one volume, which includes most fossil fishes of all periods, and a large section of the fossil reptiles. The records of the North American and European vertebrate fossil collections have been revised as to nomenclature and geological horizon. For the classified catalogue of vertebrates, 637 specimen cards have been typed. Duplicate cards are being prepared so that the files will be readily accessible to all members of the Department.

Cards typed and filed for the classified catalogues include 4,124 for minerals; 1,301 for meteorites; 3,790 for vertebrate fossils and

their bibliography, and forty-eight for photographs. One thousand sixty-five vertebrate fossils were numbered, and numbers which had faded were repainted on 12,940 minerals. Typewritten labels were prepared for 3,095 minerals and 5,010 invertebrate fossils in the study collection.

INSTALLATIONS AND REARRANGEMENTS—GEOLOGY

The appearance of Hall 34 has been greatly improved by the reinstallation of the meteorite collection which fills the west half of the hall. The collection previously had been housed in an antiquated type of case in which attractive installation was impossible. During 1937, the collection, except for seven large meteorites in individual cases, was withdrawn from exhibition for reclassification, and the old unsuitable cases were discarded. The collection was then reorganized, relabeled, and enlarged by the addition of many specimens formerly in storage, as well as sixteen meteorites acquired during the year. It now occupies fourteen new cases of the standard type used in the Department and seven smaller square cases.

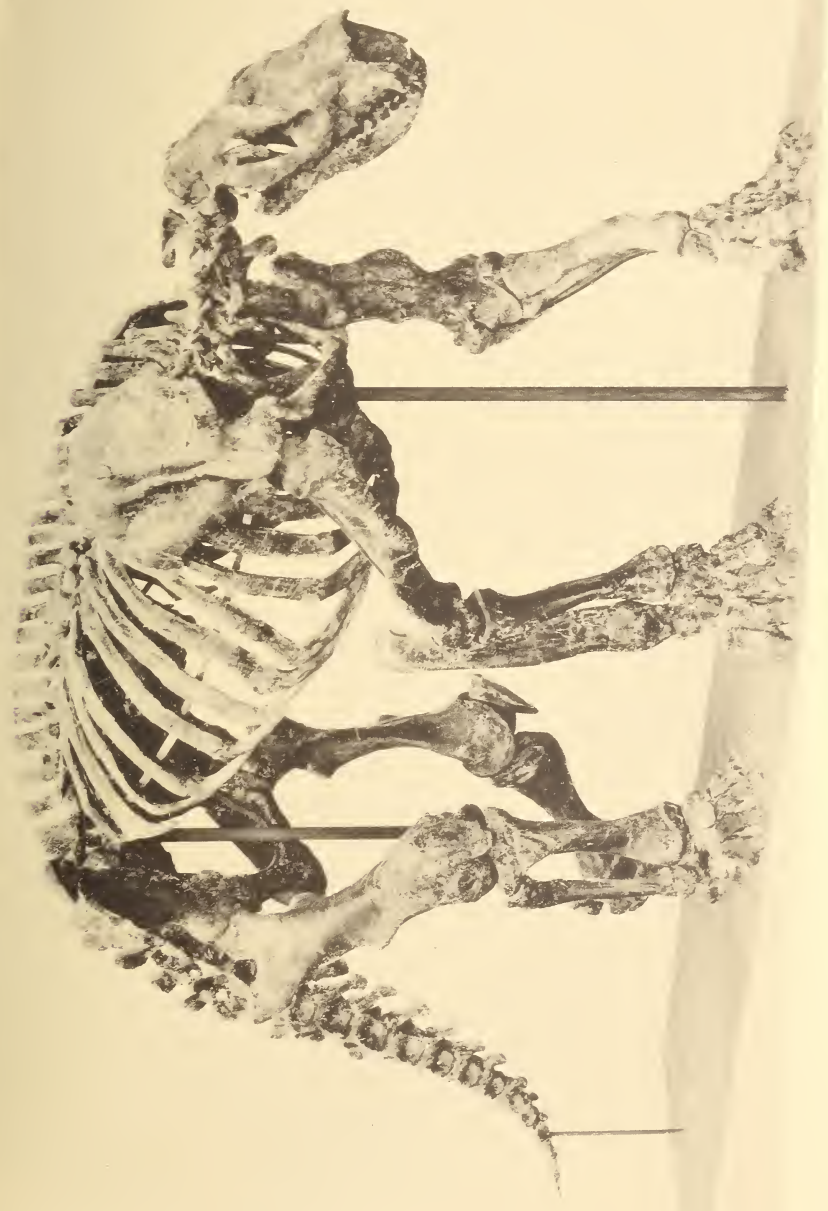
Shelves are not used in the new cases. Specimens are attached to the back by invisible fastenings or, where necessary, placed on neat individual supports. In the new arrangement the meteorites are divided into their three principal classes and arranged alphabetically under each class. Seven meteorites with deteriorated surfaces were re-etched and repolished, and the large iron specimen from Gladstone, Australia, was treated to cure scaling.

Two specimens were added to the amber collection, and there were sixteen additions to the exhibited mineral collection.

In Clarence Buckingham Hall (Hall 35) the principal work has been the preparation of new exhibits illustrating structural and dynamic geology which, when complete, will occupy the east half of the hall. In these exhibits specimens formerly displayed are augmented by material from storage, as well as specimens collected especially for this purpose during the past two years.

Collections illustrating metamorphism, folds, faults, joints, veins and dikes were prepared and installed in two cases. Seven such cases are now complete, and nine remain to be prepared for the collection devoted to physical geology.

Cleavage specimens, which occupied one-quarter of the case illustrating the interior structure and composition of the earth, have been replaced by more suitable material.



SKELETON OF A LARGE PALEOCENE MAMMAL
Barylambda fobergi Patterson

Collected by the Field Museum Paleontological Expedition of 1933. Plateau Valley Beds, Debeque, Colorado
Prepared and mounted by James H. Quinn
Ernest R. Graham Hall (Hall 38)

The model of the Natural Bridge of Virginia was reinstalled in a new case and placed in a more prominent position.

Press of other work has interfered with the installation of the rock collection in the west half of Hall 35. Two cases of sandstones and conglomerates have been added during the year, leaving five cases yet to be installed.

In Hall 36 (Economic Geology), deteriorated specimens of petroleum products were replaced, and several thin transparent sections of coal were installed in a window where the light shines through them.

Installation in Frederick J. V. Skiff Hall (Hall 37) was limited to minor readjustments and the addition of a few new specimens.

A skeleton of the fossil ground sloth *Hapalops*, from Bolivia, was added to the vertebrate collections in Ernest R. Graham Hall (Hall 38). The work of preparation and articulation of the bones was performed by Assistant Phil C. Orr. Although only one skeleton was placed on exhibition, preparation of the fossils collected by the Marshall Field Paleontological Expeditions to South America, and the more recent expeditions to Colorado, has proceeded steadily during the year. Two complete skeletons and 102 partial and fragmentary specimens for the exhibition and study collections were prepared.

As was the case last year, much attention was given to rearrangement and classification of the study collections on the third floor to make them more readily available. The reserve mineral and economic collections are now in fair shape. The reserve collections of physical geology specimens and rocks have been partially reclassified, but final arrangement must be postponed since many specimens from these collections now are being used for reinstallation of exhibits.

Work has proceeded steadily on the reorganization of the invertebrate study collection. During the year 45,142 fossils in this collection have been cleaned, checked and arranged, and 5,010 labels have been written for them. It will require several more years of work to complete this reorganization.

The study and reserve collections of vertebrate fossils in Room 101 on the third floor have been rearranged. Many new labels have been added, and a new cabinet of seventy-four trays has been installed for storage of fossil fishes and the new collection of Paleocene and Lower Eocene mammals. The entire collection is being rearranged according to geologic horizons and genera.

The permanent value of improvements made in 1937 and several preceding years is becoming daily more evident. Even now, although

the work is far from complete, a few minutes spent in reference to the new classified catalogues in preparation often obviates hours of search by members of the staff. The more orderly arrangement of the reserve and study collections has progressed far enough to greatly facilitate the work of the staff, and has made possible greatly improved service by the Museum to students and specialists. A more important although inconspicuous benefit has been the preservation of the identification of thousands of specimens by replacing fading identification numbers with permanent ones. This is another situation in which the WPA workers have been of great value.

DEPARTMENT OF ZOOLOGY

EXPEDITIONS AND RESEARCH

Five zoological expeditions were in the field during the year. Four of them, principally supported by contributions from President Stanley Field, were (1) an expedition to British Guiana and Brazil, conducted by Mr. Emmet R. Blake, Assistant Curator of Birds; (2) an expedition to the Pribilof Islands, Alaska, by Staff Taxidermist C. J. Albrecht; (3) an expedition to the southwestern United States, conducted by Mr. Karl P. Schmidt, Curator of Reptiles; and (4) an expedition to the coast of Maine for a group of North Atlantic fishes, by Mr. Alfred C. Weed, Curator of Fishes, and Staff Taxidermist Leon L. Pray. The fifth expedition, to southern Indo-China, was personally financed and conducted by Chief Curator Wilfred H. Osgood.

Assistant Curator Blake left for British Guiana late in January. He collected in a number of localities along the coast, and on the Berbice and Essequibo rivers. Among the 844 birds which he sent back were specimens for habitat groups of hoatzins and of anis. Accessory materials which accompanied the hoatzins are of particularly fine quality, and include the strange giant arum-like plant that forms the principal food of this "living fossil."

From British Guiana Mr. Blake proceeded, via Rio de Janeiro, to Matto Grosso. There he made collections of specimens and accessories for a habitat group of rheas or South American ostriches. A large number of study specimens was also obtained. He next collected in the state of São Paulo, a region that is very poorly represented in the collections of all American museums. Field work was terminated in December.

Taxidermist Albrecht spent June, July, and August on the Pribilof Islands, Alaska, where he was engaged in obtaining material

for a habitat group of fur-seals. Through the cordial co-operation of United States Commissioner Frank T. Bell, he was enabled to obtain transportation to and from the islands on government vessels, and to enjoy many privileges necessary to the success of the work. He received especially valuable and much appreciated assistance from Superintendent Harry J. Christoffers, as well as from Mr. Harry May, representative on the islands of the Fouke Fur Company, St. Louis, Missouri. Ample material was obtained for the preparation of a large group showing seals of all ages, and illustrating many of their unusually interesting habits.

Curator Schmidt, with several associates, carried on work in the southwestern United States in Texas, Arizona, and California. The principal object was specimens to fill gaps in the exhibition collections of North American reptiles, but much additional material was obtained. Two separate trips were made, with a slight interruption for return to the Museum in midsummer. On the first, Curator Schmidt was accompanied by Staff Taxidermist Leon L. Walters, and Dr. Alfred E. Emerson of the University of Chicago. They left by automobile on April 1, making a stop for collecting in the Chisos Mountains, in the area proposed for "Big Bend National Park," southwestern Texas. Thence they went via the Chiricahua Mountains to Tucson, Arizona, with visits to the Santa Catalina Mountains and to the Santa Ritas. At Yuma, Arizona, a two weeks' stop was especially productive of satisfactory results in the accumulation of molds of specimens and color studies for Mr. Walters' use in making exhibition models. Notable forms obtained include the desert iguana, the chuckawalla, the fringe-toed sand lizard, the desert gecko, and, among snakes, the remarkable "sidewinder," a rattlesnake which progresses with a helical rolling motion in loose sand. Mr. Walters found opportunity to experiment with a new technique he has developed for celluloid infiltration of patches of ground to obtain natural bases for exhibited models of specimens.

While the principal work of the expedition was concluded at Yuma, the party continued westward to San Diego, California, where many additions to its collections were made through the generosity and co-operation of Mr. L. M. Klauber, of the San Diego Natural History Society, Mr. C. B. Perkins, of the San Diego Zoological Society, and Dr. Walter Mosauer and Dr. R. C. Cowles, both of the University of California at Los Angeles.

After returning to Chicago in May, Curator Schmidt again left for the Southwest in August to spend three weeks, accompanied by

Assistant Curator D. Dwight Davis, Mr. Bertil Hartelius, of Michigan State University, and Mr. Schmidt's two sons, John and Robert. This party was joined by Mr. Walter L. Necker, of the Chicago Academy of Sciences, also interested in reptiles, and by Mr. F. E. Winters, of Hinsdale, Illinois, volunteer photographer. By informal agreement the party joined forces in the herpetological exploration of this region with the United States National Park Service, for which Mr. Tarleton F. Smith had been collecting in the summer seasons of 1936 and 1937. Interest in this zoologically remarkable area had been stimulated at Field Museum by the receipt of specimens for identification from the Park Service in 1936.

Curator Weed and Taxidermist Pray spent about six weeks on the coast of Maine, collecting materials for a group to represent the fishes of the colder waters of the northern Atlantic coast of the United States.

Through the courtesy of the Zoology Department of the University of Maine, and Professor Joseph M. Murray, Director of the University of Maine Marine Station at Lamoine, the expedition secured excellent accommodations at the station. This station is located at the head of Frenchman's Bay, a few miles from Bar Harbor, and within easy reach of many excellent collecting grounds. Plant and animal life is abundant and varied, and is representative of conditions prevailing over a large part of the north Atlantic region of North America.

The expedition received the fullest possible co-operation of the staff and students at the station. Much information was secured that could hardly have been obtained anywhere else. Specimens taken by students on various collecting trips, and through activities of the station, were freely offered and gratefully received. In addition to the help given by those officially connected with the station, Dr. Carlos E. Cummings, Director of the Buffalo Museum of Science, spent much time assisting Mr. Pray in locating places where particular information could be secured.

The fishes of Frenchman's Bay, and regions farther north and east, live close to rocks that are almost completely covered with a bewildering mass of brilliantly colored plants and animals. The general effect of the background so formed is almost like that of an oriental rug. It is planned to reproduce this effect as far as possible in a group to be installed in Hall O. Excellent specimens of some of the commoner fishes of the region were secured and will be shown in their natural positions in relation to the rocky walls.

Chief Curator Osgood left for the Far East early in January, and spent about two months in French Indo-China, mainly in southern Annam. Although traveling alone, he was so courteously received by French officials and so much assisted by native collectors formerly employed by the French naturalists, MM. Jean Delacour and Pierre Jabouille, that he was able in a short time to gather a varied collection numbering some 500 specimens. Most important was material for two large habitat groups, one of gibbons and one of green pea fowl. For much general assistance to Dr. Osgood, Field Museum is especially indebted to M. Auge, Résident Maire at Dalat, Annam, to M. Kieffer of Gougah Falls, and to missionaries of the American Missionary Alliance, especially Mr. Herbert Jackson and Mr. Gordon Smith.

Owing to field activities of staff members, as well as to the fact that various manuscripts of considerable size are still in various stages of preparation, the number of zoological publications issued by the Museum during the year is relatively small. Included are: *Catalogue of Birds of the Americas*, Part X (Icteridae), by Associate Curator Charles E. Hellmayr; *Notes on Sea-Basses of the Genus Centropriestes*, by Curator Alfred C. Weed; *American Bats of the Subfamily Emballonurinae*, by Curator Colin C. Sanborn; *Notes on Snakes from the Yucatan Peninsula*, by E. Wyllys Andrews; *The History of Elaps collaris Schlegel, 1837-1937*, by Curator Karl P. Schmidt; and *Variable Dentition in a Chinese Insectivore*, by Chief Curator Wilfred H. Osgood. Publications by staff members which appeared under other than Field Museum auspices include the following: "Notes on Bahama Bats," by G. M. Allen and Colin C. Sanborn, *Journal of Mammalogy*, Vol. 18, pp. 226-228; "The Season, Chicago Region," by Rudyerd Boulton and Frank A. Pitelka, *Bird Lore*, Nos. 3, 4, 5, 6; "Snakes Alive and How They Live" (review), by Karl P. Schmidt, *Copeia*, 1937, pp. 143-144, and *Science*, Vol. 86, p. 483; and *Ecological Animal Geography*, edited and translated by Karl P. Schmidt and W. C. Allee, published by John Wiley and Sons, New York.

Curator Sanborn continued research on the classification of bats, and made considerable progress on a bibliographic index of literature and on preliminary work for the revision of six families of bats. During the year he visited the Museum of Zoology of the University of Michigan, Ann Arbor, the United States National Museum, Washington, D.C., the American Museum of Natural History, New York, and the Museum of Comparative Zoology, Cambridge,

Massachusetts. The collection of bats in each of these museums was examined, and about 600 specimens were studied and measured.

Curator Boulton, of the Division of Birds, continued studies of African birds from time to time, and in December began several weeks of continuous work on the birds of Angola at the American Museum of Natural History, in New York, and the Carnegie Museum, in Pittsburgh.

Associate Curator Hellmayr, working in Vienna, Paris, and London, completed his studies of perching birds for Part XI of the *Catalogue of Birds of the Americas*, which will be devoted to the sparrows and finches. For Part I, Nos. 1 and 2, further studies of game and water birds were made. Research Associate H. B. Conover collaborated with Dr. Hellmayr in studies of game birds.

Research and other activities suffered a setback due to the sudden death of Mr. Leslie Wheeler, Trustee of the Museum, and Research Associate in the Division of Birds. His passing was a serious loss to the entire Department of Zoology, and to the Museum as a whole. He had endeared himself to the entire staff, and by daily attendance had become thoroughly engrossed in the plans and purposes of the institution. His substantial material support was matched in value by the personal relations so warmly established by him. As a result of his activities, Field Museum's collections have been enriched by more than 614 specimens of birds of prey, and since his death specimens that he had ordered from collectors in remote parts of the world have continued to arrive.

Research in the Division of Reptiles was concentrated on Central American collections, on material from southeastern Asia secured through Dr. Henry Field, Curator of Physical Anthropology, and on recently collected material from the Trans-Pecos region, Texas. Studies on the amphibians and reptiles of the Chicago region also were continued.

Curator Weed finished studies on sea-basses of the genus *Centropristes*. He also identified material obtained by Dr. Henry Field in the Near East, and carried on investigations of sculpins collected by himself in the North Atlantic. In addition, he made certain studies of burrowing eels in collaboration with Mr. Stewart Springer, of the Bass Biological Laboratory, Englewood, Florida.

Assistant Curator Davis made various anatomical studies, including a detailed dissection of the rare treeshrew *Dendrogale*. Other subjects were the structure of the skull in burrowing snakes, and the digestive system in pollen-feeding bats.

ACCESSIONS—ZOOLOGY

The total number of specimens added to the collections by formal accession is 16,402, including 5,283 insects. This is about 40 per cent more than in 1936. They are divided by zoological groups as follows: mammals 1,396; birds and birds' eggs 2,676; amphibians and reptiles 3,959; fishes 2,625; insects 5,283; lower invertebrates 463. Included are 585 vertebrate skeletons. Of the total, 6,007 were obtained from Museum expeditions, 7,173 by gift, 1,745 by exchange, and 1,477 by purchase.

Among the notable gifts of mammals are thirty-eight specimens from Iraq, presented by Dr. Henry Field, of the Department of Anthropology, augmenting his collections from that country in past years. Curator Karl P. Schmidt gave fifty-four small mammals from Illinois and Wisconsin, collected by his brother, the late F. J. W. Schmidt. A collection of twenty-two bats from the Bahamas was given by Dr. J. F. W. Pearson, of the University of Miami, Coral Gables, Florida. Through Professor Julian S. Huxley, five hedgehogs were donated by the Zoological Society of London. The Colorado Museum of Natural History, Denver, presented six pikas needed for exhibition and skeletons. Mr. A. J. Bujak, of Michigan State College, East Lansing, secured six much needed skeletons of beaver and one otter for the Museum, and Mrs. L. H. Ryckman, of Kirkland, Washington, sent in a skeleton of a mountain beaver. The Chicago Zoological Society, at Brookfield, Illinois, presented thirty-two mammals, and the Lincoln Park Zoo, Chicago, two.

Birds numbering 589 were received as gifts from a large number of individuals, indicating a continuation of the co-operation between local naturalists and the Museum. The most important donor was the Chicago Zoological Society, which presented 130 rare birds in the flesh, most of which were used as osteological material, but some for other special studies. The Polish-American Chamber of Commerce of Warsaw presented five specimens, a nest, and accessories, for a white stork habitat group to be installed in the Hall of Birds (Hall 20). Mr. Alastair Gordon Cumming, of Forres, Scotland, presented sixteen specimens of red grouse and a peregrine falcon for another habitat group. Mr. J. Andrews King, of Lake Forest, Illinois, presented ten specimens collected by him in Chile. Mr. Al Pflueger, Miami, Florida, gave eleven sea birds from the Bahamas; Mr. Melvin Traylor, Chicago, donated eighty-nine specimens collected by him in Yucatan; and Mr. Leon Mandel, Chicago, presented forty-six specimens collected in the West Indies.

Gifts of amphibians and reptiles reached the rather large total of 1,455. Most notable are 180 specimens collected in Yucatan by Mr. E. Wyllys Andrews, of Chicago; 640 specimens received from the Texas College of Arts and Industries, at Kingsville, through the interest of Professor J. C. Cross; and 223 specimens from western Texas, received from various divisions of the United States National Park Service. The Chicago Zoological Society and the Lincoln Park Zoo contributed numerous important specimens.

Nineteen institutions and individuals presented specimens of fishes aggregating 1,429. Through the kindness of Messrs. Spencer W. Stewart and Robert J. Sykes, of New York, with the co-operation of the American Museum of Natural History, Field Museum secured the skin of a twenty-five-foot whale shark that is now being prepared for exhibition. In order that preparation of this immense fish for exhibition might be done in the best manner possible, Mr. Stewart gave the Museum twenty-one photographs of this and other specimens. To these pictures, Captain John D. Craig, Chicago, added two clips of motion pictures of a whale shark that he saw in Mexican waters. These were found very valuable in showing some details of structure that could not be determined otherwise. The John G. Shedd Aquarium, Chicago, gave many selected specimens from Fiji, Hawaii, the Bahama Islands and other localities. Among them were an excellent specimen of the carpet shark of Australia, desired for exhibition, and a large jewfish that had lived six years in the Aquarium. The skeleton of the latter was preserved for possible use in the osteology exhibits. Many of the other specimens were particularly desired to fill gaps in the study series. Dr. Henry Field gave three very desirable lots of fishes, including specimens from the Dialah River, near Bagdad, Iraq; a small collection from Leicestershire, England; and various marine fishes from Scotland and the North Sea. Mr. Leon Mandel gave some very interesting fishes from the West Indies, including two specimens of wahoo, a valuable game and food fish related to the king mackerels and the tunas. One of these is being mounted for exhibition, and the skeleton of the other is being prepared for possible later inclusion in the osteological exhibits. The Bass Biological Laboratory, Englewood, Florida, gave specimens of snake eels and worm eels which Mr. Stewart Springer of that institution is studying in collaboration with Curator Weed. The Stacja Morska (Marine Station), Hel, Poland, presented a series of fishes collected in the Baltic Sea by Professor Kazimierz Demel. These were especially selected for comparison



CHINESE TAKIN

Taxidermy by Julius Friesser. Plant accessories by Frank Lehl
Background by Charles A. Corwin and Arthur G. Rueckert
William V. Kelley Hall (Hall 17)

with fishes collected in Labrador, Greenland and Baffin Land by Curator Weed. The Department of Pharmacology of the University of Chicago presented the head of a ragfish, a strange creature found in deep water in the northern Pacific. This fish is very rarely seen at the surface, and very few specimens of it have ever come to museums. The Booth Fisheries Company, through its Boston office, furnished excellent specimens of rosefish that were urgently needed for a group of fishes of the North Atlantic, planned for Hall O. Professor H. W. Norris, of Grinnell College, in Iowa, has continued his interest in the Museum. He gave a specimen of the strange frilled shark, found in deep water off the coast of Japan. This will make it possible to prepare a life-size model of this fish for exhibition. This shark grows to a length of eight feet or more. It has an eel-shaped body, a mouth at the front of the head (instead of underneath as in most sharks), and gill membranes that form a ruffled fringe behind the head. Mr. Robert H. Becker, of the *Chicago Tribune* staff, sent in some interesting specimens caught by fishermen in the Great Lakes region.

A mounted specimen of blue marlin ("swordfish") of record size was presented by Mr. Michael Lerner, of New York. This fish, which weighed 537 pounds, was caught at Bimini, Bahama Islands, by Mr. Lerner. It was excellently prepared and will be a welcome addition to the exhibits that are to be installed in Hall O.

Accessions in the Division of Anatomy and Osteology reached a total of 585, a large part of which represents contributions from the Chicago Zoological Society.

One-third of the insect acquisitions consisted of three gifts from Dr. Henry Field, of Chicago, who generously presented 1,750 desirable specimens from Iran. Mr. Bertil Hartelius, of Homewood, Illinois, gave 335 insects from the Southwest, mainly Texas. From Mr. Edward J. Brundage, of Washington, Connecticut, there were received as a gift 447 specimens, mostly from Barro Colorado Island, Canal Zone. A gift from Mr. Gordon Grant, of Los Angeles, California, consisted of 389 specimens from southern California.

Material from Museum expeditions was more extensive than for several years past, well diversified, and especially calculated to fill definite needs. The expedition of Assistant Curator Blake to British Guiana and Brazil provided the required material for several habitat groups of birds, as well as general collections which, while principally of birds, included also mammals, reptiles, and fishes. Accessions from this expedition total some 2,000 specimens from Guiana, and

about 1,100 from Brazil. Similarly, Chief Curator Osgood made collections in French Indo-China, principally of mammals, but including various other vertebrates, and totaling about 500 specimens in all. Noteworthy are a series of gibbons for a habitat group, and skins, nests, and eggs of the green pea fowl for another.

The expeditions to the southwestern United States, conducted by Curator Schmidt and associates, collected 465 amphibians and reptiles, 159 mammals, and considerable skeletal material.

Taxidermist Albrecht, who spent the summer on the Pribilof Islands, Alaska, was engaged principally in securing forty-one specimens of the fur-seal for a habitat group. He also collected thirty-eight specimens of sea birds.

Curator Weed and Taxidermist Pray, on their expedition to the Maine coast, collected 319 fishes, most of which are for use in a habitat group.

Insects received from various expeditions number 1,909. These include 978 from the western United States, collected by the zoological expeditions to the Southwest, and by the paleontological expedition of the Department of Geology to Colorado.

An important exchange of mammals with the United States National Museum, Washington, D.C., was concluded during the year, the final result to Field Museum being the acquisition of 536 highly desirable specimens belonging to many different mammalian groups, and covering a wide geographic range. By exchange with Dr. H. J. V. Sody, of Buitenzorg, Java, there were received 109 small mammals from Java, Borneo, Bali, and other East Indian Islands. Exchanges of small mammals, principally bats, were made with Dr. Nagamichi Kuroda and Dr. Mitosi Tokuda of Japan.

Birds received in exchanges number 151, and reptiles and amphibians, 1,225. These came from various institutions and from individuals, including the Naturhistorisches Museum of Basel, Switzerland; the Museum of Comparative Zoology, Cambridge, Massachusetts; the Carnegie Museum, Pittsburgh; the Museum of Zoology of the University of Michigan, Ann Arbor; Dr. Edward H. Taylor, Lawrence, Kansas, and Dr. Charles E. Burt, Winfield, Kansas.

Purchases during the year were mostly of small lots of especially desirable specimens from various parts of the world, including West Africa, Tanganyika, East Indies, West Indies, and Ecuador. They include 110 mammals, 953 birds, and 414 amphibians and reptiles.

CATALOGUING, INVENTORYING AND LABELING—ZOOLOGY

The number of zoological specimens catalogued was 13,923. These are divided as follows: mammals 2,459; birds 5,448; birds' eggs (sets) 2,265; amphibians and reptiles 2,231; fishes 1,520. Osteological and anatomical specimens were catalogued under divisional subject and by special card index to the number of 409.

In the Division of Mammals, work has continued in reattaching original labels to specimens and in renumbering skulls to agree with skins. All specimens received during the year have been provided with typewritten labels, and all skulls cleaned have been numbered. About 100 bottles with alcoholic specimens have been labeled, and shelf-labels have been supplied in the cases where they are stored. Some 400 cards were added to the index of mammals, and many others were revised and retyped. Photographs of mammals were classified, remounted, and some 900 of them were labeled.

The reorganization of the collection of birds has been greatly advanced. During the year 17,976 specimens have been completely worked out, bringing the finished total to 32,548, or nearly one-third of the entire collection. This involves checking the identification and all data for each study skin, indexing by a double card system, and typing a new label which is sewed to the original. Coincident with this work has been the compiling of all geographic data relating to the collection, especially notes from Museum expeditions. These data have been assembled in a series of maps of a standard size fitted into a loose-leaf atlas. Fifteen such maps have been completed, and fifty-three other maps and charts have been drawn for other purposes, such as special exhibits, publications, labels, and base maps.

A special room was constructed in an unused part of a corridor on the third floor to house the collections of birds' eggs. Eight airtight cases were installed to accommodate the present collections and allow for adequate expansion. The arrangement and cataloguing of the magnificent R. M. Barnes Collection was about one-half completed under the supervision of Mr. William Beecher. The Museum's other egg collections, which had been in storage for more than twenty years, were unpacked and partially arranged. Altogether 1,246 sets of eggs were permanently arranged, labeled and indexed.

Fifteen new steel cases for bird skins were installed and occupied. The entire study collection, about 100,000 specimens, was arranged in proper sequence. Primitive birds, mainly of large size, were transferred to the east gallery on the fourth floor.

Throughout the year at least one man, supplied by the Works Progress Administration, was engaged continuously in the much needed work of remodeling the flat bird skins and degreasing or repairing others.

Cataloguing of reptiles was kept up to date, and minor rearrangements of the collection were carried out, including shelf-labeling and transferring of much material from temporary containers to permanent ones.

In the Division of Fishes, 1,520 specimens were catalogued and some 23,500 numbered tags were prepared and attached to specimens. In addition, about 1,600 labels were written and placed in glass specimen bottles. Work has continued steadily in renewing faded or torn labels, separating material in large jars and tanks, and generally improving the accessibility of the material. The Curator reports that "the condition of the collection of fishes is in general much more satisfactory than for a long time previously. The study collections are being brought into such shape that some valuable material is available for the first time in many years. Practically all specimens that have been identified can now be found readily."

Growth of the osteological collection made necessary further expansion and rearrangement of storage facilities. Much economy of space was accomplished by cutting down and refitting drawers and boxes. About seventy skeletons were degreased, epiphyses were replaced wherever necessary, and the entire collection was checked for accuracy of labeling and numbering. All new material was card-indexed, and records were kept up to date. Six hundred and forty mammal skulls were cleaned.

For preservation and arrangement of insects, nine steel cabinets containing 505 glass-topped drawers were installed and partially occupied. The time of Curator William J. Gerhard and Assistant Curator Emil Liljeblad was largely devoted to preparation of shells for exhibition, but through the services of several assistants nearly all the year's acquisitions of insects were pinned and labeled.

Volunteer workers assisted from time to time in the work of several divisions of the Department. In the Division of Birds general assistance was received from Messrs. King Mather and William Mitten. In the same Division Mr. James von der Heydt assisted in remaking old bird skins. Mrs. Hermon Dunlap Smith, of Lake Forest, Illinois, Associate in the Division, was engaged in studies of the plumages of American wood warblers.



AFRICAN WEAVER BIRDS

Collected by Straus West African Expedition

Taxidermy by John W. Moyer

Background by Charles A. Corwin. Plant accessories by Frank Lett

(Hall 20)

In the Division of Reptiles assistance was received from Messrs. Fred Bromund, E. Wyllys Andrews, and O. H. Meeker. Mr. E. F. Peternell spent some time preparing bird skeletons, and Mr. Macklin de Nictolis made some special dissections of anatomical material. For nearly three months during the summer, Mr. George Miller, of South Bend, Indiana, was a volunteer worker in the Division of Insects. He inspected some 800 insect drawers, and disinfected them where necessary. He also checked a collection of moths for systematic arrangement.

During 1937, the cumulative results of continued assistance from the Works Progress Administration have become more apparent, and numerous projects have neared completion with an accompanying feeling throughout the Department that all lines of work and all types of collections, records, etc., are in better condition than ever before. The number of WPA workers assigned to the Department has varied somewhat. In November, perhaps an average month, there were 57, distributed as follows: Taxidermy, preparation and exhibition work, 21; map making and drafting, 4; Division of Mammals, 5; Division of Birds, 10; Division of Reptiles, 3; Division of Fishes, 1; Division of Anatomy and Osteology, 10; Division of Insects, 3.

INSTALLATIONS AND REARRANGEMENTS—ZOOLOGY

Four habitat groups of mammals, and three of birds, were completed and opened to public view during the year. The mammalian subjects are harbor seals, Asiatic takin, African klipspringer, and guereza monkey. The birds are all African, and include species characteristic of widely varying natural conditions.

The harbor seals, well-known marine mammals, appear resting on kelp-covered boulders in a scene representative of the coast of Washington. The species is a common one on both Atlantic and Pacific coasts of North America and, although familiar to many people, is seldom seen out of the water. The group was collected and prepared by Staff Taxidermist C. J. Albrecht. The background is by Staff Artist Charles A. Corwin.

The Asiatic takin is represented by five animals ranging in age from a young calf to an old male of massive proportions. The animal belongs to the group known as goat-antelopes, and is somewhat grotesque in appearance. It is shown on its favorite grounds in a dense growth of bamboo and evergreen near the timberline on a steep mountain side in western China. The specimens were col-

lected by Mr. Floyd Tangier Smith, leader of the Marshall Field Zoological Expedition to China (1930-32). The group was prepared by Staff Taxidermist Julius Friesser, assisted by Mr. Frank C. Wonder; the background is by Staff Artist Corwin and Mr. Arthur G. Rueckert.

The groups of klipspringer and guereza monkey represent medium-sized African mammals. One is shown on an open, rocky height and the other in the thick foliage of a large forest tree. The klipspringers were collected in Kenya Colony by the late Carl E. Akeley. The monkeys are from the Field Museum-*Chicago Daily News* Abyssinian Expedition (1926-27). Both groups were prepared by Staff Taxidermist Leon L. Pray.

In the synoptic or classified exhibits of mammals, several important additions were made. A case of Old World cats was reinstalled, with the addition of four specimens, bringing the total to ten. Among them are a Kaffir cat and a cheetah, collected by the Vernay-Lang Kalahari Expedition (1930) and presented by Mr. Arthur S. Vernay, of New York and London. There is also a caracal cat, presented by Captain Harold A. White, of New York, and a very beautiful clouded leopard from northern India. The animals used in this installation were prepared by Assistant Taxidermist W. E. Eigsti.

An important addition to George M. Pullman Hall (Hall 13) was a fine example of the South African oryx or gembuck. This was obtained by the Vernay-Lang Kalahari Expedition, and was mounted by Taxidermist Friesser.

The three habitat groups of birds described in the 1936 Report—Mount Cameroon birds, weaver-birds and Kalahari Desert birds—were completed and opened to the public in April. They form an African alcove in the Hall of Birds (Hall 20). Mrs. Oscar Straus, of New York, sponsor of the Straus West African Expedition which collected the material for the first two of these, visited the Museum on the day of their opening. The Kalahari birds were collected by Mr. Vernay, who presented them to the Museum. The weaver-bird group was prepared by Staff Taxidermist John W. Moyer; the other two by Staff Taxidermist Arthur G. Rueckert. Staff Artist Corwin painted the backgrounds.

Four additional bird groups are nearing completion. They include a group of albatrosses and other pelagic birds from Laysan Island in the mid-Pacific, which is being prepared by Staff Taxidermist Pray. A white stork nesting scene on a housetop in a Polish

village is being constructed by Taxidermists Moyer and Rueckert, who are also installing a nesting colony of giant orioles from Guatemala, and a group consisting of two species of toucans feeding on the abundant berries of a forest tree in Guatemala.

Preparator Frank H. Letl supervised the making of accessories for all habitat groups except those of the harbor seal and the guereza monkey.

An exhibit of restorations of fossil birds was installed in Hall 21 as an introduction to the subject of the ancestry of birds. Models of eight extinct birds that are sufficiently well known to permit restoration are shown. They include the famous *Archaeornis*, 135 million years old, known only from two specimens obtained in Bavaria; the Cretaceous fish-eating birds, *Ichthyornis* and *Hesperornis*, from the chalk beds of Kansas; the giant *Diatryma* and quail-like *Gallinuloides* of the lower Eocene of Wyoming; *Phororhacos*, the predacious crane of southern Argentina; the Moa (*Dinornis*) of New Zealand, and the Elephant-bird (*Aepyornis*) of Madagascar. *Dinornis*, *Aepyornis*, and *Diatryma* are shown in quarter-scale models, accompanied by natural size heads in full relief. The other five are natural size. The restorations were directed by Curator Rudyerd Boulton, and modeled in plaster, wax, and composition by Messrs. Gus Schmidt and Frank Gino, WPA artists. Scale drawings and diagrammatic details of the known skeletons were made by Mr. John Janecek.

Numerous models of amphibians and reptiles were made during the year and are awaiting final installation. Notable among them are Australian forms, the water dragon, blotched skink, and bandy-bandy, the last a strikingly marked black and white ringed snake. All these were based on material received from the Chicago Zoological Society. A South American tree boa was prepared from an exceptionally fine specimen received from the Lincoln Park Zoo, Chicago.

No exhibition work was done on insects, Curator Gerhard and Assistant Curator Liljebblad being continuously engaged in organizing, labeling and arranging an exhibit of shells. A careful selection of relatively large and attractive species of the latter was installed in four new cases with enclosed top-lighting. The number of specimens displayed is 1,791, representing 841 species of eighty-four families of mollusks. Actual installation was made by Preparator Herbert E. Weeks, an experienced installer provided through the co-operation of the Department of Anthropology.

A screen devoted to fish skeletons was added to the systematic series of mounted skeletons in Hall 19. All important groups of vertebrates are now represented in this hall. A further addition to the same hall was the installation, by Assistant Curator Davis, of an exhibit illustrating the history of the human skull, and comparing it with other vertebrate skulls. This is the first of a proposed series of comparative anatomical exhibits which will supplement the mounted skeletons.

The Department of Zoology ended the year in much better condition as to equipment, and far better organized for general effectiveness, than at any previous time. Presumably, such a statement could have been made after any active year, but 1937 seems to have been particularly characterized by the realization or approximate realization of various long-time needs, and the bringing of the whole organization to a stage from which every line of work can proceed with comparatively little lost motion and wasted effort. This is due in no small part to the increased effectiveness of WPA workers, most of whom are now so well selected and well trained that they fully justify the time, effort and money that have been expended on them. It is clearly evident that extra man-power was needed, and the WPA has furnished it to a large extent. Other important factors in the marked improvement are the increased storage facilities provided by new cases, and the very definite, planned results of the relatively inexpensive but highly important expeditions conducted during the year. The research collections are now in better order than at any previous time, and material is in hand for uninterrupted continuation of exhibition plans.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

On December 1, 1937, this Department ended its twenty-fifth year of operation. This first quarter century has been marked by continuous growth and improvement. Because of the emphasis now placed by schools on visual education, the program of making the educational values of the Museum's natural history exhibits available to school children in their classrooms has gained in importance. Teachers, as well as pupils, have been encouraged to take fuller advantage of the Museum's educational and cultural resources.

School extension work today is recognized as an essential activity by the leading museums of the world. As a pioneer in this field,

the Harris Extension has been consulted in the past year by representatives of several institutions, particularly the Illinois State Museum, Springfield, Illinois, the Auckland Institute and Museum, Auckland, New Zealand, and the Australian Museum, Sydney, Australia. Details of the methods employed in its administration have been useful to others considering inauguration of similar activities.

A serious loss of leadership was felt by the staff of the Department in the death of Director Stephen C. Simms in January, 1937. Mr. Simms was the first Curator, a position which he held from December 1, 1912, until his appointment as Director of the Museum in 1928. Even in his new office he continued active supervision of the Harris Extension until his death. Thus the first quarter century of the organization and development of the Department may well be regarded as one of Mr. Simms' outstanding achievements.

During 1937 the routine work of the Department has been kept at a high level of efficiency. Thirteen new exhibits were installed, and five more are scheduled for completion early in January. These include exhibits showing the wood lily, the tall or later buttercup, some common orders of insects, frogs and toads of the Chicago area, the red-bellied woodpecker, the mourning dove, and two kinds of jaeger. Nine duplicate exhibits, which were no longer needed, were dismantled and the cabinets used for new installations. Due to the increase in the number and variety of subjects now available for distribution, the desirability of having more than four cases illustrating the same subject has lessened. Currently there are 1,233 exhibits dealing with 416 subjects, a diversification which makes it possible so to schedule circulation of cases that a pupil in the public schools will be unlikely to see a particular exhibit more than once during his entire school life.

The work of reinstallation, necessitated by the change from black backgrounds and labels to the present standard buff-colored type, was continued as time permitted. Twenty-eight exhibits were completely overhauled and replaced in newly painted cases, improvements in the installation method or replacements of material being made wherever required. The inevitable damage, occurring through accidents or careless handling of the cases in the schools, necessitated repairs on 225 cabinets. The injuries for the most part consisted of broken glass, cracked or splintered woodwork, or broken label frames. Only one serious loss occurred, the total destruction of two cases and their contents in a school fire.

The number of schools and institutions participating in the regular fortnightly delivery of two Harris Extension cases each, increased by nineteen during the year. The total number is now 465. These include 390 public elementary and high schools, thirty-nine denominational schools, nine private schools, and a number of Chicago Public Library branches, Y. M. C. A. branches, hospitals, boys' clubs, settlements, and detention homes.

Special loans of exhibits were made to the United Charities' summer camp at Algonquin, Illinois, and to the International Live Stock Exposition held in the amphitheater of the Union Stock Yards. Requests by schools for the loan of particular exhibits, in addition to those regularly received, were granted.

The two Department trucks traveled a total distance of 10,339 miles in the distribution of the 930 cases kept in circulation. This figure is less than that reported in recent years because of shortened school terms, and the opening of new streets which permit better routing of the trucks.

All of the cases were thoroughly inspected, cleaned and polished while they were in storage at the Museum during the summer vacation period of the schools. This work was done by the men who distribute them during the school year.

It is difficult to make an accurate estimate of the value of the Harris Extension service. However, the flood of voluntary letters of appreciation received from principals, teachers, and pupils indicates the really vital interest that is taken in the educational work done by this Department.

THE JAMES NELSON AND ANNA LOUISE RAYMOND FOUNDATION FOR PUBLIC SCHOOL AND CHILDREN'S LECTURES

During 1937 the James Nelson and Anna Louise Raymond Foundation has continued to provide series of entertainments, lectures, and other activities for the education and enjoyment of children. These included special patriotic programs as well as the customary spring and autumn courses of motion pictures presented in the James Simpson Theatre of the Museum. Guide-lecture tours of the exhibits also were made available to parties of children throughout the year, and extension lectures were given in classrooms and assembly halls of the schools. The year has been notable for the great number of groups from other states which have requested the

guide-lecture service, and for the increase in numbers of kindergarten and first grade groups given assistance. The lectures presented in the schools were in greater demand than at any previous period in the history of the Foundation.

ENTERTAINMENTS FOR CHILDREN—RAYMOND FOUNDATION

The purchase of a 16-millimeter sound projector for use in the James Simpson Theatre has made possible the showing of many excellent educational films not possible when only the silent equipment was available. The programs in the Saturday morning series of free motion pictures presented during the spring and autumn were as follows:

SPRING COURSE

- March 6—Isle of Perils; Insect Clowns; Snowtime.
 March 13—Mexico and Its Western Coast; The Clever Ant Lion; A Paiute Squaw Makes Acorn Bread; Uncle Sam Moves His Eskimo Family.
 March 20—The Octopus and Its Neighbors; Outwitting the Timber-wolf; Brock the Badger; Eclipse of the Sun; Tides and Moon.
 March 27—Undersea Thrills: Baby Goes Down; A Native Diver Among the Corals; Baiting the Sharks; The Strange Morays.
 April 3—The Dragons of the Pond; Belgium the Beautiful; My Friend the Harti; Beckoning Tropics.
 April 10—Japan—Customs and Industries; Baboons and Zebras; The Cement Gnomes.
 April 17—The Weaver-bird and Its Neighbors; The Eve of the Revolution:* The Ride of Paul Revere; On Lexington Green; By Concord Bridge.
 April 24—Trooping the Color; The Great Raccoon Hunt; Alluring Bali; Alaskan Seals at Home.

AUTUMN COURSE

- October 2—The Haunted House; Su-Lin the Panda; Top o' the Morning; Cats and More Cats.
 October 9—Ocean Currents; Adventures of Columbus.*
 October 16—Hawaiian Songs and Dances; The Strange Glow-worm; Zitari—a Famous Maya Legend.
 October 23—Grass—A Story of Persia; Around the Horn in a Square-rigger; Animal Life.
 October 30—The Traveling Newt; Marvels of the Microscope; Glimpses of Philippine Life; The Autogiro.
 November 6—The Semang and His Poisoned Arrows; The Todas of the Nilgiri Hills; The Nightingale; A Visit to Greenfield Village.
 November 13—The Wild Turkey; Housekeeping at the Zoo; On a South Sea Shore; Underwater Champions.
 November 20—Story of the Clouds; The Adventures of Daniel Boone:* Blazing a New Trail; The Capture by Indians; The Escape.
 November 27—Fun on the Ice; Desert Demons; Thrills of Skiing; The Toy Shop.

* Yale Chronicles, a gift to the Museum of the late Chauncey Keep.

In addition to the regular series of entertainments, two special programs were offered in February as follows:

February 12—Lincoln's Birthday Program: My Father; Native State.

February 22—Washington's Birthday Program: Washington as General; Washington as President.

Nineteen programs in all were offered in the Simpson Theatre for the children of the city and its suburbs. Total attendance at these entertainments was 27,775. Of this number, 4,357 came to the special programs, 12,083 to the spring course, and 11,335 to the autumn series.

Among newspapers which gave publicity to the programs were the *Chicago Daily News*, *Chicago Tribune*, *Chicago Herald and Examiner*, *Chicago Evening American*, *Chicago Daily Times*, and *Downtown Shopping News*.

Expressions of appreciation for films loaned for the programs are herewith made to the Motion Picture Bureau of the Young Men's Christian Association, Chicago; Castle Films, Chicago; the Cunard-White Star Line (Chicago office); and the Fouke Fur Company, St. Louis, Missouri.

MUSEUM STORIES FOR CHILDREN—RAYMOND FOUNDATION

Members of the Raymond Foundation staff prepared two series of Museum Stories for Children. Printed by Field Museum Press in folder form, these were distributed to all children attending the entertainments. The subjects of these stories correlated with films shown, or slides used, on the programs given in the Simpson Theatre. The titles of the stories in each series follow:

Series XXVIII—Flies Good and Bad; The Paiute Indians; Eclipses; Vicious Dwellers of the Coral Forests; Dragon-flies, Past and Present; Japanese Homes; Bird and Animal Partnerships; The Raccoons and Their Cousins.

Series XXIX—The Giant Panda; "Sea Rivers"; From Glow-worm to Firefly; The Story of Grasses; The Common Newt or Red Eft; Blow-guns and Their Users; Glimpses of Samoa; Clouds; Termites.

In addition to the regular distribution effected at entertainments, copies of these stories were distributed to children during the summer by displaying them at the North Door in a holder from which they could be taken. The year's total distribution of the stories was 36,000 copies.

LECTURE TOURS FOR CHILDREN—RAYMOND FOUNDATION

Classwork in the exhibition halls was extended to the following groups:

	Number of groups	Attendance
Tours for children of Chicago schools		
Chicago public schools.....	527	18,586
Chicago parochial schools.....	33	1,092
Chicago private schools.....	10	204
Tours for children of suburban schools		
Suburban public schools.....	299	9,323
Suburban parochial schools.....	15	525
Suburban private schools.....	4	79
Tours for special groups from clubs and other organizations.....	87	3,755

Guide-lecture service was given to 975 groups in all, and the aggregate attendance was 33,564. During the month of May, 111 groups from the public schools of the city, and seventy-two from suburban schools, were given lecture service varying from forty-five to sixty minutes depending on the age of the children and the subjects to be studied. Many more groups could have been handled had more lecturers been available. On November 30 and December 2, parties of 4-H Club boys and girls visited the Museum for special tours in the halls devoted to the life of prehistoric plants, animals and man, and in the Hall of Races of Mankind. The total number of National 4-H Clubs Congress delegates who attended these special tours was 1,352.

EXTENSION LECTURES—RAYMOND FOUNDATION

As in previous years, extension lectures were offered to the schools. Presented in classrooms and assemblies, before audiences of both high and elementary schools, the subjects were as follows:

FOR GEOGRAPHY AND HISTORY GROUPS

Glimpses of Eskimo Life; South America; North American Indians; Glimpses of Chinese Life; Native Life in the Philippines; Mexico and Its Southern Neighbors; The Romans; The Egyptians; Migisi, the Indian Lad.

FOR SCIENCE GROUPS

Field Museum and Its Work; Prehistoric Plants and Animals; Insect Life; Amphibians and Reptiles; The Story of Rubber; Coal and Iron; Coffee, Chocolate and Tea; A Trip to Banana Land; Birds of the Chicago Region; Animal Life in the Chicago Region; Trees of the Chicago Region; Wild Flowers of the Chicago Region; Animals at Home; Our Outdoor Friends.

The extension lectures given by the staff of the Raymond Foundation totaled 469, and the aggregate attendance was 169,337.

ACCESSIONS—RAYMOND FOUNDATION

For use in the Theatre, the small lecture hall, and in extension lectures, the Raymond Foundation acquired during the year, 521 slides made by the Division of Photography. The Museum Illustrator colored 365 of these.

The Foundation received also three natural color photographs on glass of the motmot and tanager, presented by Mr. Philip M. Chancellor, Hollywood, California; a sound motion picture film, *Alluring Bali*, purchased from Burton Holmes Films, Inc., Chicago; a portable stereopticon projector and screen presented by Mr. Clarence B. Mitchell, of Chicago, who also gave twenty-five natural color slides made by him of jades in the Museum collection; and 200 feet of unique motion picture film of Su-Lin, the young giant panda at the Chicago Zoological Park in Brookfield, purchased from Mr. C. J. Albrecht, Chicago, who was the photographer.

LECTURE TOURS AND MEETINGS FOR ADULTS—RAYMOND FOUNDATION

Guide-lecture service was made available without charge to clubs, conventions, colleges, hospitals and other organizations, and to Museum visitors in general. During July and August, morning tours were given in addition to the regular afternoon ones. Printed monthly schedules were distributed at the main entrance for the information of visitors. Co-operating agencies such as libraries and other civic centers throughout the city, and in the suburbs as well, also distributed schedules. The public tours included 103 of a general nature, and 196 covering specific subjects. These were taken advantage of by 282 groups, comprising 5,130 individuals. In addition to the public tours, there were special tours for 127 groups from colleges, clubs, hospitals and other organizations, in which 2,985 persons participated.

The James Simpson Theatre was used by the Board of Education on June 3 for commencement exercises for 780 foreign-born adults. On November 8, Mr. and Mrs. H. H. Evans, of the Canal Zone, lectured in the Theatre on "Plants of Panama" before a specially invited group of botanists. The Raymond Foundation staff assisted in handling these two meetings.

The Theatre was used also by the Chicago Park District for a prize-distributing program on the evening of January 15. There were 400 present. On January 29, the Chicago Recreation Commission held graduation exercises in the Theatre for the Recreation Training Institute, with 390 present.

The use of the small lecture hall was granted to three small groups for educational purposes. Two talks were given to women's groups by Raymond Foundation staff members. The attendance was 123.

SUMMARY OF ATTENDANCE AT ENTERTAINMENTS, LECTURES,
TOURS, ETC.—RAYMOND FOUNDATION

The number of groups reached through the activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures totaled 1,877 and the aggregate attendance included in these groups was 239,724 individuals.

The personal interest of Mrs. James Nelson Raymond, evidenced not only by her continued financial support but also by her intimate knowledge of the methods, material, and objectives of the Lecture Foundation, is greatly appreciated by the members of the staff.

LECTURES FOR ADULTS

The Museum's sixty-seventh and sixty-eighth courses of free lectures for adults were given on Saturday afternoons in the James Simpson Theatre during the spring and autumn months. As usual, they were illustrated with motion pictures and stereopticon slides. Following are the programs of both series:

SIXTY-SEVENTH FREE LECTURE COURSE

- March 6—Birds, Bergs and Kodiak Bears.
Mr. William L. Finley, Portland, Oregon.
- March 13—Amazing Finland.
Mr. H. Canfield Cook, Chicago.
- March 20—Hunting with the Tiger Man.
Mr. Sasha A. Siemel, New York.
- March 27—Wandering Windjammer.
Mr. Alan Villiers, Melbourne, Australia.
- April 3—Burma—Land of the Golden Pagodas.
Mr. H. C. Ostrander, Jersey City, New Jersey.
- April 10—The Kingdom of the Moors.
Captain Carl von Hoffman, New York.
- April 17—Hunting with a Microphone.
Dr. Arthur A. Allen, Cornell University, Ithaca, New York.
- April 24—Plant Life in the Caribbean.
Dr. William Seifriz, Philadelphia, Pennsylvania.

SIXTY-EIGHTH FREE LECTURE COURSE

- October 2—The Life History of the Alaskan Fur Seal.
Mr. C. J. Albrecht, Field Museum.
- October 9—Roaming with the Movie Camera.
Captain John D. Craig, New York.
- October 16—Deserts of the Southwest.
Mr. John Claire Monteith, Hollywood, California.
- October 23—Transpolar Commerce by Air.
Mr. Vilhjalmur Stefansson, New York.
- October 30—Tamest Africa.
Dr. S. A. Barrett, Milwaukee Public Museum.

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- November 6—Let's Consider the Heavens.
Dr. Forest Ray Moulton, Washington, D.C.
- November 13—Snaring Bird Songs.
Mr. Charles Crawford Gorst, Boston, Massachusetts.
- November 20—Exploring in the Unknown Arctic.
Mr. Edward Shackleton, Oxford University Exploration Club.
- November 27—Voyaging Fuegian Waters to Cape Horn.
Mr. Amos Burg, Portland, Oregon.

The total attendance at these seventeen lectures was 16,494 persons, of whom 8,558 attended the spring course, and 7,936 the autumn course.

LAYMAN LECTURE TOURS

An innovation of the year was a series of Sunday afternoon lecture tours, inaugurated on October 3. The conductor of the tours is Mr. P. G. Dallwig, a Chicago business man, and Member of the Museum, whose deep interest in scientific subjects has led him to give his services, as Layman Lecturer, without cost to the Museum or to those participating in the lecture tours. Parties meet at 2 P.M. in Stanley Field Hall. To join the groups it is necessary to register and receive identification tickets, as the number that can be taken on each tour is limited. The subjects presented were as follows:

- October (five Sundays)—The Parade of the Races (Hall of Man).
November (four Sundays)—Nature's "March of Time" (Hall of Historical Geology).
December (four Sundays)—Digging up Our Ancestral Skeletons (Hall of the Stone Age of the Old World).

Thirteen of these lectures were given, and the number of persons attending was 905.

SUMMARY OF ATTENDANCE AT LECTURES, ETC.

The Museum rendered instruction or other services during the year to a total of 1,909 groups, aggregating 257,913 individuals. These figures include the 1,877 groups and 239,724 individuals reached through the activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, and, in addition, the 16,494 persons attending the adult lectures, the 905 persons attending the special Sunday afternoon lecture tours, and 790 persons who attended two meetings of outside organizations to which the James Simpson Theatre and the small lecture hall were made available.

THE LIBRARY

The year 1937 has been marked by further development of the services which the Library offers both to scientists and the general public. Continued progress in this direction is one of the principal objectives toward which the Library staff is constantly striving.

The Library at the end of the year contained more than 105,000 books and pamphlets. Part of these are on the shelves of the General Library; additional thousands are allocated to Departmental Libraries, where they function as exceedingly useful collections on special subjects. Records for all are made in the General Library. Upon request, books are brought from different parts of the building to the Reading Room of the General Library. During 1937, more than 10,000 parts of periodicals and publications, exclusive of books, were received and prepared for readers, and 19,808 cards were added to the catalogue.

A much needed inventory of the Library has been made, and in two of the Departmental Libraries the books have been partially rearranged, in order to make needed space. Many volumes that had been in use for years urgently needed repairs, and some of these have now received careful treatment by binders assigned by the Works Progress Administration. This has added years to the usefulness of the books and, incidentally, has much improved their appearance. The WPA workers have also bound many books which have long needed attention. A large amount of this work remains to be done. The work of treating leather-bound books with oil, and cleaning them, was continued during part of the year.

The translation of some Russian and Polish papers on anthropological subjects was also accomplished by WPA workers.

More people are learning that the Museum Library has material not to be found elsewhere in the city, and consequently increasing demands are being made upon its resources. Students of various universities and other institutions are among those making extensive use of the Library. Persons searching for rare source material often find it here. Others seeking to learn what is being done today in various scientific fields also obtain valuable assistance. Authors, scientific and otherwise, radio entertainers, writers of motion picture scenarios, and advertising writers and artists, are among those seeking help from the Library.

As pointed out in previous Reports, the Library depends for its growth primarily on its exchanges of publications with other

scientific and educational institutions. It is a pleasure to note the addition in 1937 of much valuable material through advantageous new exchange arrangements effected with various institutions and individuals. Also, several exchange correspondents have graciously sent earlier as well as current numbers of their publications, thus helping to complete the Museum's files. These publications include material of value to all Departments. Some recent numbers of Field Museum's Geological Series were sent to various individuals who had not previously been exchanging publications with this institution. The response to these has been very gratifying, and valuable contacts have thus been made.

The Library was fortunate in 1937 in being enabled to renew subscriptions to a few more of the periodicals formerly received and then discontinued for several years. These, like those renewed in the previous years, included the intervening volumes so as to complete various sets. Unfortunately, however, there are many files of periodicals which still lack some volumes, and it is hoped that these may gradually be completed. This year twenty of the early volumes of *Journal of Botany* were secured, and *Zoologischer Anzeiger* was completed, as were also *American Journal of Physical Anthropology*, *Asia Major*, *Gartenflora*, *Ostasiatische Zeitschrift*, *Zeitschrift für Säugetierkunde*, *Zoologische Garten*, and *Zeitschrift für die gesamte Ornithologie*. Each one renewed adds a bit more to the efficiency of the Library, as such periodicals contain the latest discoveries and newest achievements of science.

Every year brings further demands for books on new scientific advances. Each new exhibit installed is preceded by calls for more books, and during the past year an encouraging number has been added. Also, there has fortunately been opportunity to purchase some books, which have long been among the special desiderata, and which include several very difficult to obtain. Outstanding among these should be mentioned: F. Fontana, *Ricerche Fische sopra il Veleno della Vipera*; J. E. Gray, *Spicilegia Zoologica*; M. Maki, *Monograph of the Snakes of Japan*; Prinz zu Wied-Neuwied Maximilian, *Reise nach Brasilien, Atlas Abbildungen zur Naturgeschichte Brasiliens*; Johann Baptist von Spix, *Animalia nova . . . Lacertarum . . . Serpentium, Testudinum et Ranarum*, and J. Wagler, *Serpentium Brasiliensium* (in J. B. von Spix).

The Library has also purchased some of the later and present-day books that are important, among which are the following: A. Brauer, *Beiträge zur Kenntniss der Entwicklungsgeschichte und*

Anatomie der Gymnophionen; P. Buchanan, *Journey to Madras Through the Countries of Mysore, Canara and Malabar*; C. H. Curran and Carl Kauffeld, *Snakes and Their Ways*; F. Delaroche, *Eryngiorum nec non Generis Novi Asclepideae Historia*; Karl Döhring, *Kunst und Kunstgewerbe in Siam*; Duncker, Ehrenbaum, Kyle, Mohr and Schnakenbeck, *Die Fische der Nord- und Ostsee*; Arthur Evans, *The Palace of Minos at Knossos*; H. Gerth, *Geologie Südamerikas*, (Volumes 1 and 2); A. Goette, *Die Entwicklungsgeschichte der Unke*; Grinnell, Dixon and Linsdale, *Fur-bearing Mammals of California*; T. H. Hendley, *Catalogue of the Collections in the Jeypore Museum*; J. D. Hooker, and Th. Thomason, *Flora Indica*; International Colportage Missions, *Ojibway Dictionaries*; Robert Matheson, *Medical Entomology*; C. K. Meek, *Tribal Studies in Northern Nigeria*; Minister of the Colonies, Rome, *Voyageurs italiens en Afrique*; Fanny Parkes, *Wanderings of a Pilgrim . . . in the East*; Edmund J. Peck, *Eskimo-English Dictionary*; C. G. and B. Z. Seligman, *Pagan Tribes of the Nilotic Sudan*; R. W. Swallow, *Ancient Chinese Bronze Mirrors*; and J. R. de la Torre-Bueno, *A Glossary of Entomology*.

Sections of the latest edition of Stieler's *Atlas of Modern Geography* are being received as issued, as are also the parts of the *Dictionary of American English*, edited by Sir William Craigie. These are being published at irregular intervals.

President Stanley Field presented Alexander Wilson's *American Ornithology: Plates*, published in 1829. Also, by gift of Mr. Field the Library has received a copy of Stanley Charles Mott's *Chinese Jade Throughout the Ages*, and S. Kip Farrington's *Atlantic Game Fishing*. Dr. E. E. Sherff, of Chicago, has again made many valuable additions to the collection of botanical books.

In addition to those who have given books, there are about 150 other persons who have presented smaller publications as issued. These are most desirable, and provide material that is of great use. The Library gratefully acknowledges these gifts.

Several members of the Museum Staff have generously given current numbers of various periodicals, and President Field again presented weekly the numbers of the *Illustrated London News*.

The Library wishes to acknowledge with gratitude the assistance given by other libraries through loans of books which were needed for consultation. Among these should be mentioned especially the John Crerar Library, Chicago; the Libraries of the University of Chicago; Newberry Library, Chicago; Library of the Art Institute of Chicago; The Library of Congress, Washington, D.C.; United

States Department of Agriculture, Washington; the Library of Northwestern University, Evanston, Illinois; Library of the Missouri Botanical Garden, St. Louis, Missouri; the Library of Peabody Museum, Harvard University, Cambridge, Massachusetts; and the Library of the American Museum of Natural History, New York.

DIVISION OF PRINTING

The number of copies of publications and miscellaneous printing jobs produced in the Division of Printing during 1937 exceeded that of any previous year. Twenty-seven new numbers were added to the regular publication series, requiring an aggregate of 4,162 pages of type composition. The number of copies of these printed by Field Museum Press was 26,757. Three of these publications were in the Anthropological Series, ten in the Botanical Series, seven in the Geological Series, six in the Zoological Series, and one was the *Annual Report of the Director* for 1936. In addition, five leaflets, aggregating 214 pages of type composition, were published in editions totaling 13,420 copies. Two of these were on anthropological and three on botanical subjects. Of the eighteenth edition of the *General Guide*, a 48-page book, 10,026 copies were printed. A sixth edition, consisting of 2,552 copies, of the 72-page *Handbook of Field Museum* was also issued.

The number of labels printed for exhibits reached a total of 6,922, including those for all Departments of the Museum. Other printed matter, such as the twelve issues of *Field Museum News*, Museum stationery, posters, lecture schedules, supplies, etc., brought the total number of impressions for the year to 882,754.

A detailed list of publications follows:

PUBLICATION SERIES

- 378.—Geological Series, Vol. VI, No. 16. A New Genus, *Barylambda*, for *Titanoides faberi*, Paleocene Amblypod. By Bryan Patterson. January 26, 1937. 4 pages. Edition 834.
- 379.—Botanical Series, Vol. XIII, Part II, No. 2. Flora of Peru. By J. Francis Macbride. March 15, 1937. 408 pages. Edition 827.
- 380.—Anthropological Series, Vol. XXV, No. 1. Skeletal Material from San José Ruin, British Honduras. By Wilfrid D. Hambly. March 25, 1937. 20 pages, 3 text figures. Edition 672.
- 381.—Zoological Series, Vol. XIII, Part X. Catalogue of Birds of the Americas. By Charles E. Hellmayr. April 12, 1937. 234 pages. Edition 772.
- 382.—Report Series, Vol. XI, No. 1. Annual Report of the Director for the Year 1936. January, 1937. 148 pages, 14 collotypes. Edition 5,553.
- 383.—Geological Series, Vol. VII, No. 1. The Grinnell Ice-Cap. By Sharat K. Roy. May 26, 1937. 20 pages, 9 text figures, 1 map. Edition 825.
- 384.—Geological Series, Vol. VII, No. 2. The History and Petrography of Frobisher's "Gold Ore." By Sharat K. Roy. May 26, 1937. 18 pages, 9 text figures, 1 map. Edition 809.

SOME INSECT ORDERS

The most common insects which are able to annoy man, either by biting or stinging him, are the mosquitoes, flies, and bees. The mosquitoes are the most annoying of these insects, and they are the most numerous. They bite and sting man, and they are the most common of the insects which are able to annoy man. They are the most common of the insects which are able to annoy man. They are the most common of the insects which are able to annoy man.

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LOANED BY THE W. HARRIS PUBLIC SCHOOL EXTENSION OF FIELD MUSEUM

A RECENT ADDITION TO THE MORE THAN 1,200 EXHIBITS LOANED TO THE SCHOOLS OF CHICAGO BY THE N. W. HARRIS PUBLIC SCHOOL EXTENSION OF FIELD MUSEUM OF NATURAL HISTORY

One-sixth actual size

- 385.—Geological Series, Vol. VI, No. 17. Mounted Skeleton of Homalodotherium. By Elmer S. Riggs. May 26, 1937. 12 pages, 5 text figures. Edition 823.
- 386.—Botanical Series, Vol. XVII, No. 1. The North American Species of Rumex. By K. H. Rechinger, Jr. June 24, 1937. 152 pages, 25 text figures. Edition 860.
- 387.—Botanical Series, Vol. IX, No. 3. Useful Plants and Drugs of Iran and Iraq. By David Hooper, with notes by Henry Field. June 30, 1937. 174 pages. Edition 837.
- 388.—Botanical Series, Vol. XVI, Part I. The Genus Bidens. By Earl Edward Sherff. August 31, 1937. 346 pages, 88 zinc plates. Edition 821.
- 389.—Botanical Series, Vol. XVI, Part II. The Genus Bidens. By Earl Edward Sherff. September 21, 1937. 364 pages, 101 zinc plates. Edition 828.
- 390.—Botanical Series, Vol. XVII, No. 2. Studies of American Plants—VII. By Paul C. Standley. September 28, 1937. 72 pages. Edition 871.
- 391.—Botanical Series, Vol. XVIII, Part I. Flora of Costa Rica. By Paul C. Standley. October 12, 1937. 398 pages, 1 map. Edition 866.
- 392.—Botanical Series, Vol. XVIII, Part II. Flora of Costa Rica. By Paul C. Standley. October 20, 1937. 392 pages. Edition 894.
- 393.—Botanical Series, Vol. XIII, Part VI, No. 2. Flora of Peru. By J. Francis Macbride. October 29, 1937. 230 pages. Edition 859.
- 394.—Anthropological Series, Vol. XXVI, Part I. Source Book for African Anthropology. By Wilfrid D. Hambly. November 30, 1937. 404 pages, 76 text figures, 4 maps. Edition 627.
- 395.—Botanical Series, Vol. XVII, No. 3. Studies of American Plants—VIII. By Paul C. Standley. December 10, 1937. 60 pages. Edition 872.
- 396.—Anthropological Series, Vol. XXVI, Part II. Source Book for African Anthropology. By Wilfrid D. Hambly. December 20, 1937. 550 pages, 35 text figures, 1 map. Edition 660.
- 397.—Geological Series, Vol. VII, No. 3. Asterism in Garnet, Spinel, Quartz and Sapphire. By Albert J. Walcott. December 28, 1937. 20 pages, 7 text figures. Edition 862.
- 398.—Zoological Series, Vol. XX, No. 23. Notes on Sea-Basses of the Genus Centropristes. By Alfred C. Weed. December 28, 1937. 30 pages, 2 text figures. Edition 810.
- 399.—Zoological Series, Vol. XX, No. 24. American Bats of the Subfamily Emballonurinae. By Colin Campbell Sanborn. December 28, 1937. 34 pages, 12 text figures. Edition 813.
- 400.—Geological Series, Vol. VI, No. 19. Some Notoungulate Braincasts. By Bryan Patterson. December 28, 1937. 30 pages, 6 text figures. Edition 827.
- 401.—Geological Series, Vol. VI, No. 18. A Soricid and Two Erinaceids from the White River Oligocene. By Bryan Patterson and Paul O. McGrew. December 28, 1937. 28 pages, 15 text figures. Edition 814.
- 402.—Zoological Series, Vol. XX, No. 25. Notes on Snakes from the Yucatan Peninsula. By E. Wyllys Andrews. December 28, 1937. 6 pages. Edition 826.
- 403.—Zoological Series, Vol. XX, No. 26. The History of *Elaps collaris* Schlegel, 1837-1937. By Karl P. Schmidt. December 28, 1937. 4 pages. Edition 855.
- 404.—Zoological Series, Vol. XX, No. 27. Variable Dentition in a Chinese Insectivore. By Wilfred H. Osgood. December 28, 1937. 4 pages. Edition 840.

LEAFLET SERIES

- Anthropology, No. 30 (third edition). The Races of Mankind. By Henry Field, with a preface by Berthold Laufer and an introduction by Sir Arthur Keith. 44 pages, 9 collotypes. September, 1937. Edition 4,137.
- Anthropology, No. 31 (second edition). Prehistoric Man. Hall of the Stone Age of the Old World. By Henry Field, with a foreword by Berthold Laufer. 44 pages, 8 collotypes, 1 map, 1 cover design. September, 1937. Edition 3,077.

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- Botany, No. 15 (second edition). Spices and Condiments. By James B. McNair. 64 pages, 11 zinc etchings. June, 1937. Edition 1,075.
- Botany, No. 20. House Plants. By Robert Van Tress. 36 pages, 31 text figures, 1 cover design. April, 1937. Edition 2,615.
- Botany, No. 21. Tea. By Llewelyn Williams. 30 pages, 9 collotypes, 1 cover design. July, 1937. Edition 2,516.

GUIDE SERIES

- General Guide to Field Museum of Natural History Exhibits. Eighteenth edition. 1937. 48 pages, 3 zinc etchings, 1 halftone, 1 collotype (cover). Edition 10,026.
- Handbook. General information concerning the museum, its history, building, exhibits, expeditions and activities. Sixth edition. June, 1937. 72 pages, 8 halftones. Edition 2,552.

DIVISIONS OF PHOTOGRAPHY AND ILLUSTRATION

The negatives, prints, photographic enlargements, lantern slides, transparent exhibition labels, etc., produced in the Division of Photography during 1937 totaled 12,415 items. This represents a large decrease from the 1936 production, which is explained by the fact that, unlike the previous year, there were no photographers assigned to the Division by the Works Progress Administration. The majority of the items produced were in fulfillment of requisitions from the various Departments and Divisions of the Museum, but also included in the total are 473 prints, enlargements, and stereopticon slides for sale on orders received from the public.

The important task of cataloguing the Museum's extensive collection of negatives, now numbering approximately 87,000, was continued by WPA clerks. This work makes the negative collection much more accessible and convenient for filling the constant stream of requisitions received.

The Museum Collotyper produced a total of 634,925 prints. These include collotype illustrations for publications and leaflets, covers for various published works, picture post cards, and poster headings.

The Museum Illustrator filled 647 orders for various types of art work received from various Departments and Divisions. Included in this total were more than 100 drawings, the coloring of 365 lantern slides, and various items of photograph retouching, lettering, map-making, etc.

DIVISION OF PUBLICATIONS

The publications of the Museum, as in previous years, were generously distributed during 1937. To institutions and individuals engaged in scientific work there were sent on exchange account 15,604 copies of scientific publications, 1,264 leaflets, and 933 miscel-

laneous publications and pamphlets. Also, 3,898 copies of the 1936 *Annual Report of the Director*, and 648 leaflets were sent to Members of the Museum. Sales during the year totaled 840 scientific publications, 9,170 leaflets, and 11,363 miscellaneous publications and pamphlets, such as Guides, Handbooks, and Memoirs.

Forty-two large boxes containing 6,454 individually addressed packages of publications were shipped to Washington, D.C., for distribution through the courtesy of the exchange bureau of the Smithsonian Institution, to museums, research organizations, scientific libraries, and individuals in foreign countries, from whom valuable material is received for the Library of Field Museum. An equally large quantity of books was sent by mail to domestic institutions and individuals on the exchange list.

Thirty-seven new exchange arrangements which were established with institutions and scientists during the year should prove of mutual advantage.

For future sale and distribution, 29,894 copies of various publications issued during 1937 were wrapped in packages, labeled, and stored in the stock room.

The continued popularity of two anthropology leaflets, *The Races of Mankind* and *Prehistoric Man*, necessitated the issuing of new editions of each. The Museum in 1937 sold 2,195 copies of these two leaflets which were first published in 1933. A second edition was issued also of the botany leaflet *Spices and Condiments*, originally published in 1930.

Of the books published under other auspices and handled on consignment at the Museum, sales for the year totaled 1,690 copies. These are books on natural history subjects written in popular style. The authors of some of them are members of the Staff of Field Museum.

POST CARDS

The total number of post cards sold during 1937 was 127,827, of which 26,510 were grouped into 1,291 sets. The increase over the preceding year's total sales was 43,777, covering both individual cards and sets of cards.

A new set was added to the cards issued for the Department of Anthropology. It contains eighty views of the sculptures by Miss Malvina Hoffman of the living races of mankind—all that have been reproduced in post card form. Additions to the individual post card assortment include one geological and four zoological subjects.

DIVISION OF PUBLIC RELATIONS

The publicity received by Field Museum increased to a notable extent in 1937 as compared with several preceding years. Not only were the articles and photographs printed in newspapers and other publications more numerous, but they were given more prominent display. There were many full-page and half-page feature articles, and layouts of pictures of Museum subjects. Outstanding especially was the newspaper space given the arrival of the twenty millionth visitor to the present building and the special exhibits arranged in connection with this event. The *Chicago Sunday Tribune* gave a full page to an article and pictures on this subject, and the *Chicago Sunday Times* devoted two full pages to it, while major space was given to it also in the news columns of the daily editions of these and other newspapers. On other subjects, three full pages of photographs appeared in successive weeks in the Saturday rotogravure section of the *Chicago Daily News*, and a number of page and half-page features were printed at various times in the *Chicago Evening American* and the *Chicago Herald and Examiner*. Outside Chicago also extensive attention was given to Field Museum, especially noteworthy being displays in the *New York Times*, the *Illustrated London News*, and the pictorial magazine *Life*, to mention only a few.

To keep the public informed constantly of all Museum activities, both news and feature stories, and many photographs, were released several times each week by the Division of Public Relations. These were distributed not only to the local press (metropolitan and suburban) but were also circulated nationally and internationally through various news agencies such as the Associated Press, United Press, Universal Service, International News Service, Science Service, and others. The total number of news and feature articles released was 296, or an average of more than five per week. To illustrate these articles, several hundred photographs and captions were also distributed.

The series of articles and pictures entitled "Exhibit of the Week," begun in the latter part of 1936, was continued through the greater part of 1937. By applying this designation to them, renewed interest was created for forty-eight especially selected Museum exhibits which no longer possessed other elements of timeliness. These articles were designed to carry out a special aim of Museum publicity to supplement the announcement of current activities with general educational material which fits into the basic program of disseminating and interpreting knowledge.

The releases from the Museum, by keeping the institution constantly before the eyes of editors of newspapers and magazines, stimulated them frequently to assign their own writers and cameramen to obtain additional material about the Museum and its activities, thus increasing the total publicity. Occasional favorable comments on the work of the Museum appeared also in the editorial columns of various publications.

The monthly bulletin, *Field Museum News*, published for the Members of this institution, was carried on for its eighth year and eighth volume. The preparation and distribution of this periodical is one of the duties of the Division of Public Relations. A number of innovations in editorial content were made, while the main object of presenting the widest possible variety of articles and photographs in the limited space available was pursued as in previous years. Copies were delivered to all Members at the beginning of each month. While maintenance of constant contact with the membership is the principal aim of this publication, it performs additional functions also, as an exchange item with other scientific institutions and libraries, and as an additional medium of general publicity. Copies are sent to newspaper and magazine editors, and as a result articles in it are frequently reprinted in full, or quoted.

The Division of Public Relations assisted in publicizing the Museum's series of dramatized radio programs, "From the Ends of the Earth," which themselves constituted an outstanding achievement in attracting public interest. In addition to this series, the Museum received other radio publicity through programs offered by network systems and individual broadcasting stations. Another medium contributing to publicity was the motion picture newsreels, which on several occasions made films of Museum subjects.

As in many previous years, various organizations controlling advertising media made them available to the Museum without charging for their services. The Illinois Central System and the Chicago and North Western Railway displayed at their city and suburban passenger stations placards announcing the Museum's spring and autumn lecture courses. Several ceiling-cards featuring Field Museum exhibits appeared in the street cars of the Chicago Surface Lines, and both that company and the Chicago Motor Coach Company posted in their vehicles other placards suggesting that their patrons visit the Museum.

Information folders about the Museum have been widely distributed by hotels, clubs, libraries, schools, department stores, and

public institutions, and many of these have also displayed posters advertising the lecture courses.

In addition to the aforementioned activities, a large part of the time of the Division of Public Relations has been devoted to numerous other duties, especially editorial work on certain Museum publications, and special articles requested by a number of periodicals. A volume of correspondence and other tasks involving detailed work of various kinds is also handled in the Division. Several hundred invitations were sent to the chairmen of conventions held in this city, and through them thousands of Museum folders were distributed to the delegates attending their meetings.

DIVISION OF MEMBERSHIPS

Although a slightly larger number of new Members was enrolled in 1937 than in 1936, the losses incurred by death and cancellation also were greater, resulting in a smaller net increase in membership. The total number of memberships on record as of December 31, 1937, is 4,266.

Field Museum wishes to express its appreciation and gratitude to all its Members, who, by their loyal support, help to make possible the continuance of the institution's great educational work. An expression of appreciation for their past support is due likewise to those who found it necessary to discontinue their membership, and an invitation is extended to them to resume their association with the work of the Museum whenever they may find it convenient to enroll as Members again.

The following tabulation shows the number of names on the list in each of the membership classifications at the end of 1937:

Benefactors	23
Honorary Members	15
Patrons	26
Corresponding Members	6
Contributors	113
Corporate Members	46
Life Members	281
Non-Resident Life Members	10
Associate Members	2,404
Non-Resident Associate Members	5
Sustaining Members	13
Annual Members	1,324
Total Memberships	4,266

The names of all persons listed as Members during 1937 will be found on the pages at the end of this Report.

CAFETERIA

Meals and other refreshments were served to 146,951 persons during 1937 in the lunch rooms operated in the Museum. This was a notable increase over 1936 when the number served was 118,841. Of the 1937 total, 103,682 patronized the main Cafeteria and 43,269 used the children's room. These figures compare with 81,534 and 37,307 respectively in 1936.

In the pages which follow are submitted the Museum's financial statements, lists of accessions, names of Members, *et cetera*.

CLIFFORD C. GREGG, *Director*

COMPARATIVE ATTENDANCE STATISTICS
AND DOOR RECEIPTS

FOR YEARS 1936 AND 1937

	1937		1936
Total attendance.....	1,292,023		1,191,437
Paid attendance.....	94,217		68,375
Free admissions on pay days:			
Students.....	29,460		27,205
School children.....	119,486		63,914
Teachers.....	2,492		2,165
Members.....	1,524		997
Admissions on free days:			
Thursdays (52).....	186,198	(53)	171,357
Saturdays (52).....	322,980	(52)	373,470
Sundays (52).....	535,666	(52)	483,954
Highest attendance (May 21).....	42,421	(Sept. 6)	21,229
Lowest attendance (Dec. 17).....	129	(Jan. 22)	73
Highest paid attendance (Sept. 6).....	3,448	(Sept. 7)	2,694
Average daily admissions (365 days).....	3,570	(366 days)	3,255
Average paid admissions (209 days).....	450	(209 days)	327
Number of guides sold.....	7,555		5,339
Number of articles checked.....	21,917		16,969
Number of picture post cards sold.....	127,827		84,050
Sales of publications, leaflets, handbooks, portfolios, and photographs.....	\$5,289.49		\$4,441.33

COMPARATIVE FINANCIAL STATEMENTS

FOR YEARS 1936 AND 1937

INCOME	1937	1936
Endowment Funds.....	\$175,878.29	\$173,521.14
Funds held under annuity agree- ments.....	37,022.16	38,646.13
Life Membership Fund.....	13,275.28	13,672.74
Associate Membership Fund...	12,754.67	12,407.71
Chicago Park District.....	92,122.69	91,029.94
Annual and Sustaining Member- ships.....	12,383.50	11,167.00
Admissions.....	23,554.25	17,093.75
Sundry receipts.....	19,193.00	12,666.29
Contributions, general purposes.	50,305.04	450.00
Contributions, special purposes (expended <i>per contra</i>).....	58,558.57	48,567.37
Special funds: Part expended this year for purposes desig- nated (included <i>per contra</i>)	<u>16,358.07</u>	<u>16,884.79</u>
	\$511,405.52	\$436,106.86
EXPENDITURES		
Collections.....	\$ 5,796.12	\$ 2,903.94
Operating expenses capitalized and added to collections...	46,338.05	51,732.60
Expeditions.....	10,305.17	1,228.47
Furniture, fixtures, etc.....	48,531.38	12,385.17
Wages capitalized and added to fixtures.....	2,240.86	794.90
Pensions, group insurance.....	15,904.12	15,833.45
Departmental expenses.....	43,202.37	41,342.48
General operating expenses.....	298,735.04	327,831.67
Annuities on contingent gifts...	35,929.23	36,431.64
Added to principal of annuity endowments.....	1,092.93	2,214.49
Interest on loans.....	2,191.06	3,828.99
Paid on bank loans.....	<u>20,375.80</u>	<u>38,624.20</u>
	\$530,642.13	\$535,152.00
Deficit...	\$ 19,236.61	Deficit.. \$ 99,045.14
Contribution by Mr. Marshall Field...	<u>28,750.00</u>	<u>74,625.93</u>
Balance..	\$ 9,513.39	Net Deficit \$ 24,419.21
<hr/>		
Notes payable January 1.....	\$ 56,375.80	\$ 95,000.00
Paid on account, by contribution of Mr. Stanley Field.....	<u>20,375.80</u>	<u>38,624.20</u>
Balance payable December 31.....	\$ 36,000.00	\$ 56,375.80

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

	1937	1936
Income from Endowment.....	\$18,964.67	\$16,717.15
Operating expenses.....	<u>13,879.08</u>	<u>16,365.50</u>
December 31..... Balance	\$ 5,085.59	Balance \$ 351.65

LIST OF ACCESSIONS

DEPARTMENT OF ANTHROPOLOGY

BROOKS, J., Chicago: 1 incomplete prehistoric skeleton of infant found on surface—near Lake City, southwestern Colorado (gift).

CAUDILL, MRS.—, Chicago: 1 drum and 1 figure—Hopi; 1 bow, 1 quiver and 11 arrows—Apache, United States (gift).

CHRISTIE, MRS. ELIZABETH DUNLAP, ESTATE OF, Chicago: 1 embroidered Persian shawl—Iran (gift).

FIELD, DR. HENRY, Chicago: 1 male Arab skull—Bagdad, Iraq (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by Henry Field and Richard A. Martin (Field Museum Anthropological Expedition to the Near East): 137 potsherds from surface—Tel-Brak, northeastern Syria.

Collected by Paul S. Martin (Field Museum Archaeological Expedition to the Southwest): about 15,600 objects: potsherds, pottery, stone and bone implements, and portions of two skeletons.

Transferred from Department of Geology: 4 specimens of flint and opal, for experimental work in producing stone implements.

Purchase: Ceremonial praying costume of Tibetan Lama, including robes, shoes, hats, etc.—Lebrang, Kansu Province, China.

GLADWIN, HAROLD S., Globe, Arizona: 29 pieces of pottery and about 50 potsherds—Arizona (exchange).

HARRIS, N. DWIGHT, Evanston, Illinois: 1 brass image and 1 carved wood image—China (gift).

JONES, MISS MARY I., Detroit, Michigan: 23 specimens of Chinese jewelry—Chekiang(?), China (gift).

MACKLIND, WILLIAM R., Cleveland, Ohio: 1 celt of granite (gift).

MARTIN, RICHARD A., Chicago: 275 potsherds representing all periods at site of Alishar Huyuk—Anatolia, Turkey (gift).

NEFF, W. P., Miami, Oklahoma: 1 "ceremonial" artifact of flint—Miami, Oklahoma (gift).

RIENDAU, MRS. C. H., Oak Park, Illinois: 2 small horn spoons, 1 large horn spoon, 1 painted wooden spoon, 1 rattle, and 1 fishhook—southern Alaska (gift).

RUPPRECHT, MR. and MRS. PAUL, Chicago: 2 Afghan daggers—Khyber Pass, India (gift).

SARGENT, HOMER E., Pasadena, California: 15 baskets, Pomo, Maidu, Paiute, etc.; and 7 bags, Wasco or Nez Percé—California, Oregon, and Washington (gift).

SHOWER, MRS. ALBERT E., Evanston, Illinois: 1 Indian basket—United States (gift).

SMITH, RAYMOND K., Joliet, Illinois: 1 clay figurine and 1 small temple model of clay excavated in what is now an engine pit at Nonoalco shops of the National Railways of Mexico—Mexico City (gift).

SORENSEN, MRS. M. H., Chicago: 1 model of an Eskimo kayak (gift).

STRESEN-REUTER, ELIZABETH, Oak Park, Illinois: 1 Indian skull excavated near Gallup, New Mexico (gift).

THOMPSON, F. O., Des Moines, Iowa: 20 pairs of silver earrings—Toluca, Mexico (gift).

VINCENT, MRS. EDWARD E., Chicago: 93 objects of bone, wood, and stone—Greenland (gift).

WICKER, MISS CAROLINE M., Chicago: 8 turkish marionettes of colored rawhide figures for shadow-plays—Stamboul, Turkey (gift).

WICKER, MISS CAROLINE M., Chicago, and MRS. FRANCES RUGMAN, Essex, England: 1 model of bed, 1 tobacco pipe, and 1 small pottery dish—Khartum, Sudan, Africa (gift).

WOODRUFF, FREDERICK W., Joliet, Illinois: 1 pair of Eskimo boots—Bristol Bay, Alaska (gift).

DEPARTMENT OF BOTANY—ACCESSIONS

ACUÑA G., JULIÁN, ESTACION EXPERIMENTAL AGRONÓMICO, Santiago de las Vegas, Cuba: 2 plant specimens (gift).

AELLEN, DR. PAUL, Basel, Switzerland: 348 specimens of Corsican and Syrian plants (exchange).

ARNOLD ARBORETUM, Jamaica Plain, Massachusetts: 357 specimens of Mexican plants (exchange).

ARSÈNE, REV. BROTHER G., Santa Fe, New Mexico: 1 plant specimen (gift).

BAILEY HORTORIUM, CORNELL UNIVERSITY, Ithaca, New York: 335 plant specimens (gift); 7 plant specimens (exchange).

BARKLEY, DR. FRED A., St. Louis, Missouri: 8 photographic prints (gift).

BARTRAM, EDWIN B., Bushkill, Pennsylvania: 6 specimens of Costa Rican plants (gift).

BAYALIS, JOHN, Chicago: 1 plant specimen (gift).

BENKE, HERMANN C., Chicago: 236 plant specimens (gift).

BLAIR, H. S., Puerto Armuelles, Panama: 1 plant specimen (gift).

BOBENG, W. G., Chicago: 1 plant specimen (gift).

BRASIL OITICICA S. A., Rio de Janeiro, Brazil: 39 specimens of Brazilian plants (gift).

BUTLER, MCCRILLIS, Chicago: 315 plant specimens (gift).

BUTLER UNIVERSITY, Indianapolis, Indiana: 243 plant specimens (exchange).

BYRNE, M. H., Chicago: 1 plant specimen (gift).

CABRERA, PROFESSOR ANGEL L., La Plata, Argentina: 14 plant specimens (gift); 112 plant specimens (exchange).

CALIFORNIA ACADEMY OF SCIENCES, San Francisco, California: 406 specimens of California plants (exchange).

CARLETON COLLEGE, DEPARTMENT OF BOTANY, Northfield, Minnesota: 134 specimens of Costa Rican plants (gift).

CARNEGIE INSTITUTION OF WASHINGTON, Cold Spring Harbor, Long Island, New York: 120 specimens of Yucatecan plants (gift).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 378 specimens of Utah plants (exchange).

CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.: 58 plant specimens, 6 photographic prints (exchange).

CHAMBERLAIN, DR. CHARLES J., Chicago: 3 plant specimens (gift).

CHAMBERS, MISS GLADYS M., Tougaloo, Mississippi: 2 plant specimens (gift).

CLOKEY, IRA W., South Pasadena, California: 277 specimens of California plants (exchange).

CONSERVATOIRE ET JARDIN BOTANIQUE, Geneva, Switzerland: 1,837 plant specimens and photographic prints (exchange).

CORNELL UNIVERSITY, DEPARTMENT OF BOTANY, Ithaca, New York: 2,078 plant specimens (exchange).

CUFODONTIS, DR. GIORGI, Genoa, Italy: 21 specimens of Costa Rican plants (gift).

DAHLGREN, DR. B. E., Chicago: 1 plant specimen (gift).

DANFORTH, RALPH E., West Boylston, Massachusetts: 6 plant specimens (gift).

DASTON, JOSEPH S., Chicago: 24 specimens of cacti (gift).

DE PAUW UNIVERSITY, DEPARTMENT OF BOTANY, Greencastle, Indiana: 339 specimens of Montana plants (exchange).

DIXON, DR. HELEN, Chicago: 850 specimens of Utah plants (gift).

DOOLITTLE, MRS. HAROLD M., Onekama, Michigan: 2 plant specimens (gift).

DRUSHEL, DR. J. A., Westfield, New Jersey: 6 plant specimens (gift).

DUCKE, DR. ADOLPHO, Rio de Janeiro, Brazil: 550 specimens of Brazilian plants (gift).

EIFRIG, PROFESSOR G., River Forest, Illinois: 2 plant specimens (gift).

ELIAS, REV. BROTHER, Barranquilla, Colombia: 228 specimens of Colombian plants (gift).

ESTACION EXPERIMENTAL AGRONOMICO, Santiago de las Vegas, Cuba: 45 specimens of Cuban plants (gift).

FENWICK, MISS UNA, Leicestershire, England: 50 plant specimens (gift).

FERNALD, MISS EVELYN I., Rockford, Illinois: 2 plant specimens (gift).

FIELD, DR. HENRY, Chicago: 35 specimens of English plants (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by C. J. Albrecht (Field Museum Expedition to Pribilof Islands): 19 plant specimens.

Collected by Llewelyn Williams (Expedition to Southeastern Mexico): 5,000 herbarium specimens, 595 wood specimens, 105 economic specimens, 462 photographic negatives.

Made by J. Francis Macbride: 5,789 photographic negatives of type specimens of plants.

Transferred from the Division of Photography: 229 photographic prints.

Purchases: 1,850 specimens of plants—Mexico; 988 specimens of plants—Brazil; 65 specimens of plants—Peru; 150 specimens of plants—Venezuela.

FISHER, GEORGE L., Houston, Texas: 49 plant specimens (gift).

FLORISTS' PUBLISHING COMPANY, Chicago: 4 plant specimens (gift).

FOSBERG, DR. F. RAYMOND, Philadelphia, Pennsylvania: 550 specimens of Hawaiian plants (exchange).

FRASER, CARL C., Bradenton, Florida: 1 plant specimen (gift).

GARFIELD PARK CONSERVATORY, Chicago: 3 plant specimens (gift).

GARRETT, PROFESSOR ARTHUR O., Salt Lake City, Utah: 114 specimens of Utah plants (gift).

GENTRY, HOWARD SCOTT, Tucson, Arizona: 36 specimens of Mexican plants (gift).

GOSSELL, W. F., Chicago: 5 plant specimens (gift).

GÖTEBORG BOTANISKA TRÄDGÅRD, Göteborg, Sweden: 43 specimens of European plants (exchange).

GRAVES, C. E., Aracata, California: 9 photographic prints (gift).

GRAY HERBARIUM, Cambridge, Massachusetts: 412 plant specimens (exchange).

GREGG, CLIFFORD C., Chicago: 5 plant specimens (gift).

HAMMERMILL PAPER COMPANY, Erie, Pennsylvania: 4 specimens of paper pulp and stock (gift).

HARNSBERGER, MISS HAZEL, Chicago: 1 plant specimen (gift).

HARRISON, B. F., Provo, Utah: 11 plant specimens (gift).

HAYNES, MISS CAROLINE C., Highlands, New Jersey: 28 plant specimens (gift).

HERMANN, PROFESSOR F. J., Ann Arbor, Michigan: 182 plant specimens (exchange).

HEWETSON, WILLIAM T., Freeport, Illinois: 1 plant specimen (gift).

HILGEMAN, DR. ROBERT, Tucson, Arizona: 1 "arm" of dates (gift).

HOOD, PROFESSOR J. DOUGLAS, Rochester, New York: 28 specimens of Peruvian plants (gift).

INDUSTRIAL AND AGRICULTURAL MUSEUM, Warsaw, Poland: 4 specimens of grain (gift).

INSTITUTO DE BOTÁNICA DARWINION, San Isidro, Argentina: 204 specimens of plants from Argentina (exchange).

JARDIM BOTANICO, Rio de Janeiro, Brazil: 25 specimens of Brazilian plants (exchange).

JARDIM BOTANICO DE BELLO HORIZONTE, Minas Geraes, Brazil: 515 specimens of Brazilian plants (gift); 215 specimens of Brazilian plants (exchange).

JOHNSTON, DR. JOHN R., Chimaltenango, Guatemala: 567 specimens of Guatemalan plants (gift).

KLUG, GUILLERMO, Iquitos, Peru: 39 plant specimens (gift).

KNOBLOCH, IRVING W., Salamanca, New York: 53 specimens of Mexican plants (gift).

KRAUTH, EMIL, Hebron, North Dakota: 5 plant specimens (gift).

KRUKOFF, BORIS A., Bronx Park, New York: 667 specimens of Brazilian plants, 13 economic specimens, 1 stem of *Astrocarium* (gift).

LABORATORIOS DEL MINISTERIO DE AGRICULTURA, San Salvador, Salvador: 41 plant specimens (gift).

LEAL, PROFESSOR ADRIÁN RUIZ, Mendoza, Argentina: 81 specimens of plants from Argentina (gift).

LE BARRON, S. M., New Orleans, Louisiana: 5 planks of Mexican woods (gift).

LEON, REV. BROTHER, Havana, Cuba: 14 plant specimens (gift).

LEWIS, MRS. GEORGE R., St. Louis, Missouri: 2 plant specimens (gift).

LILLY, ELI, AND COMPANY, Indianapolis, Indiana: 1 economic specimen (gift).

LUMMIS, MRS. NELLIE S., Fort Myers, Florida: 1 plant specimen (gift).

MARCELLINE, SISTER M., Grand Rapids, Michigan: 438 specimens of New Mexico plants (gift).

MARSH, ERNEST G., JR., Marathon, Texas: 165 specimens of Texas plants (gift).

MARSHALL COLLEGE, Huntington, West Virginia: 106 specimens of West Virginia plants (exchange).

MATUDA, EIZI, Escuintla, Chiapas, Mexico: 1 plant specimen (gift).

MEXIA, MRS. YNES, Berkeley, California: 19 specimens of Brazilian plants (gift).

MEYER, TEODORO, Fontana, Chaco, Argentina: 24 specimens of Argentinean plants (exchange).

MILLE, REV. LUIS, Guayaquil, Ecuador: 28 specimens of Ecuador plants (gift).

MISSOURI BOTANICAL GARDEN, St. Louis, Missouri: 227 plant specimens (exchange).

MOORE, GEORGE, Lebanon, Missouri: 357 specimens of Missouri plants (gift).

MUSEO NACIONAL, San José, Costa Rica: 1,085 specimens of Costa Rican plants (gift).

MUSEU PARAENSE EMILIO GOELDI, Belem, Brazil: 325 plant specimens (exchange).

MUSÉUM D'HISTOIRE NATURELLE (PHANÉROGAMIE), Paris, France: 665 plant specimens (exchange).

MUZEUUM TATRZANSKIE, Zakopane, Poland: 75 specimens of Polish plants (gift).

NÁRODNÍ MUSEUM, Prague, Czechoslovakia: 521 plant specimens (exchange).

NATIONAL HERBARIUM, Sydney, Australia: 100 specimens of Australian plants (exchange).

NATURHISTORISCHES MUSEUM, BOTANISCHE ABTEILUNG, Vienna, Austria: 1 specimen of *Picea* wood (gift); 4,709 plant specimens (exchange).

NATURHISTORISKA RIKSMUSEET, Stockholm, Sweden: 116 plant specimens (exchange).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York: 82 plant

specimens, 25 photographic prints (exchange).

NOË, PROFESSOR A. C., Chicago: 1 economic specimen (gift).

NORTH DAKOTA AGRICULTURAL COLLEGE, Fargo, North Dakota: 360 plant specimens (exchange).

OAKES, O. A., Evanston, Illinois: 4 planks of New Zealand woods (gift).

OWEN, ALLEN F., Chicago: 4 herbarium specimens, 5 wood specimens (gift).

PATTERSON, ARTHUR E., East Gary, Indiana: 5 plant specimens (gift).

PEARSALL, GORDON, River Forest, Illinois: 13 plant specimens (gift).

PEARSON, E. C., Las Cruces, New Mexico: 1 plant specimen (gift).

PURPUS, DR. C. A., Zacuapam, Mexico: 1 plant specimen (gift).

RECHENBERG, MISS ELIZABETH, Valparaiso, Indiana: 1 economic specimen (gift).

ROBINSON, MRS. JEANETTE B., Milwaukee, Wisconsin: 1 plant specimen (gift).

ROSENGURTT, PROFESSOR BERNARDO, Montevideo, Uruguay: 63 specimens of plants from Uruguay (gift).

SCHMOLL, DR. HAZEL, Chicago: 16 plant specimens (gift).

SEIBERT, R. J., St. Louis, Missouri: 3 plant specimens (gift).

SHERFF, DR. EARL E., Chicago: 566 specimens of plants (gift).

SHINER, MRS. MARGARET J., Laredo, Texas: 5 photographic prints (gift).

SHREVE, DR. FORREST, Tucson, Arizona: 136 plant specimens (gift); 80 plant specimens (exchange).

SOUKUP, PROFESSOR J., Puno, Peru: 184 herbarium specimens, 1 economic specimen (gift).

STANDLEY, PAUL C., Chicago: 123 specimens of plants, 127 illustrations of plants (gift).

STANDLEY, PAUL C., and DR. JULIAN A. STEYERMARK, Chicago: 100 specimens of Indiana plants (gift).

STATE UNIVERSITY OF IOWA, DEPARTMENT OF GEOLOGY, Iowa City, Iowa: 1 fossil cycad trunk (gift).

STEYERMARK, DR. JULIAN A., Chicago: 4,078 plant specimens (gift).

STEYERMARK, MRS. JULIAN A., Chicago: 149 plant specimens (gift).

SYDOW, DR. H., Berlin, Germany: 1 plant specimen (gift).

TAIHOKU IMPERIAL UNIVERSITY, Taihoku, Formosa: 150 specimens of Formosa plants (exchange).

TEIXEIRA, M. A. DE PIMENTAL, Mossamedes, Angola: 1 plant specimen, 1 photographic print (gift).

THOMPSON, FRED O., Des Moines, Iowa: 1 string of *Sapindus* seeds (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 243 plant specimens, 425 photographic prints, 4,113 typewritten descriptions of new species of plants (exchange).

UNIVERSITY OF ARKANSAS, DEPARTMENT OF BOTANY, Fayetteville, Arkansas: 11 plant specimens (gift).

UNIVERSITY OF CALIFORNIA AT LOS ANGELES, DEPARTMENT OF BOTANY, Los Angeles, California: 39 plant specimens (exchange).

UNIVERSITY OF FLORIDA, AGRICULTURAL EXPERIMENT STATIONS, Gainesville, Florida: 17 plant specimens (gift).

UNIVERSITY OF GEORGIA, DEPARTMENT OF BOTANY, Athens, Georgia: 67 plant specimens (exchange).

UNIVERSITY OF MICHIGAN, UNIVERSITY MUSEUMS, Ann Arbor, Michigan: 587 plant specimens (exchange).

UNIVERSITY OF MINNESOTA, DEPARTMENT OF BOTANY, Minneapolis, Minnesota: 75 plant specimens (gift); 851 plant specimens (exchange).

UNIVERSITY OF MONTREAL, Montreal, Canada: 627 specimens of Canadian plants (exchange).

UNIVERSITY OF PENNSYLVANIA, BOTANICAL LABORATORY, Philadelphia, Pennsylvania: 140 plant specimens (exchange).

UNIVERSITY OF TEXAS, DEPARTMENT OF BOTANY, Austin, Texas: 1,431 plant specimens (gift).

UTAH STATE AGRICULTURAL COLLEGE, Logan, Utah: 52 specimens of Utah plants (exchange).

VALERIO, PROFESSOR MANUEL, San José, Costa Rica: 237 specimens of Costa Rican plants (gift).

VARGAS C., DR. CÉSAR, Cuzco, Peru: 219 specimens of Peruvian plants (gift).

VAUGHAN'S SEED STORE, Chicago: 1 plant specimen (gift).

VINCENT, MISS EDITH M., Chicago: 1 plant specimen (gift).

WEYMARN, MICHAEL A., Harbin, Manchukuo: 5 plant specimens (gift).

WHEELER, LOUIS C., Cambridge, Massachusetts: 4 plant specimens (gift).

WITTE MEMORIAL MUSEUM, San Antonio, Texas: 11 plant specimens (gift).

WOLCOTT, A. B., Chicago: 1 plant specimen (gift).

YALE UNIVERSITY, SCHOOL OF FORESTRY, New Haven, Connecticut: 253 specimens of plants (gift); 25 microscopic slides of Peruvian woods (exchange).

YUNCKER, PROFESSOR T. G., Greencastle, Indiana: 218 specimens of Honduras plants (gift).

ZETEK, JAMES, Balboa, Canal Zone: 25 plant specimens (gift).

ZIGMOND, DR. MAURICE L., New Haven, Connecticut: 195 specimens of California plants (gift).

DEPARTMENT OF GEOLOGY—ACCESSIONS

AMERICAN MUSEUM OF NATURAL HISTORY, New York: cast of jaws of *Dryopithecus caulleyi* (gift); cast of skeleton of fossil bird, *Diatryma*; cast of lower jaw of holotype of *Griphodon*; 31 specimens fossil plants—Montana, Arizona, and Cuba (exchange).

BILSKY, A. M., Toronto, Canada: 4 specimens gold ore—Porcupine, Ontario (gift).

BREN, REV. DR. HUGO, Lemont, Illinois: 1 specimen *Orthoceras annulatum* showing siphuncle (gift).

CALHOUN, G. B., Chicago: 1 specimen chalcidony pseudomorph after root—Cody, Wyoming (gift).

CALLAHAN, WILLIAM, Aurora, Kansas: 1 plesiosaur vertebra, 2 gizzard stones—Aurora, Kansas (gift).

CALVERT, EARL L., San Gabriel, California: 1 specimen bakerite—Death Valley, California (exchange).

CANNON, LLOYD, Olmsted, Illinois: 1 concretion—Olmsted, Illinois (gift).

CHALMERS, MRS. WILLIAM J., Chicago: 1 cabochon cut star sapphire mounted in white gold ring—Ceylon (gift).

CHICAGO HISTORICAL SOCIETY, Chicago: 3 geological specimens—South Dakota and England (gift).

COLE, E. M., Audubon, Iowa: 1 specimen *Annularia*—near Audubon, Iowa (gift).

CONROW, J. ATKINSON, Baltimore, Maryland: 12 specimens fossil shells and marls—Fossil Cliffs, Maryland (gift).

DARRAGH, MR. and MRS. ALEXANDER L. H., Chicago: 1 chert concretion—Ozark County, Missouri (gift).

DEARDORFF, MISS HAZEL, Silt, Colorado: 3 vertebrate fossils—Colorado (gift).

EDGERLY, HATTON, De Beque, Colorado: 3 vertebrate fossils—Colorado (gift).

EHRMANN, MARTIN L., New York: 6 specimens minerals—various localities (exchange).

FABER, EDWIN B., Grand Junction, Colorado: 2 vertebrate fossils—Colorado (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by Dr. Henry Field (Field Museum—Oxford University Joint Expedition to Mesopotamia): 1 specimen loess—Kish, Iraq.

Collected by Dr. Henry Field (Field Museum Archaeological Expedition to Western Europe): 1 specimen cave earth—Dordogne, France.

Collected by C. L. Owen (Field Museum Expedition of 1911): 2 specimens alunogen—Arizona.

Collected by Bryan Patterson and James H. Quinn (Field Museum Paleontological Expedition to Colorado, 1937): 97 specimens fossil leaves and gastropods, 237 vertebrate fossils—Colorado.

Collected by Sharat K. Roy (Field Museum Geological Expedition to Colorado, 1937): 82 geological specimens, 22 minerals—Colorado.

Collected by Emil Sella: 1 specimen quartzite—Lookout Mountain, Nebraska.

Collected by Alfred C. Weed (Field Museum Expedition to Maine): 4 specimens talc, 1 specimen serpentine—Loomis Talc Quarry, New York; 1 specimen sandstone changing to schist—Lamoine, Maine.

Purchase: 1 specimen hyalite—Spruce Pine, North Carolina.

FLESCH, WALTER J., Chicago: 1 specimen astrophyllite in quartz—locality unknown (gift).

GALBREATH, EDWIN C., Ashmore, Illinois: tibia and fibula of *Castoroides*, dorsal vertebra of *Oribovinae*—near Ashmore, Illinois (gift).

GERRITSON, JAMES ANTHONY, Kankakee, Illinois: 2 specimens cephalopods—near Kremmlin, Colorado (gift).

GRUHLKE, RAY C., Olympia, Washington: 1 specimen fossiliferous limestone—Oakville, Washington; 1 fossil gastropod—near Olympia, Washington (gift).

GUNNELL, E. MITCHELL, Galesburg, Illinois: 11 specimens minerals—various localities (exchange).

HARRIS, G. BRADLEY and WILLIAM B. HILTON, Rifle, Colorado: 5 vertebrate fossils and lot of fossil leaves—Colorado (gift).

HARRIS, JULIA, Palisade, Colorado: 1 fossil leaf—Plateau Canyon, Colorado (gift).

HARVARD UNIVERSITY, BOTANICAL MUSEUM, Cambridge, Massachusetts: 3 specimens fossil plants—various localities (exchange).

HELWIG, A. C., Keokuk, Iowa: 1 fossil coral—Keokuk, Iowa (gift).

HILTON, OLIVER, Rifle, Colorado: 1 specimen *Coryphodon*—Colorado (gift).

INDUSTRIAL AND AGRICULTURAL MUSEUM, Warsaw, Poland: 23 specimens economic minerals—Poland; 1 specimen aerolite—Pultusk, Poland (gift).

ITO, TOKUMATSU, Chicago: 20 specimens—Fushun coal mines, Manchukuo (gift).

JENNINGS, J. W., Eureka Springs, Arkansas: 1 specimen calcite concretions in Mexican onyx, 1 specimen Mexican onyx, 1 specimen sandstone, 1 specimen laterite, 2 specimens whetstones—Eureka Springs, Arkansas (gift).

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KAEMPFER, MYRON A., Denver, Colorado: 1 lower molar *Phenacodus*—Colorado (gift).

LEVIN AND RUBIN, Chicago: 1 specimen barite—near Birmingham, Alabama (gift).

LOFQUIST, K. E., Chicago: 1 specimen fossil frond, 1 fossil crustacean—Coal City, Illinois (gift).

LOOK, ALFRED A., Grand Junction, Colorado: 2 specimens *Titanoides*(?)—near De Beque, Colorado; 1 fossil *Titanoides* skull—Colorado (gift).

MATTHEWS, W. E., West Terre Haute, Indiana: 1 septarium—Terre Haute, Indiana (gift).

MAZUR, ANTHONY, Chicago: 9 specimens invertebrate fossils, 4 specimens cave incrustations, 1 specimen styolites, 1 specimen quartz porphyry, 5 picture post cards—near Krakow, Poland (gift).

MCCAW, F. W., Manila, Philippine Islands: 3 specimens rizalite—Philippine Islands (gift).

MCGREW, PAUL O., Chicago: lower jaws of *Mesohippus bairdii*—Lower Brule Beds, Nebraska (gift).

MOONEY, HOMER, Carson City, Nevada: 2 fragments of teeth of *Arkadiskon* sp.—Nevada (gift).

MORRISON, MORRIS G., Evanston, Illinois: 1 specimen halite, 1 specimen halite stalactite—Jeban Usdum, Palestine (gift).

MUMBRUE, DAN P., Helena, Montana: 18 specimens concretions and concretionary coloring—Montana (gift).

NININGER, PROFESSOR H. H., Denver, Colorado: 1 stone meteorite—Lake Labyrinth, South Australia (gift); 14 specimens meteorites—various localities (exchange).

OGDEN, DR. BURT, Phoenix, Arizona: 2 specimens lazulite—California (gift).

ORR, GAIL, Winterset, Iowa: 6 vertebrate fossils—Colorado (gift).

PRINCETON UNIVERSITY, Princeton, New Jersey: 24 specimens Cambrian trilobites—Fruitville, Pennsylvania (exchange).

PRUITT, S. W., Niles, Michigan: 1 specimen copper ore—Clay County, North Carolina (gift).

QUINN, JAMES H., Chicago: 5 vertebrate fossils—near Ainsworth, Nebraska (gift).

RASSWEILER, AUGUST, Chicago: 1 cabochon cut green aventurine—Madras, India (gift).

REAGAN, FRANK P., Chicago: 21 specimens copper ore—Pennsylvania and Utah; 1 fossil leaf—Pennsylvania (gift).

REMBOLD, ELMER L., Chicago: 1 geode—near Lexington, Kentucky (gift).

ROBERTS, L. B., Batesville, Arkansas: 5 specimens fossil wood—Shreveport, Louisiana (gift).

RUMELY, WILLIAM N., ESTATE OF, Chicago: 1 iron meteorite—La Porte, Indiana (gift).

SCHIEFER, H. V., Cleveland Heights, Ohio: 9 cabochon cut chalcidony specimens—Flint Ridge, Ohio (gift).

SETTERLE, A. F., Cicero, Illinois: 1 septarium—near San Antonio, Texas (gift).

SIMMONS, MISS MARGUERITE, Chicago: 106 mineral specimens, 35 mineral chips—various localities (gift).

SOVEY, ROBERT R., Chicago: 1 specimen stigmara—Illinois (gift).

STANDARD OIL COMPANY (Indiana), Chicago: 15 specimens petroleum products, 1 specimen candle (gift).

STERNBERG, GEORGE F., Hays, Kansas: 4 vertebrate fossils, 2 fossil shells—Wyoming (exchange).

STEWART, R. H., Ironton, Ohio: 1 specimen *Lepidodendron*—Montgomery, West Virginia (gift).

TOKUNO, HARUYOSHI, New York: 1 hand-carved Daruma Buddha of jet—Fushun mines, Manchukuo (gift).

VON DRASEK, FRANK, Cicero, Illinois: 42 specimens minerals and ores—various localities (gift).

VON RAPPAPORT, JEROME, Chicago: 248 opals—Australia (gift).

VONSEN, M., Petaluma, California: 2 specimens bakerite—Corkscrew Canyon, California (gift).

WEYMARN, MICHAEL A., Harbin, Manchukuo: 19 specimens vertebrate fossils—Manchukuo (gift).

WHARTON, G. W., Roseburg, Oregon: 1 fossil plant in shale—Buck Mountain, Oregon (gift).

WHARTON, J. R., Roseburg, Oregon: 1 specimen bird's-eye quartz, 1 specimen orbicular quartz—Oregon (gift).

WOODSON, MISS NANCY, Wausau, Wisconsin: 1 specimen limestone—Switzerland (gift).

YOUNG, MRS. DOROTHY, South Haven, Michigan: 4 specimens limonite geodes—South Haven, Michigan (gift).

ZERK, OSCAR U., Chicago: 1 specimen scenery agate—Glendive, Montana (gift); 17 specimens scenery agate—various localities (exchange).

DEPARTMENT OF ZOOLOGY—ACCESSIONS

ACKERMAN, C. N., Chicago: 1 bryozoan—Grass Lake, Illinois (gift).

ALLEN, E. ROSS, Silver Springs, Florida: 2 bullfrogs—Silver Springs, Florida; 1 jumping viper—Honduras; 3 tadpoles, 1 tree frog, 7 lizards, 1 snake—various localities (gift).

ALLEN, ROBERT J., Oak Park, Illinois: 3 bats—Cook County, Illinois (gift).

ANDREWS, E. WYLLYS, Chicago: 7 mammals, 55 frogs, 85 lizards, 34 snakes, 6 turtles—Yucatan (gift).

ANONYMOUS: 1 mounted hummingbird—Peru (gift).

BACKHUS, CHARLES H., Bellwood, Illinois: 1 spider with young—Bellwood, Illinois (gift).

BARBER, C. M., Hot Springs, Arkansas: 31 salamanders, 1 toad, 3 lizards, 8 box turtles—Arkansas (gift).

BARNES, DR. VENTURA, Maracay, Venezuela: 1 frog—Turmero, Venezuela (gift); 21 fishes—Turmero, Venezuela (exchange).

BARR, LYMAN, Chicago: 1 tarantula—Arkansas (gift).

BASS BIOLOGICAL LABORATORY, Englewood, Florida: 83 eels—Florida (gift).

BAUER, MARGARET J., Chicago: 1 snapping turtle—Kankakee River, Illinois (gift).

BAUMANN, DR. CYRIL VON, New York: 4 bat skins with skulls, 75 insects—Ecuador (gift).

BECKER, ROBERT H., Lake Bluff, Illinois: 1 fish—Lake Forest, Illinois; 1 lake trout—Ontario, Canada (gift).

BEECHER, WILLIAM J., Chicago: 1 red bat, 1 snake—Fox Lake, Illinois (gift).

BOOTH FISHERIES CORPORATION, Boston, Massachusetts: 7 rosefish—New England coast (gift).

BORELL, DR. A. E., Santa Fe, New Mexico: 1 *Bassariscus* skeleton, 7 lizards, 5 snakes—Brewster County, Texas (gift).

BOULTON, MRS. RUDYERD, Chicago: 1 bird—Chicago (gift).

BRITISH MUSEUM (NATURAL HISTORY), London, England: 63 small mammal skins and skulls—South America; 17 lizards—British Somaliland (exchange).

BROMUND, FRED, Ann Arbor, Michigan: 1 milk snake—Burt's Lake, Michigan (gift).

BRUNDAGE, EDWARD J., Washington, Connecticut: 447 insects, 8 crustaceans—various localities (gift).

BUJAK, B. J., Lansing, Michigan: 1 otter and 6 beaver skeletons—Michigan (gift).

BURT, DR. CHARLES E., Winfield, Kansas: 35 bats in alcohol, 150 salamanders, 429 tadpoles, 284 frogs and toads, 71 lizards, 81 snakes, 16 turtles—various localities (exchange).

CAGLE, FRED, Carbondale, Illinois: 5 frogs—Murphysboro, Illinois (exchange).

CAMPBELL, WALLACE, Chicago: 5 snakes—Lambert, Illinois.

CAMRAS, SIDNEY, Chicago: 1 bald eagle skeleton—Cass County, Illinois (gift).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 15 mammals, 36 birds—Central and South America; 5 lizards, 2 snakes—Cameroon, Africa (exchange).

CASCARD, BEN, Chicago: 3 birds—Gary, Indiana (gift).

CASTANG, R., Chicago: 1 chimpanzee skeleton (gift).

CHANCELLOR, PHILIP M., Hollywood, California: 3 natural color bird photographs (gift).

CHICAGO ZOOLOGICAL SOCIETY, Brookfield, Illinois: 32 mammals, 149 birds, 8 lizards, 27 snakes, 1 turtle—various localities (gift).

CHILDS, MRS. GEORGE W., Highland Park, Illinois: 1 butterfly—Ceylon (gift).

CHUTE, WALTER H., Chicago: 10 lizards—Bahama Islands (gift).

CLARK, PAUL, Homewood, Illinois: 1 broad-winged hawk—Homewood, Illinois (gift).

CLAWSON, DR. M. DON, Beirut, Syria: 1 spur-winged plover (gift).

COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colorado: 6 pika skins and 4 skulls—Colorado (gift).

CONANT, ROGER, Philadelphia, Pennsylvania: 12 water snakes—Lake Erie (exchange).

CONOVER, BOARDMAN, Chicago: 5 bird skins, 34 tinamou eggs—various localities (gift).

CRAIG, CAPTAIN JOHN D., Chicago: 2 clips of motion picture film of whale shark (gift).

CROSS, DR. J. C., Kingsville, Texas: 1 indigo snake—Kingsville, Texas (gift).

CUMMING, ALASTAIR GORDON, Blairs House, Altyre, Forres, Scotland: 1 peregrine falcon skin, 16 red grouse skins—Scotland (gift).

CURTIS, MISS ELIZABETH L., Seattle, Washington: 5 bird skeletons—Washington (gift).

DAVIS, C. E., Homewood, Illinois: 2 snakes—Lemont, Illinois (gift).

DAVIS, D. DWIGHT, Naperville, Illinois: 1 salamander, 8 snakes—Illinois (gift).

DEMARAY, DR. A. E., Washington, D.C.: 13 lizards, 14 snakes—Brewster County, Texas (gift).

DEMEL, DR. KAZIMIERZ, Hel, Poland: 21 crustaceans—Baltic Sea, Poland (gift).

DERONIYAGALA, P. E. P., Colombo, Ceylon: 9 snakes—Ceylon (gift).

DLUHY, EUGENE, Chicago: 1 beetle—Tennessee (gift).

DUBISCH, ROY, Chicago: 1 blue racer—Illinois (gift).

DUBOIS, ERNEST, Chicago: 1 frog—Illinois (gift).

DYBAS, HENRY, Chicago: 1 Fowler's toad, 80 insects—various localities (gift).

EMERSON, DR. ALFRED E., Chicago: 1 five-lined skink, 6 scorpions, spiders and millipedes—various localities (gift).

ERKER, JOHN, Chicago: 1 lynx skull—California (gift).

FIELD, DR. HENRY, Chicago: 14 mammals, 24 mammal skulls, 148 fishes, 1,587 insects, 163 scorpions and allies—Iraq; 11 mammals, 76 salamanders and larvae, 77 frogs and tadpoles, 5 snakes, 160 fishes—England; 6 marine fishes, 1 marine worm—Scotland (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by C. J. Albrecht (Field Museum Expedition to Pribilof Islands): 41 fur seals, 38 bird skins—Pribilof Islands.

Collected by E. R. Blake (Field Museum Expedition to British Guiana): 314 mammals, 746 bird skins, 28 birds in alcohol, 54 bird skeletons, 16 bird eggs, 131 frogs and toads, 105 lizards, 41 snakes, 6 turtles, 19 caimans, 668 fishes, 30 crustaceans—British Guiana.

Collected by Rudyerd and Laura Boulton (Straus West African Expedition): 931 insects—Nigeria, Africa.

Collected by A. Mazur: 1 wild boar skin and skull, 1 chamois skin and skeleton—Poland.

Collected by W. H. Osgood (Field Museum Expedition to Indo-China): 258 mammal skins and skulls, 25 mammal skins and skeletons, 62 mammals in alcohol, 49 bird skins, 1 set birds' eggs, 1 lot of bird group accessories, 18 frogs and toads, 52 lizards, 18 snakes, 50 fishes—French Indo-China.

Collected by Bryan Patterson and James J. Quinn (Field Museum Paleontological Expedition to Colorado, 1937): 19 mammal skeletons, 3 mammal skulls, 2 bats in alcohol, 36 bird skeletons, 2 lizards, 6 snakes, 1 frog skeleton, 1 lizard skeleton, 647 insects—Nebraska and Colorado.

Collected by Karl P. Schmidt, Leon L. Walters, and A. E. Borell (Field Museum Expedition to the Southwest): 14 bats in alcohol, 3 rodent skeletons, 2 hawk skins, 4 salamanders, 70 frogs and toads, 147 lizards, 45 snakes, 4 turtles, 17 molds, 8 boxes of accessory material, 6 fishes, 182 insects and allies, 1 crustacean—various localities.

Collected by Karl P. Schmidt and D. Dwight Davis (Field Museum Expedition to Texas): 58 mammal skins and skulls, 4 mammal skins and skeletons, 15 mammal skulls and skeletons, 14 bats in alcohol, 9 bird skeletons, 89 frogs, 89 lizards, 16 snakes, 1 turtle, 152 fishes, 149 insects and allies, 1 snail—Texas.

Collected by Alfred C. Weed and Leon L. Pray (Field Museum Expedition to Maine): 319 fishes, 200 lower invertebrates—Frenchman's Bay, Maine.

Transferred from Department of N. W. Harris Public School Extension: 4 bird skins—Chicago region (exchange).

Purchases: 1 dwarf squirrel skin and skeleton, 1 red forest hog skin and skull—Cameron, Africa; 191 bird skins—Angola, Africa (Emily Crane Chadbourne Fund); 1 lizard, 7 snakes—Colombia; 4 mammal skins and skulls, 1 mounted porcupine, 1 tapir skull, 8 vampire bats, 266 bird skins, 200 frogs, 28 snakes, 47 lizards—Ecuador; 1 mud snake, 7 terrapins—Florida; 2 snakes—San Pedro, Honduras; 1 Himalayan wild dog—India; 25 small mammals—Japan and Philippine Islands; 18 mammal skins and skulls—Manchukuo; 1 red wolf skin and skull—Paraguay; 9 mammal skins and skulls, 5 mammal skins and skeletons, 49 bird skins, 10 frogs, 3 lizards, 2 snakes—Tanganyika Territory; 484 skins of birds of prey, 25 other bird skins—various localities (Leslie Wheeler Fund); 5 tiger salamanders, 82 lizards, 19 snakes—various localities; 2 bird skins—Venezuela; 49 bats in alcohol—West Indies.

FRALEY, MORRILL, Naperville, Illinois: 1 spider—Naperville, Illinois (gift).

FRAZEN, ALBERT J., Chicago: 4 bird skeletons (gift).

FRIESSER, JULIUS, Chicago: 1 grizzly bear skull—British Columbia (gift).

FULMER, MRS. P. F., Aurora, Illinois: 1 flying squirrel—Illinois (gift).

GALBREATH, EDWIN C., Ashmore, Illinois: 1 pocket gopher skeleton, 4 fence lizards—San Diego, California (gift).

GAYLE, MRS. R. G., Rockford, Illinois: 1 spider—Rockford, Illinois (gift).

GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago: 2 conger eels—Florida; 1 beetle—Louisiana (gift).

GLATZ, EDWARD, Chicago: 1 camel cricket—Chicago (gift).

GRANT, GORDON, Los Angeles, California: 9 tree frogs, 389 insects—Los Angeles, California (gift).

GREGG, CLIFFORD C., Chicago: 31 insects—western United States (gift).

GUERNSEY, GUY, South Haven, Michigan: 1 golden-crowned kinglet—Michigan (gift).

HAAS, DR. GEORGE, Jerusalem, Palestine: 5 lizards, 5 snakes—Palestine (gift); 2 chameleons—Jerusalem, Palestine (exchange).

HALLS, J. C. and A. L. HOPKINS, Chicago: 3 bear skulls—Alaska (gift).

HARRISON, WILLIAM, Highland Park, Illinois: 1 red-tailed hawk—Highland Park, Illinois (gift).

HARTELIUS, BERTIL, Homewood, Illinois: 335 insects—Arkansas and Texas (gift).

HAYES, DR. HAROLD A., Hubbard Woods, Illinois: 1 flying squirrel—Hubbard Woods, Illinois (gift).

HERSHAW, GEORGE, Elgin, Illinois: 1 American bittern—Elgin, Illinois (gift).

HIGGINBOTHAM, A. C., Evanston, Illinois: 8 snakes—Evanston, Illinois (gift).

JENNINGS, JOHN F., Chicago: 9 mammal skulls—Matto Grosso, Brazil (gift).

JONES, MRS. G., Lake Forest, Illinois: 1 ovenbird—Lake Forest, Illinois (gift).

KAEMPFER, KARL, Bridgeport, Nebraska: 5 snakes, 1 turtle—Bridgeport, Nebraska; 72 insects—Garfield County, Colorado (gift).

KING, J. ANDREWS, Lake Forest, Illinois: 10 bird skins—Chile (gift).

KRAUSE, MISS ADELIN ROSE, Chicago: 1 hornless cow skull (gift).

KURODA, DR. NAGAMICHI, Akasaka, Tokyo, Japan: 15 bat skins with skulls—Japan, Korea, and Formosa (exchange).

LAYBOURNE, EDGAR G., Homewood, Illinois: 1 green snake—Thornton, Indiana (gift).

LEARNER, MICHAEL, New York: 1 blue marlin of record size—Bahama Islands (gift).

LETL, FRANK, Chicago: 1 mocking-bird skin—Sublette, Illinois (gift).

LINCOLN AVENUE SCHOOL, Highland Park, Illinois: 5 birds—Highland Park, Illinois (gift).

LINCOLN PARK ZOO, Chicago: 1 chimpanzee, 1 mandrill, 2 toads and frogs, 12 lizards, 27 snakes, 1 turtle—various localities (gift).

LINDAHL, J. C., Hot Springs, Arkansas: 1 salamander—Hot Springs, Arkansas (gift).

LINKELMAN, MRS. MARY, Chicago: 1 spider—Chicago (gift).

MANDEL, LEON, Chicago: 18 bird skins, 17 bird skeletons, 11 birds in alcohol, 1 tree frog, 1 iguana, 7 fishes, 195 invertebrates—West Indies (gift).

MARIA, BROTHER NICEFORO, Bogotá, Colombia: 7 snakes, 1 caiman—Colombia (gift).

MARTIN, DR. PAUL S., Chicago: 1 pair mule deer horns—Colorado (gift).

MCCLURE, H. ELLIOTT, Peru, Illinois: 6 northern wood-frogs—Manitoba, Canada (exchange).

MCNEIL, HENRY F., Chicago: 1 red bat—Chicago (gift).

MILLER, FRANK, Delavan, Wisconsin: 1 gray fox skeleton—Delavan, Wisconsin (gift).

MOONEY, JAMES J., Highland Park, Illinois: 1 weasel, 1 snake—Lake County, Illinois (gift).

MOYER, JOHN W., Chicago: 1 arctic horned owl—Minnesota (gift).

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Massachusetts: 23 bats, 13 frogs—various localities (exchange).

NATURHISTORISCHES MUSEUM, Basel, Switzerland: 2 salamanders, 18 frogs, 13 lizards, 1 snake—various localities (exchange).

NORRIS, PROFESSOR H. W., Grinnell, Iowa: 1 frilled shark (gift).

O'BYRNE, ERNEST, Greeley, Colorado: 1 garter snake—Colorado (gift).

PARK, ANDREW R., Evanston, Illinois: 10 parasitic wasps—various localities (gift).

PARK, DR. ORLANDO, Evanston, Illinois: 1 beetle—Palos Park, Illinois (gift).

PEARSON, DR. J. F. W., Coral Gables, Florida: 22 bats in alcohol—Bahama Islands (gift).

PFLUEGER, AL, Miami, Florida: 11 birds—Bahama Islands (gift).

PHILIPPI, R. A., Santiago, Chile: 5 bird skins—Chile (exchange).

PLATH, KARL, Chicago: 1 king rail—Fox Lake, Illinois (gift).

POLISH AMERICAN CHAMBER OF COMMERCE, Warsaw, Poland: 5 white stork skins, 1 white stork nest and accessories, 8 magpies—Poland; 1 crane skin (gift).

PRAY, LEON L., Homewood, Illinois: 1 moth—Homewood, Illinois (gift).

RICHTER, LEWIS E., Shumway, Illinois: 1 pseudoscorpion—Shumway, Illinois (gift).

ROSENBERG, W. F. H., Edgware, Middlesex, England: 25 bird skins—various localities (exchange).

RUECKERT, ARTHUR G., Chicago: 1 pileated woodpecker, 2 bird skeletons, 1 water moccasin—Florida (gift).

RYCKMAN, MRS. LAURA H., Kirkland, Washington: 1 skeleton of mountain beaver—Kirkland, Washington (gift).

SANBORN, COLIN C., Highland Park, Illinois: 1 snake—Highland Park, Illinois (gift).

SCHMIDT, JOHN M., Homewood, Illinois: 1 short-tailed shrew, 2 water snakes—Illinois (gift).

SCHMIDT, KARL P., Homewood, Illinois: 54 small mammal skins with 53 skulls—various localities; 2 bird skulls—New Guinea; 2 cicadas—Homewood, Illinois (gift).

SHEDD AQUARIUM, JOHN G., Chicago: 364 fishes—various localities (gift).

SHERWOOD PETROLEUM COMPANY, Brooklyn, New York: 8 roaches—Brooklyn, New York (gift).

SIVER, MRS. C., Chicago: 1 bird—Chicago (gift).

SLATER, J. R., Tacoma, Washington: 7 salamanders, 6 frogs—Oregon and Washington (gift).

SMITH, REV. FATHER CECIL A., Latrobe, Pennsylvania: 28 salamanders, 4 frogs, 8 snakes, 1 turtle—Pennsylvania (exchange).

SMITH, MRS. HERMON DUNLOP, Lake Forest, Illinois: 1 rough-legged hawk—Phoenix, Arizona; 1 barn-owl skin—Lake Forest, Illinois; 1 massasauga—Lake County, Illinois (gift).

SMITH, TARLETON, Waco, Texas: 3 fishes—Brewster County, Texas (gift).

SNYDER, DR. L. H., Seoul, Korea: 6 bat skins—Korea; 131 butterflies—Quelpart Island (exchange).

SODY, DR. H. J. V., Buitenzorg, Java: 109 mammal skins with skulls—Dutch East Indies (exchange).

STACJA MORSKA (MARINE STATION), Hel, Poland: 240 fishes—Hel, Poland (gift).

STEWART, SPENCER W. and ROBERT J. SYKES, New York: 21 photographs of whale shark (gift); 1 young whale shark skin—Acapulco, Mexico (gift).

STEYERMARK, DR. JULIAN A., Chicago: 1 grasshopper—Callaway County, Missouri (gift).

SWEET, SYDNEY, Bridgeport, Nebraska: 1 beaver skull—Bridgeport, Nebraska (gift).

TALLANT, W. M., Manatee, Florida: 1 duck skin—Florida (gift).

TANNER, DR. VASCO M., Provo, Utah: 1 gila monster—St. George, Utah (exchange).

TAYLOR, DR. EDWARD H., Lawrence, Kansas: 17 salamanders, 12 frogs—Mexico (exchange).

TEXAS COLLEGE OF ARTS AND INDUSTRIES, Kingsville, Texas: 115 salamanders, 205 frogs and toads, 288 lizards, 32 snakes—southern Texas (gift).

TIMM, ARTHUR H. W., Chicago: 1 tree frog (gift).

TOBIAS, EDWARD C., Chicago: 11 snakes—Chicago (gift).

TOKUDA, DR. MITOSI, Kyoto, Japan: 2 bats in alcohol—Formosa; 6 bats in alcohol—Marshall and Caroline Islands (exchange).

TRAYLOR, MELVIN, Chicago: 88 bird skins, 1 bird skeleton—Yucatan (gift).

UNDERWOOD, C. F., Tegucigalpa, Honduras: 81 bird skins—various localities (exchange).

UNITED STATES BUREAU OF ENTOMOLOGY, Washington, D.C.: 2 beetles—Alabama (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 2 shrews and squirrel skins and skulls—Asia (exchange).

UNITED STATES NATIONAL PARK SERVICE, Oklahoma City, Oklahoma: 36 frogs, 109 lizards, 34 snakes, 5 turtles—Brewster County, Texas (gift).

UNIVERSITY OF CHICAGO, Chicago: 1 head and photograph of ragfish—Queen Charlotte Island (gift).

UNIVERSITY OF MICHIGAN, MUSEUM OF ZOOLOGY, Ann Arbor, Michigan: 1 white-tailed deer, 26 frogs, 1 snake—various localities (exchange).

VINCENT, MRS. EDWARD E., Chicago: 6 mammal tusks, 1 seal bone (gift).

VON DER HEYDT, JAMES A., Oak Park, Illinois: 1 hoary bat—Oak Park, Illinois (gift).

WALTON, MRS. E., Highland Park, Illinois: 2 birds—Highland Park, Illinois (gift).

WEED, ALFRED C., Chicago: 353 fishes, 6 crayfish—Wayne County, New York; 3 beetles—Chicago (gift).

WEEKS, HERBERT E., Chicago: 1 tick—Chicago (gift).

WENCEL, DR. SHOLAR, Peru, Illinois: 1 chamois skin—Yugoslavia (gift).

WHEELER, LESLIE, Lake Forest, Illinois: 191 birds of prey—various localities (gift).

WILLIAMS, CONSTANCE, Chicago: 1 Siamese cat (gift).

WOLCOTT, ALBERT B., Downers Grove, Illinois: 18 insects—various localities (gift).

WOLFE, CAPTAIN L. R., Chicago: 1 yellow rail—Chicago; 1 loon skeleton—Ontario, Canada (gift).

ZOOLOGICAL SOCIETY OF LONDON, London, England: 5 hedgehogs in formalin—England (gift).

RAYMOND FOUNDATION—ACCESSIONS

ALBRECHT, C. J., Chicago: ½-reel 16-mm. film (purchase).

BURTON HOLMES FILMS, INC., Chicago: 1 reel 16-mm. sound film (purchase).

CHANCELLOR, PHILIP M., Hollywood, California: 3 natural color photographs (gift).

FIELD MUSEUM OF NATURAL HISTORY:
From Division of Photography: 521

lantern slides (miscellaneous subjects).

MITCHELL, CLARENCE B., Chicago:
1 portable stereopticon projector and
1 portable silver screen (gift).

DIVISION OF PHOTOGRAPHY—ACCESSIONS

FIELD MUSEUM OF NATURAL HISTORY:

Made by Division of Photography:
9,535 prints, 1,760 negatives, 561
lantern slides, 215 enlargements, 56
transparencies, and 48 transparent
labels.

Developed for expeditions: 102 nega-
tives.

Made by Paul S. Martin: 153 nega-
tives of landscapes and ruins of build-
ings, southwestern Colorado.

Made by James H. Quinn and Bryan

Patterson: 36 negatives of landscapes
in western Colorado.

Made by Elmer S. Riggs: 13 negatives
of landscapes and camp scenes in
Argentina.

Made by Llewelyn Williams: 500
negatives of landscapes and general
views in southern Mexico and on the
Isthmus of Tehuantepec.

QUINN, JAMES H., Chicago: 17
negatives of landscapes, western Colo-
rado (gift).

LIBRARY—ACCESSIONS

List of Donors of Books

INSTITUTIONS

Alaska, University of, College, Alaska.
American Chemical Industries, New
York.

American Chemical Society, New York.
American Red Cross, Washington, D.C.
American Trappers Association, Cedar
City, Utah.

Baltimore Museum of Art, Baltimore,
Maryland.

Canadian Historical Review, University
of Toronto, Canada.

Carbide and Carbon Chemicals Corpo-
ration, New York.

Carnegie Institution of Washington,
Washington, D.C.

Chemical Foundation, New York.

Chesapeake Biological Laboratory, Sol-
omon's Island, Maryland.

Chicago Jewelers Association, Chicago.
Chicago Principals' Club, Chicago.

China Institute in America, New York.

Consolidated Air Conditioning Corpo-
ration, New York.

Dominican Republic Legation, Wash-
ington, D.C.

East Michigan Tourist Association,
Bay City, Michigan.

Edison Institute Museum and Village,
Dearborn, Michigan.

Egyptian Agricultural Museum, Cairo,
Egypt.

General Biological Supply House,
Chicago.

Glycerine Producers' Association, New
York.

Gobierno de la Provincia de Buenos
Aires, La Plata, Argentina.

Hollandsche Molen, De, Amsterdam,
Netherlands.

Holyoke Museum of Natural History
and Art, Holyoke, Massachusetts.

Illinois Works Progress Administration,
Chicago.

Institut des Parcs Nationaux du Congo
Belge, Brussels, Belgium.

Institute of Oriental Ceramics, Tokyo,
Japan.

International Fisheries Commission,
Seattle, Washington.

Jesuit Fathers, Hongkong, China.

Knox College, Galesburg, Illinois.

Lilly, Eli, and Company, Indianapolis,
Indiana.

Mahogany Association, Chicago.

McCloud, W. B., and Company,
Chicago.

Ministero delle Colonie, Rome, Italy.

Minnesota Department of Education,
Minneapolis, Minnesota.

Municipal Reference Library, Chicago.

Museo Nacional, Lima, Peru.

- National Geographic Society, Washington, D.C.
Nature Notes, Peoria, Illinois.
 Nederlandsche Vereening tot Bescherming van Vogels, Amsterdam.
- Office du Tourisme Universitaire, Paris, France.
- Polytechnic Institute Research Bureau, Brooklyn, New York.
- Portuguese Legation, Washington, D.C.
- Public Museums, Liverpool, England.
- School of African Studies, Cape Town, Union of South Africa.
Science Digest, Chicago.
- Siamese Legation, Washington, D.C.
- Socony-Vacuum Oil Company, New York.
- Swift and Company, Chicago.
- Turk Tarih Kurumu, Ankara, Turkey.
- United Brewers Industrial Foundation, New York.
- Vanadium Corporation of America, New York.
- Vaughan's Seed Store, Chicago.
- Washington (State) Chamber of Mines, Seattle, Washington.
- Wilderness Society, Washington, D.C.
- Works Progress Administration, Washington, D.C.

INDIVIDUALS

- Adam, Dr. Leonhard, Berlin, Germany.
- Aldrich, J. Warren, Cleveland, Ohio.
- Aparico, Francisco de, Buenos Aires, Argentina.
- Beaumont, Jacques de, Lausanne, Switzerland.
- Bergsøe, Paul, Copenhagen, Denmark.
- Borgstrom, L. H., Helsingfors, Finland.
- Bourret, René, Hanoi, French Indo-China.
- Bowler-Kelley, Alice, Philadelphia, Pennsylvania.
- Brandstetter, Dr. Renward, Lucerne, Switzerland.
- Brimley, H. H., Raleigh, North Carolina.
- Bucher, Walter H., Cincinnati, Ohio.
- Bullock, Dillman S.
- Burkhart, Arturo, San Isidro, Buenos Aires, Argentina.
- Cailleux, André, Paris, France.
- Carpenter, C. R., San Diego, California.
- Cheynier, Dr. André, Terrasson, Dordogne, France.
- Chikashige, Masumi, Kyoto, Japan.
- Christensen, Carl, Copenhagen, Denmark.
- Church, Dr. Franklin H., Salem, New Jersey.
- Coleman, A. P., Toronto, Canada.
- Conover, H. Boardman, Chicago.
- Core, Earl Lemley, Morgantown, West Virginia.
- Cornell, Margaret M., Chicago.
- Correll, Donovan S., Durham, North Carolina.
- Dahlgren, Dr. B. E., Chicago.
- Darrow, Bertha Schweitzer, Tucson, Arizona.
- Davis, D. Dwight, Chicago.
- Ellsworth, Lincoln, New York.
- Emerson, Dr. Alfred E., Chicago.
- Ewan, J., Chicago.
- Field, Dr. Henry, Chicago.
- Field, Stanley, Chicago.
- Fischer, Emil S., Tientsin, China.
- Fosberg, F. Raymond, Honolulu, Hawaii.
- Francis, W. D., Brisbane, Australia.
- Furlong, Eustace L., Pasadena, California.
- Gaskin, L. J. P., London, England.
- Gates, William, Baltimore, Maryland.
- Gerhard, W. J., Chicago.
- Goodwin, Astley J. H., Cape Town, Union of South Africa.
- Grandi, Guido, Bologna, Italy.
- Grandjot, Gertrud and Dr. Karl, Santiago, Chile.
- Grassl, Carl O., Ann Arbor, Michigan.
- Gregg, Clifford C., Chicago.
- Haase, Leo G., Hollywood, California.
- Hasbrouck, Colonel Alfred, Washington, D.C.
- Hermanson, Helen M., Chicago.
- Hodge, Gene Meany, Pasadena, California.
- Hoehne, F. C., São Paulo, Brazil.
- Howell, Dr. Benjamin F., Princeton, New Jersey.

- Humphreys-Davies, Captain G., Auckland, New Zealand.
 Husain, M. Afzal, Delhi, India.
- Jaarsma, S., Soerabaja, Java.
 Jones, G. Neville, Seattle, Washington.
 Jones, Dr. Howard, Circleville, Ohio.
- Kelly, Howard A., Baltimore, Maryland.
 Kinsey, Alfred C., Bloomington, Indiana.
 Kluge, Dr. Theodor, Berlin, Germany.
 Kostermans, A. J. G. H., Utrecht, Netherlands.
 Kostrzewski, Dr. Josef, Poznan, Poland.
- Lam, Dr. H. J., Leiden, Netherlands.
 Langlois, T. H., Columbus, Ohio.
 Lehman, Jean-Pierre, Paris, France.
 Lewis, Dr. Albert B., Chicago.
 Lindblom, Gerhard, Stockholm, Sweden.
 Lines, Jorge A., San José, Costa Rica.
 Loukaskin, A. S., Harbin, Manchukuo.
- MacDonagh, Emiliano J., Buenos Aires, Argentina.
 McNair, James B., Los Angeles, California.
 Marelli, Carlos A., La Plata, Argentina.
 Marquina, Ignacio, Mexico City, Mexico.
 Marshall, Robert, Washington, D.C.
 Maycock, R. W., San Juan, Porto Rico.
 Mazur, Anthony, Chicago.
 Mertens, Robert, Frankfort, Germany.
 Moore, Robert T., Pasadena, California.
 Murray-Aaron, Dr. Eugene, Chicago.
- Nicholson, Donald J., Orlando, Florida.
 Nininger, H. H., Denver, Colorado.
- O'Connor, P., Dublin, Ireland.
 Okada, Yaichiro, Tokyo, Japan.
 Olbrechts, Dr. F. M., Ghent, Belgium.
- Patterson, Bryan, Chicago.
 Penfound, William T., New Orleans, Louisiana.
 Pope, Clifford H., New York.
 Poulter, Dr. Thomas C., Chicago.
- Ramos, Cesar Lizardi, Mexico City, Mexico.
 Rehder, Alfred, Jamaica Plain, Massachusetts.
 Riggs, Elmer S., Chicago.
 Roy, Sharat K., Chicago.
- Sabrosky, Curtis W., East Lansing, Michigan.
 Sampaio, A. J., Rio de Janeiro, Brazil.
 Sanborn, Colin C., Chicago.
 Sanderson, Ivan T., New York.
 Schapera, I., Cape Town, Union of South Africa.
 Schmidt, Karl P., Chicago.
 Scholes, France V., Cambridge, Massachusetts.
 Schoute, J. C., Amsterdam, Netherlands.
 Schweinfurth, C., Cambridge, Massachusetts.
 SeEVERS, Dr. Charles S., Chicago.
 Sellards, Dr. E. H., Austin, Texas.
 Sherff, Dr. E. E., Chicago.
 Shrock, Robert R., Madison, Wisconsin.
 Shue, George L., Butte, Montana.
 Silveira, Alvaro A. da, Bello Horizonte, Brazil.
 Simms, Stephen C., Chicago.
 Smith, Benjamin K., Chicago.
 Smith, Mrs. George T., Estate of, Chicago.
 Snyder, L. H., Songdo, Korea.
 Snyder, Lester L., Toronto, Canada.
 Stahl, Gustav, Berlin, Germany.
 Standley, Paul C., Chicago.
 Stearn, William T., London, England.
 Stillwell, Jerry E., Dallas, Texas.
 Strong, Dr. R. M., Chicago.
 Sushko, Dr. Alexander, Chicago.
- Taylor, Walter P., Washington, D.C.
 Tello, Julio C., Lima, Peru.
 Thomas, Mrs. Michael J., Evanston, Illinois.
 Thompson, J. Eric, Cambridge, Massachusetts.
 Thomsen, Th., Copenhagen, Denmark.
 Tucker, Ethelyn M., Jamaica Plain, Massachusetts.
- Vignati, Milciades Alejo, La Plata, Argentina.
- Ward, Father J. S. M., New Barnet, Herts, England.
 Wernet, Paul, Strasbourg, Germany.
 Wilbur, C. Martin, Chicago.
 Wilbur, Ray Lyman, Stanford University, California.
 Witte, Gaston F., Brussels, Belgium.
 Wolcott, A. B., Chicago.
- Zerbey, Dorothea, Wilkes-Barre, Pennsylvania.

ARTICLES OF INCORPORATION

STATE OF ILLINOIS

DEPARTMENT OF STATE

WILLIAM H. HINRICHSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A.D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSEN,
Secretary of State.

[SEAL]

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archaeology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Edward E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed)

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McCurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaatt, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers,

270 FIELD MUSEUM OF NATURAL HISTORY—REPORTS, VOL. XI

Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, Geo. F. Bissell, John R. Walsh, Chas. Fitzsimmons, John A. Roche, E. B. McCagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Sooy Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Eliphalet W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS }
COOK COUNTY } ss.

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,

[SEAL]

NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 3

Pursuant to a resolution passed at a meeting of the corporate members held the 10th day of May, 1920, the management of FIELD MUSEUM OF NATURAL HISTORY shall be invested in a Board of TWENTY-ONE (21) TRUSTEES, who shall be elected in such manner and for such time and term of office as may be provided for by the By-Laws. A certificate to this effect was filed May 21, 1920, in the office of the Secretary of State for Illinois.

AMENDED BY-LAWS

DECEMBER, 1937

ARTICLE I

MEMBERS

SECTION 1. Members shall be of twelve classes, Corporate Members, Honorary Members, Patrons, Corresponding Members, Benefactors, Contributors, Life Members, Non-Resident Life Members, Associate Members, Patrons or Associate Members, Sustaining Members, and Annual Members.

SECTION 2. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such person named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of Twenty Dollars (\$20.00) or more. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SECTION 3. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

SECTION 4. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SECTION 5. Any person contributing or devising the sum of One Hundred Thousand Dollars (\$100,000.00) in cash, or securities, or property to the funds of the Museum, may be elected a Benefactor of the Museum.

SECTION 6. Corresponding Members shall be chosen by the Board from among scientists or patrons of science residing in foreign countries, who render important service to the Museum. They shall be elected by the Board of Trustees at any of its meetings. They shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 7. Any person contributing to the Museum One Thousand Dollars (\$1,000.00) or more in cash, securities, or material, may be elected a Contributor of the Museum. Contributors shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 8. Any person paying into the treasury the sum of Five Hundred Dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Life Member. Non-Resident Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees.

SECTION 9. Any person paying into the treasury of the Museum the sum of One Hundred Dollars (\$100.00), at any one time, shall, upon the unanimous vote of the Board, become an Associate Member. Associate Members shall be exempt from all dues, and shall be entitled to tickets admitting Member and members of family, including non-resident home guests; all publications of the Museum, if so desired; reserved seats for all lectures and entertainments under the auspices

of the Museum, provided reservation is requested in advance; and admission of holder of membership and accompanying party to all special exhibits and Museum functions day or evening. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of Fifty Dollars (\$50.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Associate Member. Non-Resident Associate Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to Associate Members.

SECTION 10. Sustaining Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Twenty-five Dollars (\$25.00), payable within thirty days after notice of election and within thirty days after each recurring annual date. This Sustaining Membership entitles the member to free admission for the Member and family to the Museum on any day, the Annual Report and such other Museum documents or publications as may be requested in writing. When a Sustaining Member has paid the annual fee of \$25.00 for six years, such Member shall be entitled to become an Associate Member.

SECTION 11. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Ten Dollars (\$10.00), payable within thirty days after each recurring annual date. An Annual Membership shall entitle the Member to a card of admission for the Member and family during all hours when the Museum is open to the public, and free admission for the Member and family to all Museum lectures or entertainments. This membership will also entitle the holder to the courtesies of the membership privileges of every Museum of note in the United States and Canada, so long as the existing system of cooperative interchange of membership tickets shall be maintained, including tickets for any lectures given under the auspices of any of the Museums during a visit to the cities in which the cooperative museums are located.

SECTION 12. All membership fees, excepting Sustaining and Annual, shall hereafter be applied to a permanent Membership Endowment Fund, the interest only of which shall be applied for the use of the Museum as the Board of Trustees may order.

ARTICLE II

BOARD OF TRUSTEES

SECTION 1. The Board of Trustees shall consist of twenty-one members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting of the Board, by a majority vote of the members of the Board present.

SECTION 2. Regular meetings of the Board shall be held on the third Monday of the month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SECTION 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III

HONORARY TRUSTEES

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, any Trustee who by reason of inability, on account of change of residence, or for other cause or from indisposition to serve longer in such capacity shall resign his place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees,

whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV

OFFICERS

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, the Second Vice-President, and the Third Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the third Monday of January of each year, and shall be called the Annual Meeting.

SECTION 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SECTION 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V

THE TREASURER

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

SECTION 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: the President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SECTION 3. The Treasurer shall give bond in such amount, and with such sureties as shall be approved by the Board of Trustees.

SECTION 4. The Harris Trust & Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

ARTICLE VI

THE DIRECTOR

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the Institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SECTION 2. There shall be four scientific Departments of the Museum—Anthropology, Botany, Geology, and Zoology; each under the charge of a Chief

Curator, subject to the authority of the Director. The Chief Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific Departments shall be appointed and removed by the Director upon the recommendation of the Chief Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SECTION 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the Board may direct.

ARTICLE VII

THE AUDITOR

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all bills rendered for the expenditure of the money of the Corporation.

ARTICLE VIII

COMMITTEES

SECTION 1. There shall be five Committees, as follows: Finance, Building, Auditing, Pension, and Executive.

SECTION 2. The Finance Committee shall consist of five members, the Auditing and Pension Committees shall each consist of three members, and the Building Committee shall consist of five members. All members of these four Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SECTION 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee, the Chairman of the Auditing Committee, the Chairman of the Pension Committee, and three other members of the Board to be elected by ballot at the Annual Meeting.

SECTION 4. Four members shall constitute a quorum of the Executive Committee, and in all standing Committees two members shall constitute a quorum. In the event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any members of the Board of Trustees to act in place of the absentee.

SECTION 5. The Finance Committee shall have supervision of investing the endowment and other permanent funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to invest, sell, and reinvest funds, subject to the approval of the Board.

SECTION 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SECTION 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of

each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the expenditures stated are authorized.

SECTION 8. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SECTION 9. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SECTION 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SECTION 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX

NOMINATING COMMITTEE

SECTION 1. At the November meeting of the Board each year, a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Auditing Committee, and the Pension Committee, and for three members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

ARTICLE X

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SECTION 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.

FOUNDER

Marshall Field*

BENEFACTORS

Those who have contributed \$100,000 or more to the Museum

Ayer, Edward E.*	Harris, Albert W.	Raymond, James Nelson*
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 Coonley, Prentiss L.
 Cooper, Samuel
 Copland, David
 Corbett, Mrs. William J.
 Cormack, Charles V.
 Cornell, John E.
 Cosford, Thomas H.
 Coston, James E.
 Cowan, Mrs. Grace L.
 Cox, Mrs. Howard M.
 Cox, James A.
 Cox, James C.
 Cox, Mrs. Rensselaer W.
 Crane, Charles R., II
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 Crerar, Mrs. John
 Crilly, Edgar
 Cromer, Clarence E.
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 Cross, Henry H.
 Crowder, Dr. Thomas R.
 Cubbins, Dr. William R.
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 Mark
 Cuneo, John F.
 Cunningham, John T.
 Curran, Harry R.
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 Guthrie, Jr.
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 Curtis, Miss Frances H.
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 Cushman, Barney
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 Daley, Harry C.
 Dammann, J. F.
 Danforth, Dr. William C.
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 Davey, Mrs. Bruce C.
 David, Dr. Vernon C.
 Davidonis, Dr.
 Alexander L.
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 Davis, Arthur
 Davis, Brode B.
 Davis, C. S.
 Davis, Dr. Carl B.
 Davis, Frank S.
 Davis, Fred M.
 Davis, James
 Davis, Dr. Loyal
 Davis, Dr. Nathan
 S., III
 Davis, Ralph
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 Deahl, Uriah S.
 Decker, Charles O.
 DeCosta, Lewis M.
 DeDardel, Carl O.
 Dee, Thomas J.
 Deery, Thomas A., Jr.
 Degen, David
 DeGolyer, Robert S.
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 DeLemon, H. R.
 Deming, Everett G.
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 Deneen, Mrs. Charles S.
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 Porter
 Denkewalter, W. E.
 Denman, Mrs. Burt J.
 Dennehy, Thomas C.
 Dennis, Charles H.
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 DeVries, Peter
 Dewes, Rudolph Peter
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 Dick, Elmer J.
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 Dickinson, Robert B.
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 Woodbridge
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- Dillon, Miss Hester
 May
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 Duner, Joseph A.
 Dunham, John H.
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 Dunham, Robert J.
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 Dupee, Mrs. F. Kennett
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 Eckhart, Percy B.
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 Eisendrath, Robert M.
 Eisendrath, William B.

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 Hardinge, Franklin
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 Heberlein, Miss
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 Heinzelman, Karl
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 Heldmaier, Miss Marie
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 Heller, John A.
 Heller, Mrs. Walter E.
 Hellman, George A.
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 Henry, Huntington B.
 Henry, Otto
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 Herrick, Walter D.
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 Herron, Mrs. Ollie L.
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 Hirsch, Jacob H.
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 Hoffmann, Miss Caroline
 Dickinson
 Hoffmann, Edward
 Hempstead
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 Hoier, William V.
 Holden, Edward A.
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 Hollingsworth, R. G.
 Hollis, Henry L.
 Hollister, Francis H.
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 Holmes, Miss Harriet F.
 Holmes, Mrs. Maud G.
 Holmes, William
 Holmes, William N.
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 Hoover, H. Earl
 Hoover, Ray P.
 Hope, Alfred S.
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 Hopkins, Mrs. James M.
 Hopkins, John L.
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 Horcher, William W.
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 Horner, Mrs. Maurice
 L., Jr.
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 Horton, George T.
 Horton, Hiram T.
 Horton, Horace B.
 Hosbein, Louis H.
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 Howard, Willis G.
 Howe, Charles Arthur
 Howe, Clinton W.
 Howe, Mrs. Pierce
 Lyman
 Howe, Warren D.
 Howe, William G.
 Howell, Albert S.
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- Hubbard, George W.
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 Hughes, George A.
 Hughes, John E.
 Hughes, John W.
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 Hume, John T.
 Humphrey, H. K.
 Huncke, Herbert S.
 Huncke, Oswald W.
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 Hurley, Edward N., Jr.
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 Huszagh, Ralph D.
 Hutchinson, Foye P.
 Hutchinson, Samuel S.
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- Ickes, Raymond
 Idelman, Bernard
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- Jackson, Allan
 Jackson, Archer L.
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 Jacobs, Hyman A.
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 Jacobs, Louis G.
 Jacobs, Walter H.
 Jacobs, Whipple
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 Jenkinson, Mrs. Arthur Gilbert
- Jenks, William Shippen
 Jennings, Ode D.
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 Johnson, Mrs. Harley Alden
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 Johnson, Nels E.
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 Junkunc, Stephen
- Kaercher, A. W.
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FOR THE YEAR 1938



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FIELD MUSEUM OF NATURAL HISTORY
VOLUME XI, NUMBER 3
JANUARY, 1939

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* RESIGNED, 1938

† DECEASED, 1938

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* RESIGNED, 1938

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* RESIGNED, 1938

‡ DECEASED, 1938

WILLIAM J. CHALMERS
July 10, 1852—December 10, 1938
Elected a Trustee January 22, 1894

With a sense of acute loss, the Trustees of Field Museum of Natural History sorrowfully record the death of their colleague, William J. Chalmers.

Mr. Chalmers, who died on December 10, 1938, in his eighty-seventh year, had served ably on the Board of Trustees since 1894, shortly after the founding of the Museum. His counsel and guidance greatly stimulated the progress of the Museum over the years. Especially valuable was his advice during the long period of planning the edifice which now houses the institution. He was chosen as a member of the Building Committee concurrently with his election as a Trustee, and for many years, until the time of his death, remained as chairman of that important committee, whose work assured this institution of a permanent and monumental structure providing ideal accommodations for scientific exhibits, and suitable quarters for the research activities of the scientific staff. After the building's completion, Mr. Chalmers and his Committee continued to function as advisors on maintenance and improvements.

Mr. Chalmers was a member also of the Executive Committee of the Trustees, in which capacity his voice was heard in all the most important decisions concerned with the welfare of the Museum as a whole.

In recognition of eminent service to Science, Mr. Chalmers was elected an Honorary Member of the Museum, and his name was placed high on the roll of the Museum's Contributors because of generous gifts he made to the institution. He was, further, a Corporate Member and a Life Member.

In the Museum's Department of Geology, Mr. Chalmers founded a noteworthy series of exhibits which his fellow Trustees designated as the William J. Chalmers Crystal Collection. By means of the carefully selected mineral specimens of unusual excellence which he contributed, this collection illustrates the most important phases of crystallography, and provides material of immense educational value which has been used to great advantage by countless students and teachers. Year after year, Mr. Chalmers made additional gifts to expand and improve this collection. He made outstanding

contributions also to the general mineral collection, the gem collection, and the vertebrate fossil collection.

Mr. Chalmers, a native of Chicago, rose to a prominent place in the city's business life, but in recent years had retired from active direction of the enterprises with which he was associated. Always keenly interested in civic affairs, he was a director of the World's Columbian Exposition of 1893, and a member of the Chicago school board under Mayor Washburne. He also served on the track elevation commission which made possible the elevation of the Illinois Central Railroad in 1892. During the World War, he directed campaigns to obtain relief funds for Belgian children, and contributed lavishly to this cause from his own funds. The Belgian Government recognized his humanitarian efforts with one of its highest decorations. He was equally active in promoting children's welfare and other charities at home, and he was quietly and anonymously the author of many private benefactions.

Until recent years, when ill health made it impossible for Mr. Chalmers to continue active participation in the deliberations of the Board of Trustees, his presence at meetings was the source of many ideas important to the development of this institution. He was greatly admired by his fellow Trustees, who, apart from the business of the Board, enjoyed deeply association with a man of such great personal charm.

Therefore, be it resolved that this expression of our esteem for Mr. Chalmers, and our grief at his passing, be permanently preserved on the records of the Board;

And be it further resolved that our deep sympathy be conveyed to the members of his family in their bereavement, and that a copy of this resolution be sent to his widow.

CLIFFORD C. GREGG, Secretary
December 19, 1938

STANLEY FIELD, President



EXCAVATION IN COLORADO

Portion of a large Basket Maker village, dated A.D. 760

Uncovered by the Field Museum Archaeological Expedition to Southwestern Colorado, 1938

ANNUAL REPORT OF THE DIRECTOR

1938

To the Trustees of Field Museum of Natural History:

I have the honor to present a report of the operations of the Museum for the year ending December 31, 1938.

During the course of the year 1,391,580 visitors passed through the doors of Field Museum, this splendid total representing an increase of almost 100,000 over the previous year's attendance. Despite this gain, receipts from paid admissions fell off \$780, the percentage of paying visitors being only 6.6 per cent of the total as compared with 7.3 per cent during the preceding year. These figures show that financial support of the institution is not in direct proportion to its usefulness, but is affected directly and immediately by general business conditions and public confidence.

It should be noted that the educational influence of the Museum is not confined to the number of visitors actually received in the building. Extra-mural activities, such as those conducted among school children by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, and the N. W. Harris Public School Extension, reached hundreds of thousands of others, bringing the total number of persons directly within the sphere of the Museum's influence to more than 2,000,000. These additional contacts include 182,608 children reached through lecturers sent into the schools by the Raymond Foundation, and approximately 500,000 children repeatedly reached by the 1,200 traveling exhibits circulated in the schools by the Harris Extension. Indirectly, through newspaper publicity, *Field Museum News*, Museum publications and leaflets, radio programs, motion picture newsreels, and other such media, additional numbers, of incalculable but obviously immense proportions, are made aware of Museum activities, and are brought scientific information.

Included in the Museum attendance figures are the audiences, aggregating more than 50,000 persons, attracted by the spring and autumn courses of free illustrated lectures for adults, and the Raymond Foundation series (spring, summer and autumn) of free motion pictures for children, which were presented in the James Simpson Theatre. Likewise included are more than 48,000 children and adults who were conducted on guide-lecture tours of the exhibits.

The attendance figures were increased also by persons who participated in the lecture tours conducted by Mr. Paul G. Dallwig, a Member of the Museum who joined the staff in 1937 as a volunteer worker with the title of The Layman Lecturer. Mr. Dallwig conducts parties of Museum visitors on special lecture tours on Sunday afternoons during eight months in the winter, spring, and autumn. In 1938 this notable service was extended to thirty-four such groups aggregating 2,741 persons. There were several hundred more applicants than could be accommodated, as parties were necessarily limited to a size practical for handling. A full report on Mr. Dallwig's unique contribution to Museum activities will be found elsewhere in this book.

It is worthy of note that during the months of March, April, October, and November, with the Raymond Foundation's Saturday motion picture programs for children, the Saturday afternoon lectures for adults in the James Simpson Theatre, the Sunday afternoon lecture tours conducted by Mr. Dallwig, and the guide-lecture tours conducted on week-days by the Museum staff, there were special events for Museum visitors every day. Even during the other eight months, there were some special activities of this sort being conducted almost daily.

The Museum continued to exert every effort to provide educational service requested by groups, either of children or adults. Once again, large parties of farm boys and girls from forty-four states, and Canada and Hawaii, were brought to the Museum during the International Live Stock Exposition held at the Union Stock Yards in Chicago during December. There were 1,585 in these groups—626 girls and 959 boys—several hundred more than in the similar groups of the previous year. They came under the auspices of the National Four-H Club Congress. The entire staff of the James Nelson and Anna Louise Raymond Foundation was assigned to conducting them on guide-lecture tours of Museum exhibits. In addition to these groups, the Museum received hundreds of individual visitors, both adults and youths, who were in Chicago because of the live stock show.

In 1938, as in 1937, the Raymond Foundation co-operated with the Public School Broadcasting Council in presenting programs supplementing science features on the radio. Special mimeographed material was prepared for use by boys and girls sent to the Museum as representatives of their schools, and special exhibits and lectures were arranged for them.

A program of expansion, including several educational innovations, was undertaken by the N. W. Harris Public School Extension of the Museum. While the new activities are still in the experimental stage, enough evidence was obtained to indicate that the new services would fulfill real needs in the schools. The Harris Extension received many letters from school authorities, teachers, principals, and the children themselves lauding the work already in full operation as developed in the twenty-five years since this Department was inaugurated.

The Library of the Museum continued to give valuable service not only to members of the Museum staff and scientists in general, but to students in various educational institutions in Chicago and vicinity, and to the public in general. The fact that the Museum Library is available to the public is gradually becoming better known, with a resultant increase in its use. There were 2,510 readers from outside accommodated during 1938, or about one-third more than in the preceding year. The books and pamphlets on the shelves were increased to a total of approximately 114,000 volumes.

Teachers, students, and others engaged in research work of various types, again found much valuable assistance in the reference material collections maintained for this purpose in each of the scientific Departments of the Museum. Members of the staff co-operated in every way with these researchers to assure their obtaining the full benefits of the study collections.

Due to an ever-increasing demand on the part of the public for authoritative books on the sciences within the scope of the Museum, a Field Museum Book Shop was established. Each book offered for sale is first approved by the member of the scientific staff best qualified to deal with its particular subject matter. The approved list at the close of the year included 180 titles. In order that the Book Shop might offer maximum service to the general public, a special room was built for it at the north entrance of the building, where it is easily accessible to visitors. An index to the quick acceptance of this new service is found in the fact that the volume of business done was considerably in excess of expectations.

The Museum suffered a severe loss in the death, on December 10, of Mr. William J. Chalmers, who had ably served as a member of the Board of Trustees since 1894, shortly after the founding of the institution. Mr. Chalmers was Chairman of the Building Committee, and a member of the Executive Committee of the Trustees. He was also an Honorary Member, a Corporate Member, and a Life

Member of the Museum, and his generous gifts to the institution placed his name high on the roll of the Museum's Contributors (a membership classification including those whose gifts in money or materials reach a value between \$1,000 and \$100,000). A resolution of the Trustees, in tribute to Mr. Chalmers, will be found in pages of this book preceding the Report proper.

Also noted with regret is the death, on February 25, of Mr. Henry Jay Patten, who was an advisor, supporter, and friend of institutions and researchers working in the field of Near Eastern archaeology. A Life Member of Field Museum, he contributed some of the Coptic textiles in the Egyptian hall, as well as cuneiform tablets from ancient Mesopotamia (now Iraq). He was the donor also of funds to enable the Field Museum-Oxford University Joint Expedition to Mesopotamia to continue excavations during 1928 at the site of Jemdet Nasr, near Kish, and to cover the expenses involved in publishing the Kish Sasanian sculptures in a book entitled *A Survey of Persian Art*. In recognition of his generous gifts, the Trustees elected Mr. Patten some years ago to the membership classification designated as Contributors.

The death, on December 4, of Mr. Frederick Blaschke, noted sculptor of Cold Spring-on-Hudson, New York, came as a profound shock to members of the scientific and administrative staff of Field Museum, with whom he had been associated for a number of years. Mr. Blaschke was the creator of the restorations of various types of prehistoric man in the Hall of the Stone Age of the Old World, and of extinct mammals in Ernest R. Graham Hall, which is devoted to the collections of fossil animals and plants. This work ranked among his most important accomplishments, and won him great acclaim for its excellence. A gift to the Museum, made a few years ago by Mr. Blaschke in the name of his infant son, Stanley Field Blaschke, resulted in the inclusion of the latter on the list of the institution's Contributors.

In 1938 four names were added to the list of Contributors. They are: Mr. Sewell L. Avery, of Chicago; Mrs. Leslie Wheeler, of Lake Forest, Illinois; and Mrs. Edith Almy Adams, and Miss Clara A. Avery, both of Chicago (Mrs. Adams and Miss Avery were posthumously elected). Mr. Avery furnished funds during 1938 for the carrying on of four important expeditions: a zoological expedition to British Guiana, botanical expeditions to the Bay of Fundy and to Guatemala, and a geological expedition to western and eastern regions of the United States. Mrs. Wheeler has gener-

ously contributed sums for the support and expansion of the Museum's collection of birds of prey which was built up by her late husband, who had been a Trustee of the institution, and Research Associate in Ornithology on the Museum staff. Mrs. Adams left a bequest to the Museum amounting to more than \$30,000 in value. Miss Avery also generously bequeathed funds to the Museum.

Mr. Charles A. McCulloch, of Chicago, was elected a Life Member of the Museum in 1938. He is a member of the Board of Trustees.

A list of Members in all classes will be found beginning on page 446 of this Report. The total number of memberships on December 31 was 4,122 as compared with 4,266 on the same date in 1937. It is hoped that the small loss may be more than recovered during 1939. Appreciation is due to all those who have continued their support of the Museum by retaining their memberships.

As a memorial to the late Richard T. Crane, Jr., Benefactor of the Museum, and former member of the Board of Trustees, a resolution to name Hall 16 (the Hall of American Mammal Habitat Groups) "Richard T. Crane Jr. Hall" was adopted by the Trustees at their Annual Meeting held January 17. This action was taken in recognition of the deep interest Mr. Crane manifested in the Museum's work for more than twenty-five years, the many important services he rendered the institution, and his generous contributions.

At the same meeting, the Trustees re-elected for 1938 all Officers of the Museum who had served in 1937. Mr. Stanley Field thus began his thirtieth year as President, having held that office continuously since 1909. The other re-elected Officers are: Colonel Albert A. Sprague, First Vice-President; Mr. James Simpson, Second Vice-President; Mr. Albert W. Harris, Third Vice-President; Mr. Clifford C. Gregg, Director and Secretary; and Mr. Solomon A. Smith, Treasurer and Assistant Secretary. Also, at this meeting, the resignation from the Board of Trustees of Mr. John Borden, for personal reasons, was accepted with regret.

At a meeting held May 23, the Trustees elected Colonel Theodore Roosevelt, of New York, to the Board. Colonel Roosevelt's interest in and association with the Museum dates back to 1925 when, with Mr. Kermit Roosevelt, he led the James Simpson-Roosevelts Asiatic Expedition of Field Museum. In 1928 Colonel Roosevelt and his brother again collected for the Museum, as co-leaders of the William V. Kelley-Roosevelts Expedition to Eastern Asia. Both of these

expeditions obtained magnificent collections of mammals, many of which are now exhibited in habitat groups and also as single mounts. Outstanding among these are the groups of Marco Polo's sheep (*Ovis poli*), Asiatic ibex, and giant panda.

At a meeting of the Board of Trustees, held November 21, an amendment was made to Section 2 of Article VIII of the By-Laws, increasing the number of members of the Finance Committee from five to six. Certain other minor amendments were made in the wording of Sections 9 and 10 of Article I.

Many new exhibits were installed in all Departments of the Museum during 1938, and a number of exhibits already on display were reinstalled and improved. In each of the departmental reports in this book will be found details concerning the additions and reinstallations; consequently, only brief reference will be made here to a few of the more important ones.

In the Department of Anthropology the most noteworthy new exhibits are those in Hall L. This hall, installation of which was completed during the year, is devoted to Asiatic ethnology exclusive of China and Tibet. It contains many objects no longer to be found in their places of origin, due to the changes wrought by the influence of different civilizations. Included is material representing the arts, industries, warfare, and social and religious life of India, Burma, Ceylon, Siam, Korea, Siberia, and the island of Yezo (Hokkaido) in northern Japan where dwell the last remnants of that mysterious race known as the Ainu. In George T. and Frances Gaylord Smith Hall (Hall 24) notable additions were made to the exhibits of Chinese ceramics as a result of material received in the bequest of Mrs. George T. Smith, from whose private collections the Museum's series of jades in Hall 30 had been so greatly augmented in 1937.

To the Department of Botany was added the largest and most striking exhibit thus far attempted in that Department—a habitat group of Rocky Mountain alpine plants installed in a built-in case at the north end of the Hall of Plant Life (Hall 29). This diorama shows, against a background representing the snow-covered peaks of the Medicine Bow range in Wyoming, the curious profusion of flowers found growing under arctic-alpine conditions. Other new exhibits in this Department are: a reproduction of the bee-swarm orchid as it grows high on the trunks of trees in Central and South America, installed in the Hall of Plant Life; and a reproduction of

the fruit and fruiting stem of a feather-leaved nipa palm which grows in the Oriental tropics, added to Hall 25.

Additions to Clarence Buckingham Hall (Hall 35) in the Department of Geology include important specimens illustrating metamorphism of the earth's surface rocks, collected by expeditions conducted during the past several years by Mr. Sharat K. Roy, Curator of Geology; and fossil imprints of raindrops in sedimentary rocks, estimated to be 250,000,000 years old, collected by Mr. Roy while conducting the Sewell Avery Geological Expedition of 1938. In Hall 34 there were placed on view specimens of tectites—nodules and fragments of natural glass which constitute one of the world's great geological mysteries. In the Division of Paleontology of this Department, several noteworthy additions were made to the exhibits in Ernest R. Graham Hall (Hall 38). Among these is an almost complete skeleton of a huge prehistoric animal known as the mountain ground sloth of South America (*Pseudomegatherium lundii*). This is the first skeleton of its kind to be erected in any museum. The specimen was discovered and excavated some years ago by Captain Robert M. Thorne of the Second Marshall Field Paleontological Expedition to Argentina and Bolivia. Also outstanding in interest is a fossil skeleton of *Moropus*, a strange mammal related to the horse and the extinct Titanotheres, but having claws on the feet in place of hoofs. It was found in Nebraska where it had been preserved in a sandstone formation for about 20,000,000 years. A temporary exhibit was made also of many interesting and important fossil mammal specimens collected in 1937 by the Field Museum Paleontological Expedition to Colorado under the leadership of Assistant Curator Bryan Patterson.

In the Department of Zoology two new habitat groups were added to the Hall of Marine Mammals (Hall N). One is a group of Weddell's seals, specimens for which were collected by the Second Antarctic Expedition of Rear-Admiral Richard E. Byrd (1934-35). The other group in this hall is an undersea scene showing narwhals. These are a small species of whale, of which the males are armed with a long rapier-like tusk. The original specimens were collected by an expedition off the coast of Greenland under the leadership of Captain Robert A. Bartlett, noted Arctic explorer. In Hall 20, devoted to habitat groups of birds, four new groups were completed, and an old group was entirely reinstalled and improved. One of the new groups is that of the white stork of Europe and Asia, shown as it nests on the roof of a house in a Polish village.

The specimens of the birds, and also the nest and rooftop, were presented to the Museum by the Polish-American Chamber of Commerce in Warsaw. The three other new bird groups are composed of specimens collected by the Leon Mandel-Field Museum Zoological Expedition to Guatemala (1934). One shows the brilliantly colored and plumed quetzal, national bird of Guatemala; another, the giant oriole or oropendula with its strange hanging nests; and the third, the toucans and associated birds of the tropical rain-forest of eastern Guatemala. The reinstalled group shows many of the myriad kinds of oceanic birds which flock to Laysan Island (of the Hawaiian archipelago) to breed. Among single mounts prepared during the year, the one that attracted the most interest was that of Su-Lin, famous giant panda which died at the Brookfield Zoological Park of the Chicago Zoological Society, in April. The specimen was presented to the Museum by the Zoo, and is now on exhibition in Stanley Field Hall. The body, except for the removed skin, was turned over to Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology, for the first complete detailed anatomical study ever made of this species of animal. In Hall 15, devoted to the systematic collection of mammals, there was installed an exhibit showing the closest relatives of the giant panda, and Su-Lin will later be transferred to this case. Also installed in Hall 15 was an exhibit showing seven species of baboon. An important addition to the systematic bird collection in Hall 21 is a life-size model of the extinct dodo, of which no complete specimen, or even skeleton, remains in existence. An interesting new exhibit in Hall 19 (Osteology) shows the twenty component bones of a human skull compared with those of a codfish skull, numbering sixty-eight. This exhibit illustrates the general tendency toward structural simplification of the skull as evolution progresses.

The Museum made loans of some of its material for various special exhibits in other cities. To the Metropolitan Museum of Art, New York, a number of noteworthy pieces were lent for an exhibition of representative Chinese bronzes in American collections, held October 13 to November 28. A collection of ethnological objects from Borneo, Java, New Guinea, Sumatra, Cook Islands, Celebes, and other South Pacific islands, was dispatched to the Golden Gate International Exposition at San Francisco for display during 1939 in the exposition's Department of Fine Arts. An Egyptian mummy was lent to the General Electric X-ray Corporation, Chicago, for use in an exhibit at the 1939 New York World's

Fair. This exhibit will demonstrate the use of the fluoroscope in scientific research. An installation has been prepared whereby exposition visitors will be enabled alternately to view the mummy's exterior and then, through the fluoroscope, its interior. It will be a central feature of the X-ray Corporation's exhibit. Field Museum was invited to participate because of the pioneer work conducted by this institution, over a period of several years beginning in 1925, in developing, and successfully applying, a technique for x-ray photography on mummies and other types of specimens not previously studied in this manner. As full credit will be given Field Museum in the exhibits at both the San Francisco and New York expositions, many persons, who later may be visitors to Chicago, will thus become acquainted with phases of the work of this institution.

In view of the fact that in 1938, as in other recent years since depression has severely curtailed its budgets, it has been impossible for the Museum to make sizable appropriations for expeditions from its own funds, the institution was singularly fortunate in being enabled to carry out an important expeditionary program with contributions from public-spirited Chicagoans. Mr. Sewell L. Avery, a Trustee, sponsored four; President Stanley Field made funds available for one, and Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, personally financed and conducted an expedition. Following is a summary of the year's expeditions, and other field work:

The Sewell Avery Zoological Expedition to British Guiana, under the leadership of Mr. Emmet R. Blake, Assistant Curator of Birds, conducted operations for several months. Despite a boat accident which caused the loss of many valuable specimens, this expedition yielded several hundred birds and other animals for addition to the study collections of the Department of Zoology.

The Sewell Avery Geological Expedition, under the leadership of Mr. Sharat K. Roy, Curator of Geology, collected rocks illustrating the effects of various dynamic agents, and others showing features of terrestrial structure. Semi-precious gem stones were also obtained. Collecting was carried on in both western and eastern states. The results, combined with collections of previous years, give Field Museum what is probably the most comprehensive collection in America illustrating phenomena embraced in the study of physical geology.

The Sewell Avery Botanical Expedition to Nova Scotia, led by Mr. John R. Millar, Curator of the N. W. Harris Public School

Extension (formerly a member of the staff of the Department of Botany), obtained a comprehensive collection of specimens representing the inter-tidal vegetation of the Bay of Fundy, for use in a proposed exhibit of marine plant life.

The Sewell Avery Botanical Expedition to Guatemala, under the leadership of Mr. Paul C. Standley, Curator of the Herbarium, left Chicago in November, and at the end of the year was scheduled to remain in the field for several months of 1939. Plans call for the collection of a wide variety of plants representing the diversified flora of Guatemala. At last reports several thousand specimens had already been collected.

Through the generosity of President Stanley Field, funds were made available by means of which it was possible to resume the work of the Field Museum Archaeological Expeditions to the Southwest, conducted in Colorado during seven previous years by Dr. Paul S. Martin, Chief Curator of the Department of Anthropology, and associated archaeologists. After one of his most successful seasons, Dr. Martin reports that the 1938 activities resulted in the establishment of a complete and final sequence of the history of the earliest known inhabitants of southwestern Colorado—the prehistoric Basket Maker Indians who occupied the region from about A.D. 600 to 1200. Several important new sites were excavated, and large and important collections of pottery and other artifacts were obtained. A newsreel of the “dig” was made by Paramount News.

Dr. Osgood’s expedition was concerned with research into certain interesting biological problems presented by the fauna of the white Tularosa sands and the black lava beds in desert regions of New Mexico. He was accompanied by Dr. Frank W. Gorham, of Los Angeles, and Mr. Walter F. Nichols, of Pasadena, California. In addition to collecting desert mammals, Dr. Osgood obtained important zoological specimens in the Mogollon Mountains of New Mexico, and in various parts of California and Colorado.

Varieties of cryptocrystalline quartz for the collections of the Department of Geology were obtained by an expedition to Oregon, Washington, and Wyoming, conducted under a special arrangement by Dr. Albert J. Walcott, of Chicago.

Through the co-operation of Messrs. James Leavell and Carl Birdsall, of Chicago, Mr. Rudyerd Boulton, Curator of Birds, was enabled to make a short field trip to the Gulf Coast area of Mississippi, during the course of which a number of specimens of birds were collected.

Mr. J. Francis Macbride, Associate Curator of the Herbarium, continued the project, upon which he has been engaged since 1929, of obtaining photographs of type specimens of plants in herbaria of various European countries. To date the Museum has received from him more than 34,000 negatives. Prints from these are made available, at cost, to botanists and institutions all over the world, and have proved to be of immense value in connection with various scientific problems.

Mr. Bryan Patterson, Assistant Curator of Paleontology, spent several months in research in Europe, under a grant-in-aid awarded by the American Association of Museums from a fund provided by the Carnegie Corporation of New York. He also made a collection of several hundred insects for the Department of Zoology.

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, made several field trips in Missouri, and obtained several thousand botanical specimens for the Museum's Herbarium. Part of this work was done at his own expense, and part under a grant awarded him by the Academy of Sciences of St. Louis, through the research fund of the American Association for the Advancement of Science.

Mr. Colin Campbell Sanborn, Curator of Mammals, spent several months in Europe on a research project in the British Museum and other institutions, under a fellowship of the John Simon Guggenheim Memorial Foundation. Under this same fellowship he plans to make an expedition to Central America in 1939.

Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, made a field trip to southwestern Arkansas to collect salamanders and other amphibians and reptiles. He was assisted by Mr. C. M. Barber, a former member of the Museum's staff.

Dr. B. E. Dahlgren, Chief Curator of the Department of Botany, made a journey at his own expense to the Amazon region of Brazil. There he collected material and photographs needed for an ecological group in preparation for the Hall of Plant Life—an aquatic scene showing the largest of all fresh-water plants, the *Victoria regia*.

Professor A. C. Noé, Research Associate in Paleobotany, collected fossil plants on a field trip in southern Illinois, and collected also in the Pennsylvanian field of Texas, and the Cretaceous and Tertiary in Mexico.

Mr. Llewelyn Williams, Curator of Economic Botany, was granted a two years' leave of absence to accept an appointment to engage in special work for the Ministry of Agriculture of Venezuela.

He is assisting Dr. Henry F. Pittier, the famous Swiss botanist (formerly connected with the United States Department of Agriculture), in a botanical survey and study of the various resources of Venezuela, and under a special arrangement is concurrently making botanical collections for Field Museum.

Grateful acknowledgment is herewith extended to all who made gifts of money, and of material for the scientific collections and the Library. Among those who contributed funds during the year are the following:

Mr. Albert W. Harris made a gift of \$55,000 to restore the endowment of the N. W. Harris Public School Extension, which had suffered losses on certain securities held in its account.

From the estate of the late Mrs. Carrie Ryerson the Museum received \$302,146.91 in cash, stocks, and bonds, realized from assets included in a bequest. The estate is still in process of administration.

Mrs. Diego Suarez, of New York, gave the sum of \$25,000, to be used toward payment of general operating expenses of the Museum.

From Mr. Marshall Field the Museum received gifts totaling \$24,145, of which \$4,615 was for purchase of much-needed equipment in the scientific Departments. The rigid economies made necessary for a number of years by extremely limited budgets had naturally prevented the purchase of many items of modern scientific equipment. Recognizing that the best results of scientific effort could not be obtained under these conditions, Mr. Field made the special gift above indicated for the purpose of replacing certain obsolete scientific apparatus with the most modern and up-to-date models.

President Stanley Field contributed sums totaling \$18,362.62. Included in this gift were rights to subscribe to a new issue of convertible debentures of the Commonwealth Edison Company, and funds for Museum expeditions, storage equipment, and the purchase of specimens.

Mrs. James Nelson Raymond contributed \$6,000 toward the operating expenses of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. This, with previous gifts, makes a total of more than \$63,000 received from Mrs. Raymond to supplement the \$500,000 endowment she provided in 1925 wherewith the Raymond Foundation was established.

From Mr. Wallace W. Lufkin a gift of \$5,000 was received.

Mr. Sewell Avery provided funds of \$4,500 to cover the expenses of four expeditions mentioned in preceding pages.

To increase the collection of birds of prey begun by her late husband, Leslie Wheeler, of Lake Forest, Illinois, a former Trustee of Field Museum, Mrs. Wheeler contributed \$1,000 and has indicated her intention of continuing the Leslie Wheeler Fund for the purchase of bird specimens.

From the estate of the late Mrs. Edith Almy Adams the Museum received payment of a bequest amounting to \$33,546.63.

A bequest of \$1,000 was received from the estate of the late Miss Clara A. Avery.

Prior to his death in February, the Museum received from the late Henry J. Patten, of Chicago, a gift of \$250. Other sums of varying amounts were received as contributions from Mrs. Hermon Dunlap Smith, of Lake Forest; Mr. Clarence B. Mitchell, of Lake Forest; the Jewish Welfare Fund, of Chicago, and the Emergency Committee for the Aid of Displaced German Scholars. The last two contributions in the foregoing list were for the specific purpose of enabling the Museum to add to its scientific staff, as Curator of Lower Invertebrates, Dr. Fritz Haas, noted biologist formerly on the staff of the Senckenberg Museum at Frankfort-on-the-Main, Germany. Dr. Haas was not available for employment when the budget for the year was prepared.

Indebtedness to the Northern Trust Company, of which a balance of \$36,000 remained at the beginning of 1938, was paid during the year from available funds of the Museum.

From the Chicago Park District the Museum received sums aggregating \$117,904.31, as its share, authorized by the state legislature, of collections made during 1938 under the tax levies for 1937 and preceding years.

Details of the many gifts of materials for the collections received by the Museum during the year will be found in the departmental sections of this Report, and in the complete List of Accessions beginning on page 424. For mention here, a few outstanding ones have been selected, as follows:

A specimen of mako shark, about eight feet long and weighing 274 pounds, was presented by Mr. Leon Mandel, of Chicago, who caught it during a cruise in Cuban waters aboard his yacht *Buccaneer*.

Two excellent specimens of ribbon seal, and four of bearded seal, collected in northern Alaska, were presented by Mr. Carl Dreutzer, of Chicago.

From *The Chicago Tribune*, through the good offices of its publisher, Colonel Robert R. McCormick, there was received as a

gift a large relief model, ten feet wide by fifteen feet long, of North America, for addition to the exhibits in the Department of Geology.

Colonel Warren R. Roberts, of Chicago, presented a beautiful mounted specimen of white marlin which he caught in the Gulf Stream off Miami, Florida.

The Department of Zoology of the University of Chicago presented a large collection of fishes taken in the Great Lakes and the upper Ohio and Mississippi Valleys.

Mr. Melvin A. Traylor, Jr., of Chicago, gave the Museum representative specimens of more than eighty species of birds which he collected in the Yucatan peninsula of Mexico. Subsequently he contributed also his services to the Museum as a volunteer worker, undertaking the classification and study of these birds in collaboration with Mr. Rudyerd Boulton, Curator of Birds.

Dr. Henry Field, Curator of Physical Anthropology, contributed a large sarcophagus, a carved marble bath, a marble basin and stand, and two marble capitals from ancient Rome.

Mr. Clarence B. Mitchell, Research Associate in Photography, contributed photographic equipment, and provided the expensive color plates necessary for the printing of colored post cards of the Museum's giant panda, klipspringer, and quetzal groups. The quetzal picture was used also in publication of an attractive calendar for 1939, and for a four-color illustration in the December issue of *Field Museum News*.

A collection of Navaho textiles was presented by Mr. Homer E. Sargent, of Pasadena, California, augmenting his previous gifts of material of this nature.

A fine mounted specimen of Atlantic broadbill swordfish was presented by Mr. Michael Lerner, New York sportsman. It was caught off the Nova Scotia coast by Mrs. Lerner.

Mrs. Richard T. Crane, of Chicago, gave the Museum a portrait of the late Harlow N. Higinbotham, the Museum's second President, showing him as he appeared during the years he occupied that office.

Colonel Theodore Roosevelt, of New York, presented two beautiful illuminated religious manuscripts from Tibet, written on parchment in the beautiful Tibetan script, and bound in elaborate wooden covers.

Large numbers of valuable zoological specimens were contributed frequently, as in past years, by the Lincoln Park Zoo, the Chicago Zoological Society, the John G. Shedd Aquarium, and the General Biological Supply House.

An acquisition of unusual interest and importance, obtained by purchase, was that of the Benld meteorite which fell in the town of that name in southern Illinois on September 29, 1938, together with a section of a garage roof, automobile top, and seat cushion which it penetrated, and the automobile muffler which it dented and from which it bounced back into the cushion. This meteorite is outstanding on several grounds: it is only the second meteorite ever to be recorded as falling within the state of Illinois; it is one of only eleven (out of a total of approximately 1,300 recorded meteorites) to strike and damage buildings or other property; it represents the first authenticated instance of a meteorite striking a vehicle; and it was possible to observe the angle at which this meteorite arrived on earth by checking its point of rest with the hole through the car top and the roof of the garage. Few meteorites come to earth under circumstances making possible the assemblage of such accurate and complete records. The meteorite was obtained through the co-operation of Messrs. Ben Hur Wilson and Frank M. Preucil, Jr., of the Joliet (Illinois) Astronomical Society, good friends of the Museum who acted as agents for the institution. They not only obtained the material for exhibition, but they made a very thorough investigation, collecting unusually thorough and competent data, and making numerous photographs of important features.

Another notable purchase made during 1938 was that of the second largest single accession of bird specimens ever received at Field Museum. It is a magnificent series collected over a period of twenty years by the late Sir Frederick J. Jackson while he was Lieutenant-Governor of Kenya, and Governor of Uganda, in East Africa. The collection contains approximately 6,640 specimens belonging to more than 600 species. Also obtained was Sir Frederick's sumptuous three-volume monograph on these birds, published posthumously during the year. This work contains all the notes and observations made by Sir Frederick on the specimens which are now the property of the Museum, and makes the collection more than ordinarily useful. This acquisition particularly strengthens the Museum's ornithological material because it covers an area not well represented previously.

A notable collection of some 800 ceramic objects, of Chinese and Siamese origin, found in the Philippine Islands, has been placed in the Museum for study, by Mr. E. D. Hester, of Manila, Economic Adviser to the High Commissioner of the Philippines. These

ceramics range in date from about the thirteenth to the seventeenth century.

Mr. Philip W. Wolle, of Princess Anne, Maryland, placed on file in the Herbarium of Field Museum a considerable portion of the algal herbarium of his grandfather, the late Rev. Francis Wolle. Some 2,000 specimens of algae, including most of the material received by the Rev. Mr. Wolle in his exchanges with European workers during the years from 1875 to 1892, are thus being made available for study at the Museum.

The Museum was host to meetings of the Midwest Branch of the American Oriental Society, and the Chicago Chemists Club. The Director of the Museum, and Members of the staff of the Department of Anthropology, entertained the former group; Mr. Henry W. Nichols, Chief Curator of the Department of Geology, entertained the latter.

Among distinguished visitors entertained at Field Museum in 1938 were: His Royal Highness, Crown Prince Gustaf Adolf of Sweden (who is an archaeologist and an Honorary Member of the Museum); Count Nils Gyldenstolpe, Curator of Birds at the Naturhistoriska Riksmuseet of Stockholm, a member of the royal party; Mayor Edward J. Kelly, of Chicago, and other members of the official party who accompanied the Prince; Brother Marie-Victorin, of the University of Montreal; Dr. Ivan M. Johnston, of the Arnold Arboretum, Jamaica Plain, Massachusetts; Dr. Fred A. Barkley, of the University of Montana; Mr. Merton J. Reed, of the University of Montana; Professor Langdon Warner, of the Fogg Museum at Harvard University; Dr. John L. Myres, Professor of Ancient History at New College, Oxford, England; Dr. Robert T. Hatt, of the Cranbrook Institute of Sciences, Bloomfield Hills, Michigan; Miss Malvina Hoffman, of New York; Dr. A. E. Douglass, of the University of Arizona, Tucson; Dr. Olov Janse, Professor at the University of Paris, and Corresponding Member of l'Ecole Française d'Extrême-Orient, Hanoi (Tonkin), Indo-China; Dr. John Beattie, Conservator, Museum of the Royal College of Surgeons, London; Dr. W. R. B. Oliver, Director of the Dominion Museum, Wellington, New Zealand; Mrs. Eric Scott, Education Department, Tasmania; Mr. E. O. G. Scott, Assistant Curator, Queen Victoria Museum and Art Gallery, Launceston, Tasmania; Mr. Thomas R. Adam, of the American Association for Adult Education, New York; Dr. Franz Weidenreich, Honorary Director of the Cenozoic Research Laboratory, Geological Survey of China, Peiping; Mr. Ludwig Glauert,

Curator of the Western Australia Museum, at Perth; Dr. Ales Hrdlicka, of the United States National Museum, Washington, D.C.; Dr. Vladimir Fewkes, archaeologist of Savannah, Georgia; Dr. F. F. Koumans, Leiden Museum, Leiden, Netherlands; Dr. C. G. Seligman, retired professor of ethnology of the University of London, and Mrs. (B. Z.) Seligman, who has collaborated with her husband on his many researches and scientific publications: Dr. Hannah Rydh, archaeologist of Upsala University, Sweden; Miss Anna Rothmann, of the Albany Museum in Grahamstown, South Africa; Dr. Carl G. Alm, of the Botanical Garden of the University of Upsala, Sweden; Dr. Francis W. Pennell, of the Philadelphia Academy of Natural Sciences; Miss Camilla Best, Director of Visual Aids, New Orleans, Louisiana; Mr. V. F. Fisher, ethnologist at Auckland Museum, Auckland, New Zealand; Dr. Paul Wallace Gregory, of the College of Agriculture, University of California; Dr. Walter Granger, of the American Museum of Natural History, New York; Mr. Alvin Seale, Director of Steinhart Aquarium, San Francisco; Mr. Charles E. Jackson, Acting Commissioner, Bureau of Fisheries, Washington, D.C.; Mr. L. M. Klauber, of San Diego, California, President of the American Society of Ichthyologists and Herpetologists; Mrs. Nicholas (Alice Roosevelt) Longworth, of Washington, D.C.; Mr. John W. Davis, former United States Ambassador to the Court of St. James's; Miss Anna Shepard, ceramic analyst on the staff of the Carnegie Institution, Washington, D.C.; Mr. Kermit Roosevelt, co-leader of Field Museum expeditions in past years, and a trustee of the American Museum of Natural History, New York; Countess Gisèle de Diesbach, Attachée to the Louvre, Paris, as head of the lecture department; Mr. A. S. Arguelles, Director of the Bureau of Science, Manila, Philippine Islands; Dr. Alexander Wetmore, Director of the United States National Museum and Assistant Secretary of the Smithsonian Institution, Washington, D.C.; Dr. C. L. Lundell, of the Herbarium of the University of Michigan, Ann Arbor; Dr. Leon J. Cole, Professor of Zoology, University of Wisconsin, Madison; Mr. Stewart H. Perry, of Adrian, Michigan, an authority on meteorites; Mr. Bertrand Schultz, Assistant Director, Nebraska State Museum, Lincoln; Dr. Gerald W. Prescott, Associate Professor in the Department of Botany, Albion College, Albion, Michigan; Mr. Russell Plimpton, Director of the Institute of Art, Minneapolis; Mr. Paul Frank, of the National Park Service staff at Zion National Park, Utah; Dr. Philip Drucker, Department of Anthropology, University of California; Mr. Michael

Lerner, sportsman, of New York City; Dr. Paul Ganz, a professor at the University of Basel in Switzerland, and President of the International Commission on the History of Art; Dr. William K. Gregory and Mr. Harry C. Raven, both of the American Museum of Natural History, New York; and Mr. Charles Lesley Ames, President, and Mr. William Mitchell, Secretary, of the Saint Paul (Minnesota) Institute.

Among notable research accomplishments of the year was the establishment of a fossil ancestor of the giant panda, and its smaller cousin, the "ordinary" panda, by Mr. Paul McGrew, Assistant in Paleontology. The extinct form was identified from fragmentary specimens discovered by Mr. McGrew in the lower Miocene deposits of western Nebraska. It lived about 20,000,000 years ago and has been given the name *Cynarctoides*.

Research conducted on a fossil skull of an extinct form of crocodylian, bearing small horns, resulted in the establishment and naming of a new genus and species by Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles. The specimen was excavated in western Colorado in the preceding year by a party consisting of Mr. Elmer S. Riggs, Curator of Paleontology, Mr. Bryan Patterson, Assistant Curator of Paleontology, Mr. James H. Quinn, Assistant in the Division of Paleontology, and Mr. Theodore Burdosh, a volunteer assistant. The name *Ceratosuchus burdoshi* was given to the new species.

A notable experiment was conducted in the Department of Botany when some seeds of the pink lotus of the Orient (*Nelumbium Nelumbo*), estimated to be between 300 and 500 years old, were received from Manchuria by way of Japan through the University of Chicago. It is believed that the resulting plants represent the longest duration on record of delayed germination of a flowering plant. After the leaves had begun to grow to a length of several inches, the plants were turned over to the Garfield Park Conservatory, where they are flourishing in a pool.

A rare treeshrew (*Dendrogale*), of which specimens were collected in 1937 in French Indo-China by Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, was subjected to study by Dr. Osgood and Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology. As a result, this animal is now thought to be the oldest known living relative of man, usurping from that distinction the pen-tailed treeshrew which had previously been generally

accepted by zoologists as the "original great-grandfather (many generations removed) of the human race."

A report was published in 1938 on the results of research conducted on specimens of stems, branches, roots, and a native decoction from a twining shrub or woody climber of Peru known as *Caapi* or *ayahuasca*. The plant is the source of a powerful narcotic used in rites and divinations by medicine men of the Indians in the Peruvian montaña region. Material of this plant, collected in 1930 by Mr. Llewelyn Williams, Curator of Economic Botany, while leading the Marshall Field Peruvian Expedition, was turned over to Dr. K. K. Chen of the Research Laboratories of Eli Lilly and Company, Indianapolis, Indiana. Dr. Chen, in his article now published in the *Quarterly Journal of Pharmacy and Pharmacology*, a British technical journal, states that the active principle is harmine, an alkaloid already known from another plant source. In the words of Dr. Chen, "the mystery of the action of *Caapi* is thus resolved." In his experiments with harmine on mice and rabbits, Dr. Chen found that the effects of the drug were neutralized to a large extent by injections of certain barbituric acid derivatives which appear to offer a possible means of treatment for *Caapi* poisoning.

A report was received from Dr. B. V. Skvortzow, of Harbin, Manchukuo, on the results of his investigations made on diatoms found in a small amount of sediment, collected by the Department of Botany of Field Museum at his request, from ordinary Chicago tap water by use of a filter. From this specimen Dr. Skvortzow selected for description seventeen kinds of diatoms (minute aquatic plants visible only under a microscope of fairly high power), some of which were previously unknown to science. Dr. Skvortzow is studying the fresh-water diatoms of the entire world.

The excellent and characteristic specimens of corn from Peru in Field Museum's Department of Botany were studied by Mr. R. C. Mangelsdorf, of Texas Experimental Station, who has found evidence that points to the Peruvian area as the place of the original domestication of the corn plant. Earlier theories had indicated the Mexican-Guatemalan area as the original locale for this food plant, which was an indispensable factor in the development of pre-Columbian civilizations.

Various other scientific research projects were undertaken by members of the Museum staff during the year, and details of these will be found in the departmental sections of this Report. Staff members also attended a number of important meetings of learned

societies. Dr. Henry Field, Curator of Physical Anthropology, spent several weeks at Harvard University in February, completing a research project on the physical anthropology of the modern peoples of Iraq. Prior to this he lectured on the work of his several expeditions in the Near East before an audience at the Colorado Fine Arts Center in Colorado Springs. In July and August Dr. Field made an extended visit to Europe, attending scientific meetings in Copenhagen, Brussels, and London, and presenting papers at each. At the Congress of Anthropological and Ethnological Sciences, in Copenhagen, he was an official delegate from the United States. While in Europe he also collected data for a tribal map of Iran, and assembled material for a report on the Ossetes and Yezidis of Georgia, U.S.S.R. In December he gave an illustrated lecture before the joint meeting of the American Historical Association and the American Oriental Society in Chicago. During the year he delivered other lectures and appeared in numerous radio programs.

Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, was honored by election to membership in the American Society of Zoologists. He lectured before the Zoological Club of the University of Chicago, the Cornell Club of Chicago, and other organizations.

Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, visited the Museum of the University of Michigan to make a study of a notable collection of Chinese ceramics excavated in the Philippines. He lectured before the Fortnightly Club and the Hoosier Art Patrons Association. Late in the year Mr. Wilbur spent a month making a survey of Chinese collections in museums of eastern and central states, including institutions in Detroit, Toronto, Buffalo, Boston, Cambridge, New Haven, New York, Philadelphia, Baltimore, Washington, Cleveland, Kansas City, St. Louis, Milwaukee, and Minneapolis.

Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, presented a scientific paper before the American Society of Mammalogists which met at San Francisco in July. Dr. Osgood is a Founder and a former President of this society, and is at present Chairman of its Committee on Nomenclature.

Mr. Rudyerd Boulton, Curator of Birds, spent several weeks in the east on special research on the birds of Angola (Portuguese West Africa), working principally on collections at the American Museum of Natural History, New York. He also made studies at the Museum of Zoology of the University of Michigan, and was

principal speaker at the annual meeting of the Michigan Audubon Society in June. In October Mr. Boulton attended the annual meeting of the American Ornithologists' Union at Washington, D.C., and was honored by election as Treasurer of the organization, and Business Manager of its quarterly journal, *The Auk*.

Mr. Paul C. Standley, Curator of the Herbarium, attended the dedication of the Fairchild Tropical Garden at Coral Gables, Florida. Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, continued research and writing in connection with his forthcoming book on the flora of Missouri.

Dr. Francis Drouet, Curator of Cryptogamic Botany, attended the meeting of the American Association for the Advancement of Science held at Richmond, Virginia, in December, and presented a scientific paper.

Dr. C. E. Hellmayr, Associate Curator of Birds, who for some years has been in Vienna where he has been working on the large and important Field Museum publication, *Catalogue of Birds of the Americas*, moved to London because of Central European political conditions.

Mr. Sharat K. Roy, Curator of Geology, and Mr. Paul McGrew, Assistant in Paleontology, attended the meetings of the Geological Society of America, held at New York in December.

Dr. Paul S. Martin, Chief Curator of the Department of Anthropology, presented a report on the 1938 excavations of the Field Museum Archaeological Expedition to the Southwest before the meeting of the American Anthropological Association held at New York in December.

The Director of the Museum made contacts with officials of other museums in various parts of the country, and was a speaker on museum subjects before various societies, on a number of radio programs, and elsewhere. Among cities in which Mr. Gregg furthered this institution's relations with other museums during a tour of the east are Pittsburgh, Philadelphia, New York, Boston, Cambridge, Newark, and Washington. He also presided at the dedicatory exercises of the Psychological Museum, of Chicago, and spoke at the dedication of the new wing of the Museum of the Saint Paul Institute.

A number of lectures and radio talks on Museum subjects were given at various times by Staff Taxidermists C. J. Albrecht, John W. Moyer, and W. E. Eigsti.

Field Museum Press issued thirty technical scientific publications, and seven leaflets for lay readers. The technical publications circulate internationally among scientists, and among libraries and other institutions.

A 48-page pamphlet, *Field Museum and Group Education*, was issued in September by Field Museum Press for the use of school officials, principals, and teachers. The booklet, which is illustrated with twelve collotype plates, outlines the work carried on by Field Museum among school children through the N. W. Harris Public School Extension and the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Toward the end of the year plans were completed for enlargement and improvement of *Field Museum News*, monthly bulletin published for the several thousand members of the Museum, and these were put into effect during December in the preparation of the issue for publication on January 1, 1939. The size of the bulletin has been increased from four to eight pages, and better legibility has been provided by increasing the white space between the lines of type. Thus the *News* has been brought into conformity with the typographical practice of most modern periodicals and newspapers, and a more complete coverage of Museum activities has been made possible as a service to Members.

For the benefit of bird lovers, a leaflet, *Haunts of Birds in the Chicago Region*, prepared by the Chicago Ornithological Society, was published by Field Museum Press. It provides a guide to recommended field trips, giving the best localities for observing birds, the kinds of birds which frequent each, and the routes for reaching them. Accompanying each copy is a map furnished by the Cook County Forest Preserve District.

Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, is the author of another book for children, *Our Friendly Animals*, published in 1938 by M. A. Donohue and Company, Chicago. It is a companion volume to the same author's *Homes and Habits of Wild Animals*, published several years ago. Staff Taxidermist John W. Moyer completed preparation in 1938 of a book, *Lessons in Museum Taxidermy*, scheduled for publication early in 1939. It is intended as an aid both to the amateur who wishes to mount birds, mammals, fishes, etc. as a hobby, and to persons who wish to train themselves in taxidermy as a profession.

The metropolitan newspapers of Chicago, the community newspapers in various sections of the city, the papers of the city's suburbs,

and the press of the nation as a whole, through the co-operation of the national and international news agencies, kept constantly before the public the story of the accomplishments and the current activities of Field Museum. Likewise, the local radio stations, and also the national networks of various broadcasting systems, co-operated in giving publicity to the Museum.

During "Conservation Week," in April, arrangements were made whereby a series of six releases was published in the *Chicago Daily News*. These news stories covered various aspects of conservation, including wild flowers, mammals, birds, reptiles, amphibians, and natural mineral resources. The stories, except the introductory article, were written and signed by members of the scientific staff. The co-operation of the *Chicago Daily News* is sincerely appreciated. Each of the other local daily papers—the *Tribune*, *Times*, *Herald-Examiner*, and *Evening American*—at various times likewise contributed generous space for outstanding Museum news.

Through the interest of the Chamber of Commerce of Grand Junction, Colorado, as well as several service clubs of that city, and Mr. Alfred A. Look, an executive of the Grand Junction *Daily Sentinel*, monuments were constructed in 1938 from native rock at sites where important fossil dinosaur skeletons were excavated by a Field Museum expedition in 1900–1901. Bronze plaques were placed on these monuments to commemorate the expedition. Mr. Look, long an enthusiastic friend of the Museum's, whose many contributions of excellent fossil specimens resulted in his election as a Contributor to the Museum, reports that a movement is under way to have these sites preserved as public parks under perpetual protection. Both sites are on isolated buttes in the valley of the Colorado River, one west of Grand Junction, the other across the river from Fruita. The expedition thus commemorated was conducted under the leadership of Mr. Elmer S. Riggs, Curator of Paleontology. At one site was obtained the huge skeleton of *Apatosaurus* (also known as *Brontosaurus*), one of the largest forms of dinosaur, which now occupies a central position in Ernest R. Graham Hall (Hall 38). At the second site the expedition unearthed a genus of dinosaur previously unknown to science, almost giraffe-like in form, to which was given the name *Brachiosaurus*. As the first example of this animal discovered, this is a type specimen, of importance to scientists as a criterion for comparison of any further specimens which may be found.

The Museum continued co-operation with the School of the Art Institute of Chicago by providing facilities at this institution for the assistance of art students. Classes of children, ranging from the fourth elementary grade to high school age, were frequently brought to Field Museum on Saturdays by their instructors from the Art Institute, and the exhibits in the Museum often served as suggestive material also for groups of more advanced students.

The Museum Cafeteria served 99,122 persons during 1938, as compared to 103,682 in 1937. Many additional thousands used the rooms provided for children and others who bring their own lunches. In these latter, tables and benches are available, and a lunch counter is operated where supplementary refreshments such as sandwiches, hot beverages, soft drinks, ice cream, etc., may be obtained.

Under an agreement made with Mr. Emil Liers, of Homer, Minnesota, Field Museum has undertaken the task of recording in motion pictures the life story of the otter. Mr. Liers is perhaps the only man in the world who is breeding and training otters. His thorough knowledge of their habits will make it possible to produce a film of high human interest and scientific accuracy. Photographs have been taken in various locations in the otter country of Minnesota, and arrangements have been made for other "shots" which will show the otter under water—an element in which he is perfectly at home. The photographic work is being done by Mr. C. J. Albrecht of Field Museum's staff.

Early in the year, friends of the Museum arranged for a private showing of natural color slides made by Mr. Clarence B. Mitchell, Research Associate in Photography, illustrating objects in the collection of Chinese jades bequeathed by the late Mrs. George T. Smith. The showing was held at the Casino, where Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, lectured on the subject illustrated.

Plans were prepared for important improvements in the gem room (H. N. Higinbotham Hall, Hall 31). This project awaits the provision of funds, which to date have not been available, before it can be carried out.

For the Department of Botany, orders for six 8-door herbarium cases, and twelve 6-door cases, were authorized.

A number of additions to the staff, and other changes of personnel, were made during the year:

Dr. Fritz Haas, for many years Curator of the Department of Mollusks at the Senckenberg Museum, Frankfort-on-the-Main,

Germany, was appointed Curator of Lower Invertebrates at Field Museum. Dr. Haas is well known and distinguished in his field, and recognized as one of the leading living authorities on mollusks. He is the author of numerous publications based on the important biological researches which he has conducted. He came to America under the sponsorship of the Emergency Committee in Aid of Displaced German Scholars, New York, and the Jewish Welfare Fund, Chicago, which jointly have furnished funds from which a part of his salary is being paid for a period of one year.

Dr. Francis Drouet was appointed Curator of Cryptogamic Botany, for a two-year period. A graduate of the University of Missouri, he was formerly connected with the Osborn Botanical Laboratory of Yale University and the Marine Biological Laboratory in Woods Hole, Massachusetts. For a time he was commissioned by the Brazilian government to perform special research.

Mr. Paul McGrew was appointed Assistant in Paleontology. An alumnus of the University of Nebraska, he specialized in paleontology as a post-graduate student at the Universities of California and Chicago.

Mr. John R. Millar, who became Acting Curator of the N. W. Harris Public School Extension in 1937, was appointed Curator in 1938. He is a former member of the staff of the Department of Botany, where he began his Museum service in 1918.

Two guide-lecturers were appointed to the staff of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. They are Miss Elizabeth McM. Hambleton, who in the previous year worked as a volunteer Associate in Southwestern Archaeology in the Department of Anthropology; and Mr. Loren P. Woods.

Miss Elizabeth Peitzsch was appointed Secretary to the Director.

At the end of 1938 the following appointments were made, to become effective from January 1, 1939:

Mr. William H. Corning—Superintendent of Maintenance. Mr. Corning joined the staff of Field Museum late in 1920 as Chief Engineer, and has served in that capacity since that time.

Mr. William E. Lake—Chief Engineer. Mr. Lake came to the Museum July 1, 1922, as an engineer, becoming Assistant Chief Engineer in 1926.

Mr. Arthur G. Rueckert—Staff Artist. Mr. Rueckert joined the staff in November, 1923, as a taxidermist. In addition to a general

experience in taxidermy and the making of accessories for exhibits, Mr. Rueckert assisted the late Charles Abel Corwin in the painting of many of his more recent backgrounds, and has carried on this work since Mr. Corwin's death.

Mr. Robert L. Yule—a Preparator, in the Department of Anthropology, where he has been employed in various capacities since February 1, 1932.

Mr. W. E. Eigsti—a Taxidermist. Mr. Eigsti came to Field Museum in February, 1931, as an assistant taxidermist, since which time he has mounted many splendid specimens for the Museum collections.

Mr. Robert E. Bruce—Purchasing Agent. Mr. Bruce joined the staff in October, 1927, and served in various clerical capacities until August, 1938, when he became Acting Purchasing Agent.

Mr. Noble Stephens—Manager of the Book Shop. Mr. Stephens has been on the staff of the Museum during the past year and has been in charge of the Book Shop since it was opened in April. He is largely responsible for the splendid showing made by this new venture.

Mr. Warren E. Raymond—Assistant Registrar. Mr. Raymond joined the staff October 1, 1938, as a clerk, and is now appointed to a new position created because of the increasing volume of business in the Registrar's office.

Mr. Joseph D. Todd—Carpenter Foreman. Mr. Todd came to the Museum as a carpenter in November, 1927, after a wide experience in both exterior and interior construction, and in his new position will be of great value to the Superintendent of Maintenance.

Mr. E. S. Abbey—Captain of the Guard. Mr. Abbey joined the guard force in 1905, and became Sergeant in May, 1924. A reorganization of the guard force retains Mr. Abbey as the senior member of the organization with the new title of Captain.

Mr. Patrick Walsh—Sergeant of the Guard. Mr. Walsh came to Field Museum in February, 1894, in the Maintenance Division. He is one of the oldest employes in point of service. In August, 1905, he became a guard, and since January, 1930, has been Acting Sergeant on one of the night shifts.

Mr. David Conwill—Sergeant of the Guard. Mr. Conwill became a Museum guard April 1, 1931, immediately after his retirement from the United States Army.

Several members of the staff resigned during 1938. They are: Miss Velma D. Whipple, a guide-lecturer in the Raymond Foundation, who accepted a position as a teacher in the Chicago public schools; Mr. Phil C. Orr, Assistant in Paleontology, who became Curator of Archaeology and Paleontology at the Santa Barbara (California) Museum; and Mr. J. L. Jones, Purchasing Agent, who desired to make his home in Florida because of poor health.

Death took three veteran museum employes during 1938. Staff Artist Charles Abel Corwin, who had been associated with the institution for thirty-five years, died on January 27, in his eighty-first year. Mr. Corwin prepared nearly all the painted backgrounds used in the Museum as settings for habitat groups of modern mammals and birds, and for restorations of prehistoric peoples and animals. In addition to more than eighty such backgrounds he painted a series of large mural paintings of exotic plants and trees in the Hall of Plant Life (Hall 29). In his work he developed a technique which produced remarkably realistic results, and he was without doubt one of the foremost Museum artists in America. Prior to joining the staff of Field Museum, Mr. Corwin had a long and noteworthy career both as an independent artist, and on commissions for other institutions, among them the American Museum of Natural History, New York, the Los Angeles Museum, and the Colorado Academy of Sciences in San Francisco. At one time he was an instructor at the School of the Art Institute of Chicago. His paintings, shown at exhibits in Chicago and elsewhere, won many honors and prizes.

Mr. John E. Glynn, employed at the Museum since 1894, and Superintendent of Maintenance since 1920, died on October 13. Mr. Glynn had been largely responsible for supervising the gigantic task of moving the Museum's exhibits, study collections, and other possessions from the building originally occupied in Jackson Park, and reinstalling them in the present building, which was opened to the public in 1921. This immense moving operation, including hundreds of thousands of items, many of them extremely fragile, was conducted with practically no loss or damage. Mr. Glynn designed many of the best types of cases used in the Museum, including the built-in cases which are architecturally integrated with the interior of the building, and which are used for the installation of habitat groups and other dioramas. He also made improvements in methods of installation of exhibits, lighting, etc. A notable accomplishment was his reconstruction in the Hall of Egyptian

Archaeology (Hall J) of two complete mastaba tomb chapels of Egypt's Old Kingdom period. These were assembled, using chiefly original stone blocks brought from Egypt.

Thomas W. Warke, a faithful member of the maintenance force, who had worked at the Museum since 1894, died on January 16. Like Mr. Glynn, he was in point of years of service one of the Museum's oldest employes.

Others who died were Mr. Michael Kirby, and Mr. R. N. Abbey, former members of the guard force. Mr. Kirby had been employed by the Museum since 1917, and Mr. Abbey since 1908.

Under the provisions of the Field Museum Employes' Pension Fund, insurance was paid in the amounts indicated to the beneficiaries of Museum employes who died during 1938: to the widow of Mr. Charles A. Corwin, \$4,000; to the widow of Mr. John E. Glynn, \$6,000; to the widow of Mr. Thomas W. Warke, \$4,000; to the beneficiaries of Mr. R. N. Abbey, \$4,000; and to the widow of Mr. Michael Kirby, \$2,500.

Mr. Thomas Hardy, a guard since 1910, having reached the age of 74 years, was placed on the Museum's pension payroll at his own request.

As a new measure for the welfare of employes of the Museum, arrangements were made whereby those who desire to do so may enroll in the Plan for Hospital Care, a corporation not for profit, which provides service in most of the leading hospitals of Chicago. Under this plan, employes pay a nominal annual fee which entitles them to as much as twenty-one days per year of hospitalization, together with the use of x-ray facilities, operating rooms, and other services, in any of the hospitals connected with the Plan; also, provision is made for similar service in hospitals of other cities and countries, should need arise while an employe is traveling. The plan also provides similar benefits for families of enrolled employes upon payment of a small additional fee. Enrollment is purely voluntary. Approximately 42½ per cent of the Museum employes have subscribed.

This plan for hospitalization at small cost, together with the life insurance provided for most Museum employes, has already proved of great advantage to many of the employes and their families in meeting the contingencies of life.

Valuable assistance in the scientific work of the institution was rendered by a splendid group of volunteer workers who performed

routine and scientific work in various departments of the Museum without remuneration. Newcomers to this group during the present year were: Miss Marjorie Kelly, Mr. John Rinaldo, Mr. Leonard Bessom, Mr. E. Fred Bromund, Mr. Robert T. Burton, Mr. Albert Enzenbacher, Miss Marian Geller, Mr. Jack Huber, Mr. John Kurfess, and Miss Claire K. Nemeec. The services of this efficient group are deeply appreciated.

Volunteer workers who began activities in 1937 and continued during 1938 include Mr. Clarence B. Mitchell, Research Associate in Photography, engaged in a project of making color pictures of outstanding exhibits; Mr. Paul G. Dallwig, The Layman Lecturer, whose work is reported upon elsewhere in this book; Mrs. Edna Horn Mandel, Associate, Chinese Collections, who is working with Curator C. Martin Wilbur in a variety of Oriental studies; Mrs. Hermon Dunlap Smith, Associate, Birds, engaged in an ornithological research project in collaboration with Curator Rudyerd Boulton; and Miss Elizabeth McM. Hambleton, who, until her appointment in June to the staff of the Raymond Foundation, assisted Chief Curator Paul S. Martin as an Associate in Southwestern Archaeology.

The Museum is indebted also to other workers who have continued to render volunteer services on the staff for many years. These include Professor A. L. Kroeber, Research Associate, American Archaeology; Dr. T. George Allen, Research Associate, Egyptian Archaeology; Professor Samuel J. Record, Research Associate, Wood Technology; Professor A. C. Noé, Research Associate, Paleobotany; Dr. E. E. Sherff, Research Associate, Systematic Botany; Mr. H. B. Conover, Research Associate, Birds, and the Hon. R. Magoon Barnes, Curator, Birds' Eggs.

Again the Works Progress Administration of the federal government has performed noteworthy services for Field Museum. With many WPA workers continuing their work at Field Museum for several years, the value of their services has risen almost to a basis of equality with that of the junior members of the Museum Staff. Many tasks requiring expenditure of a great deal of time and meticulous labor have been completed or have been advanced to a point approaching completion. As members of the WPA become more proficient they are given more advanced tasks to perform. This plan results in greater values accruing to the Museum, and through it to the people of Chicago and the entire world of science. In several instances vacancies at Field Museum have been filled by transferring WPA workers to the Museum payrolls, and it is certain that the

training received at Field Museum will qualify many others for museum work elsewhere upon their eventual return to private employment. During the current year the WPA forces have been increased to a total of 215 workers. Their working time aggregated 337,756 hours, and the government paid them wages totaling \$211,548. The range of the tasks to which they were assigned embraced scientific research, preparation of exhibits, clerical work, and general labor, assignments being made according to each individual's capacities and experience. In acknowledging the splendid services of the workers on these Projects (Nos. 3701 and 3709), the Director desires to acknowledge also the fine co-operation of those in charge, not only at the Museum, but in the Chicago administrative offices of WPA.

It should be emphasized that the work done by WPA employes is of a character that could not be undertaken by the Museum's regular staff because of the pressure of more urgent tasks. The regular employes on the Museum's own payroll continued with their usual duties.

Examples of the work performed at Field Museum by WPA employes were included in the Exhibit of the Women's and Professional Division of the WPA held at the Merchandise Mart from May 5 to 10.

Following is a report of the principal activities of the forces working under the direction of the Superintendent of Maintenance:

In the Department of Zoology the new mezzanine lined with steel cases for the storage of specimens, on the fourth floor, was completed early in the year. With construction almost finished in 1937, this work in 1938 included installation of the railing, and of some eighty shelves and sixteen liners in the cases. An insulated cooling room for the storage of zoological specimens in the flesh was constructed on the fourth floor, in connection with the main taxidermy shop. An air-cooled condensing unit and coil for the refrigerating equipment was installed by the Commonwealth Edison Company. Twenty trays were made for the storage of specimens of birds' eggs in a special room on the third floor. Partitions were built across Rooms 93 and 96 on the third floor to make four work rooms and offices, and window benches were constructed in Room 93. A base was constructed for the exhibit of baboons installed in Hall 15. In the new Hall of Fishes (Hall O), which is in preparation, and will contain both habitat groups and the systematic collection, a 100-foot wall case, and groundwork for a group of Maine fishes, were

built. Assistance was rendered in the installation of a whale shark exhibit under preparation in this hall, and of the narwhal group added to Hall N (Hall of Marine Mammals). In the latter hall revisions were made in the exhibit of walrus whereby the "midnight sun" was relocated to improve its effectiveness. Seven cases in Hall 20 (habitat groups of birds) were glazed, and the glass in all cases in Halls 13, 16 and 17 was taken out, cleaned, and re-set. A case in Stanley Field Hall was remodeled for the exhibition of the giant panda "Su-Lin," and a dissecting table was built for research on this animal in the Division of Anatomy and Osteology. The light box for a case in Hall 20, in which a group of rheas is to be installed, was rebuilt to permit the use of a new type of lighting.

For the Department of Botany, flush doors were installed on each side of the new diorama of alpine plants in Hall 29, and a railing was placed in front of the view glass. Two large new mural paintings were hung, framed and starched in Hall 25. In the working quarters on the third floor, additional steel cases for storage of botanical specimens were installed—eight in Room 11, four in Room 4, and twelve in Room 8.

An arch for the installation of a lintel from ancient Kish was built between Halls K and L of the Department of Anthropology. Cases for the exhibition of Kish archaeological material in Hall K were refinished and temporarily arranged for installation of exhibits. In Hall J (Egyptian archaeology) the cases for exhibition of mummies were thoroughly cleaned. For the steel storage files for storage of anthropological material seventy-five wooden trays were provided.

In the Department of Geology a case for the exhibition of the skeleton of the extinct *Moropus* was built and installed in Hall 38. A large relief map of North America, 10 by 15 feet in dimensions, presented by *The Chicago Tribune*, was hung in Hall 36. The exhibit of fluorescent minerals was moved to a new location in the passageway near Hall 34, and revamped. Pressed wood backs were fitted in eight cases for Halls 34 and 35.

The office of the Curator of the N. W. Harris Public School Extension was moved to a new room and fitted with work tables and sink. A number of changes were made in the work rooms of this Department. Various fixtures were installed, four new benches were made, and an exhaust fan and hood erected.

General maintenance of the Museum building included the repairing of 565 windows on the second and third floors. New sills, sashes and frames were installed where needed. In the Cafeteria

the linoleum floor was repaired and waxed, cracks in the plaster of the walls were repaired and painted, and a new door frame was built for the large refrigerator. Five new cabinets for the storage of supplies were built for the Raymond Foundation and the Superintendent's office. An enclosure, with provisions for displays and for storage of books, was constructed to accommodate the Book Shop opened near the north entrance during the year. A large sign with raised letters indicating the new name of Hall 16—now Richard T. Crane Jr. Hall—was made and hung. Signs were hung also in Halls G, H, and 7. New window shades were hung in the Library, the Raymond Foundation office, the business offices, and the second floor exhibition halls. Two small skylights were re-covered, and eight were re-topped with roofing cement. Many leaks were found in the downspouts for drainage of rain and snow from the roof, and eight of the worst of these were patched, with new heads being made for four of them. A large amount of painting was done, including walls, ceilings, and in some cases floors, in the press room, Library, fourth floor work-rooms, exhibition halls K and L on the ground floor, the second floor bridge halls, the Director's anteroom, telephone operator's room, offices of the Divisions of Publications and Public Relations, the Superintendent's office, fan room, Rooms 93, 93-A, and 94 on the third floor, and three corridors on the ground floor. The wall-washing project undertaken by workers assigned to the Museum by the Works Progress Administration was continued throughout the year.

Herewith is a summary of the more important tasks accomplished during 1938 by the Chief Engineer and the men working under his supervision:

All three elevators—the passenger elevator, the freight elevator that conveys material to all floors of the building, and the hydraulic secondary freight elevator that carries material between the shipping room and the loading platform on the outside of the building—were overhauled. New bearings were installed in the motor of the main freight elevator. The pump of the hydraulic elevator was repacked, and new floor plates and side sheets were installed on the lift carriage. Extensive changes in the N. W. Harris Public School Extension quarters made necessary the installation of three new sinks, together with new water lines and drains, ten gas outlets, ten air outlets, and changes in electrical connections including twelve new drop lights and three outlets for power tools, etc. Completion of the new fourth floor mezzanine for storage of zoological specimens

necessitated the re-wiring of the west section of that floor. Both upper and lower tiers of storage cases were wired, and eighty-nine lights were installed. A pipe railing was cut for installation on the mezzanine. Lighting fixtures were hung in Hall L, and several electrical outlets for case lighting were installed in Hall K. In the latter, twelve cases also were wired for lighting. Several new circuits were run into Hall O and the cases there were wired for lighting. Two spotlights were installed in Hall 16 to illuminate the new sign designating it as Richard T. Crane Jr. Hall. A new electrical outlet was provided for the walrus case in Hall N because of changes made in the "midnight sun" illumination of this exhibit. Lighting fixtures were installed also in the new case containing the narwhal exhibit in Hall N. Other work concerned with lighting included provision of an extra electrical outlet required in completing the group of alpine plants in Hall 29, rewiring the exhibit of fluorescent minerals on the bridge near Hall 34, wiring seven cases for habitat groups of birds in Hall 20, wiring a new case in Hall 22, and providing outlets for the lights needed in display cases in the Book Shop. Additional drop lights were installed wherever required in offices and work rooms. An electrical alarm system was installed to provide working and quitting time signals for the WPA workers on the third floor. For the convenience of the Director, a new system of buzzers was installed between his office and that of his secretary. Extensive changes were made in Room 11 (assigned as an office to the Curator of Cryptogamic Botany), which required the installation of a new sink with drains and water piping, and changes in lighting. Larger steam radiators were installed in a number of former work rooms on the third floor to make them available for office and research work. Racks in the skin storage room of the main taxidermy shop were changed to allow the accommodation of larger skins. Many exhibition cases were moved for the various Departments to permit installation changes.

Severe tests were made of a new type of tubular fluorescent lamp, developed recently by the General Electric Company, to determine whether or not it would fade exhibited materials, and to ascertain its adaptability in other respects for Museum use. Fifteen cases in various parts of the building were equipped with these lamps. To date no fading of exhibited material has been discovered. A check on the amount of current consumed indicates an average saving of 71 per cent in wattage consumed as compared with the old type of lights. At the same time a great improvement was

obtained in the quality of the illumination. This indicates that adoption of these lights generally would make possible the lighting of many more individual cases with no increase in cost for electrical current. These lights offer great promise not only of vastly improved illumination of Museum exhibits, but may prove also of value for lighting of offices, the Library reading room, etc. They come in several different colors which make them especially valuable for obtaining different sorts of effects required in habitat groups, such as daylight, twilight, undersea scenes, etc.

The brick work on all boilers in the Museum's heating plant was repaired. The coal conveyor was overhauled, and new buckets were installed wherever necessary. New bearings were installed in the stoker motor, and other repairs made. Both air compressors were thoroughly gone over and all worn parts replaced. Heating equipment was thoroughly checked, traps cleaned, and all apparatus kept in good order. Because of the worn condition of the coal lorry in the boiler room, steel was purchased to rebuild it.

A contract was entered into by the Chicago Park District and the Museum whereby heat will be supplied from the Museum's steam plant for the new Park Administration building (at the north end of Soldier Field), construction of which was begun in 1938. The steam and return lines to this building have been installed by the Park District, and plans call for the delivery of steam beginning in the early part of 1939. Revisions were made in the contracts, which have been in force for a number of years, under which the Museum supplies heat required for the John G. Shedd Aquarium, and for Soldier Field (the latter contract being with the Chicago Park District). The new terms provide a more equitable basis for this service. During 1938, the Museum furnished 12,821,776 pounds of steam to the Aquarium, and 7,028,106 pounds to Soldier Field.

Reports in detail of the year's activities in each of the Museum's Departments and Divisions will be found in the pages which follow:

DEPARTMENT OF ANTHROPOLOGY

EXPEDITIONS AND RESEARCH

The Field Museum Archaeological Expedition to Southwestern Colorado, generously financed by President Stanley Field, spent four months in the field (June to October). This season was very successful and profitable from every point of view.

The expedition was in charge of Dr. Paul S. Martin, Chief Curator, who was ably assisted by Messrs. Carl Lloyd, Alexander Spoehr,



CHINESE POTTERY JAR

Decorated with a stamped design based upon motif of stags. Third century B.C. or later
George T. and Frances Gaylord Smith Hall (Hall 24)



and John Rinaldo. All photographs were taken by Mr. Robert Yule, Assistant in the Department of Anthropology. An excellent 16-millimeter Ciné-kodak was presented to the leader of the expedition by Mrs. Edna Horn Mandel, volunteer associate in the Department, making it possible to take motion pictures in color of the work in the field.

Excavations were conducted on the ruins of two large villages which are probably the most ancient in southwestern Colorado. They may be classified as belonging to the Modified Basket Maker Period. Because the researches of the summer have not yet been thoroughly collated, the descriptions and summary herewith given are tentative, and the chronology is inferential.

The people of the Modified Basket Maker Period constructed rooms of three kinds:

(1) Rooms with floors a few inches below the ground surface, and walls consisting of upright slabs topped by rubble of small stones set in abundant mortar. These rooms were contiguous. Each of these slab-walled rooms was covered with a roof supported by four upright posts, one set in each corner. It is assumed that these posts were forked to hold the main roof beams upon which smaller beams were then laid and in turn covered with bark and mud. The exact use of these rooms is not known, but it seems probable that they served as granaries and general store rooms.

(2) Rooms, built contiguously, with walls of upright posts (set stockade fashion) and mud. The spaces between the posts were plugged with mud in which leaves, grass, and reeds were used as binder. These houses were roofed by means of poles, bark, and mud, all supported by forked, upright posts. In each room there was at least one firepit, sometimes two. Many of them had large cists, or storage pits, sunk in the floor. These rooms varied in size, but measured on the average about six by eight feet. What they were used for is not known. Dr. Martin's guess is that they may have been living quarters.

(3) Pit houses (so-called because they are in reality large pits), the floors of which were six or seven feet below ground level. Most of these were about fifteen feet square. The entrance to a pit house consisted of a small antechamber (to the south) connected to the house proper by a short passageway and a door in the south wall. In the floor, near the center of the room, was a firepit. An east-to-west partition wall divided the room into unequal sections, with the larger space to the north, and the smaller one to the south.

The roof, composed of logs, was supported by four large posts, the upper ends of which were probably forked to provide a resting-place for the main stringers. In the floor, apparently without any definite arrangement, were numerous holes, large and small, deep and shallow. The use of these is unknown—some may have served as pot-rests, and one (north of the firepit and nearest to it) may have been analogous to the *sipapu*, which is provided in modern kivas for the purpose of “communication with the spirits.”

Whether these underground houses were used as living quarters, for celebrating ceremonies, or for both purposes, is not known. Because corn-grinding stones (metates and manos), cooking pots, and stone tools have been found on the floors of all of them, it seems a safe conjecture that they were used as living quarters. But it is also quite likely that they served as ceremonial chambers as well. It is difficult to explain why two kinds of living quarters—above-ground post-wall houses, and pit houses—existed simultaneously.

These various kinds of rooms were arranged as follows: a row of slab-walled rooms running east and west; to the south of them, a row of post-and-mud-wall rooms; and then again to the south the pit houses. It is interesting to note that this arrangement continued to prevail until late Pueblo times.

The pottery used by the people of this period was of three kinds: (1) A plain, undecorated smooth pottery with all coil marks obliterated (Lino gray); (2) a pottery with an orange background and red or black designs (Abajo red-on-orange); and (3) a gray pottery with black designs (Lino black-on-gray). The third type was less abundant than the others.

The stone and bone tools of this period were numerous. Passing over technical details and differences, suffice it to say that the stone tools comprised troughed stone metates (with only one end of the trough open), manos, axes, rubbing stones, hammer stones, mauls, polishing pebbles, projectile points, drills, knives, and scrapers. Many of these tools have distinguishing marks or characteristics which set them apart from those of later periods. The tools made of animal bones included awls, scrapers, and needles.

Corn, and possibly squash, were grown and used for food. About A.D. 800, the character of the houses changed. Pit houses were still in fashion, but the method of roofing them was slightly different. Instead of four main upright supports, many small poles were used. These, numbering as many as forty, were set around

the periphery of the room. The above-ground rooms were no longer constructed of slabs, posts, and mud, but were walled with crude, coursed masonry. However, the general arrangement of the village was the same as in earlier times, the construction of double rows of contiguous rooms being continued. The rear row was still used for storage (these rooms corresponding to the earlier slab-walled granaries), and the front row for living quarters (thus similar in function to the post-and-mud-wall houses of earlier times). All of the rooms used for living quarters were provided with firepits, and some of them with small ventilator shafts and deflectors. At this time large kivas became popular. At one village two were found, one measuring 82 feet in diameter, and the other, 43 feet. These are as large as any found in later villages.

The pottery was practically the same as that of the preceding period, except that the necks of some of the gray cooking vessels were "banded"—that is, the coils from which the pottery was constructed were obliterated on the body of the vessel, but not on the neck.

The stone and bone artifacts for these late Basket Maker houses continued unchanged.

Dr. Martin read a paper, summarizing his expedition's work, before the American Anthropological Association's meeting in New York (December 27-31). The final report on the summer's activity will be published early in 1939.

Mr. Richard A. Martin, Curator of Near Eastern Archaeology, spent most of the year in cataloguing material from ancient Kish, and arranging it for exhibition. Seven cases have been installed. A Sasanid portal, in what is to be the Babylonian hall, was completed and has already been opened to the public. Research on the continuity of Near Eastern pottery forms, and the development and influence of Neo-Persian architectural ornamentation, was conducted. Curator Martin also arranged a temporary exhibition of Sasanian objects for the members of the American Oriental Society, who met in Chicago in April. Another meeting attended by Mr. Martin was that of the American Historical Society held at Chicago in December.

Dr. Henry Field, Curator of Physical Anthropology, spent much of 1938 in research at various museums and universities in England and Europe. Acting for the Museum, he purchased several casts of human material. Appearing before the Second International Congress of Anthropological and Ethnological Sciences at Copen-

hagen in August, Dr. Field read a paper entitled "The Physical Characters of the Modern Inhabitants of Iran." At the meeting of the British Association for the Advancement of Science, in July, he was an American delegate.

On his return to the Museum, Dr. Field completed *Contributions to the Anthropology of Iran*, and continued preparation of *Contributions to the Anthropology of Georgia, U.S.S.R.*, both of which may be published in 1939. He also compiled data for a tribal map of Iran.

Dr. Wilfrid D. Hambly, Curator of African Ethnology, was engaged during the period from January to September in research required for the publication *Anthropometry of the Ovimbundu of Angola*. Data for this publication were collected by Dr. Hambly, as leader of the Frederick H. Rawson-Field Museum Ethnological Expedition to West Africa (1929-30), and this contribution to physical anthropology forms the third and last installment of the reports on the activities of that expedition. In this work, measurements of fifty-three adult males of the Ovimbundu are statistically treated, and compared with measurements of other groups of African Negroes. There are thirty plates, including photographic studies of tribal and ornamental body-marks and mutilation of teeth.

Work on the craniometry of 194 skulls from New Guinea was continued at intervals throughout the year. Measurements have been completed, and the task of making a detailed comparison of the data with the records of other observers has begun. These specimens were collected by Dr. Albert B. Lewis, Curator of Melanesian Ethnology, who was leader of the Joseph N. Field Expedition to New Guinea in 1909-1913.

In June, the task of rearranging and recataloguing a large collection of osteological material was undertaken. The specimens involved are stored in the drawers of steel cabinets. A numbering system facilitates ready reference. The new catalogue aims to give not merely a list under geographical headings, but a fairly detailed summary of the condition of all the material. When typed and indexed, it will be valuable for reference by students. A research worker may quickly ascertain from it the amount and condition of material available for his particular study.

Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, devoted considerable time to research on slavery in China during the Former Han period (206 B.C.-A.D. 25). This subject has anthropological interest because it deals with an important social,

economic, and legal institution in a formative stage in Chinese history. Many similar studies of slavery have been made by scholars working in the history of ancient Egypt, Greece, and Rome, but no other western scholar has studied intensively Chinese slavery in the period roughly equivalent to the last two centuries of the Roman Republic. The sources for this study are entirely Chinese documents written during the Han period. While these fully report major historical movements and important people of the ruling class, they almost completely disregard the common people, of which the lowest class were slaves. Fortunately, however, many incidental references to slaves, who were in some way connected with important people or events, appear in the documents. By a minute study of these apparently trifling references it is possible to learn much about the social, economic, and legal aspects of the ancient Chinese institution of slavery, and to obtain a picture of the daily life of a slave.

Curator Wilbur also completed the necessary study for the publication of a manuscript, left uncompleted by Dr. Berthold Laufer, late Curator of Anthropology, on the diffusion of the potato. This was published as Part I of *American Plant Migration*. A survey of Chinese collections in twenty-one major eastern and middle western museums constituted another valuable research undertaking conducted by Mr. Wilbur. His time was also largely devoted to systematizing working materials for the study of Chinese anthropology. A store-room containing a large east Asiatic study collection was completely overhauled and reorganized. A photograph file for east Asiatic archaeology and ethnology was established, and several thousand valuable photographs were classified and arranged.

Mrs. Edna Horn Mandel, Associate in the Chinese Collections, continued her project, as a volunteer worker, to study the Museum's Chinese paintings and sculptures with a view to making both exhibits and the large study series more useful to students. The study collection, numbering several hundred items, has been made easily accessible through adequate filing and indexing. Plans have been made for more effective exhibition of the paintings on display to the public. Mrs. Mandel has also assembled all relevant data on Chinese painting prior to the T'ang period, both historical and graphic. To further this research project, she has spent part of her time studying Chinese painting and the Chinese language at the University of Chicago. She has been of great assistance also in problems of exhibition, in giving information to visitors, and in collaboration on the arrangement of materials in the Chinese division.

In co-operation with Mr. Wilbur, Mrs. Rose G. Miller has undertaken to systematize the Museum's collection of several thousand Chinese rubbings. These rubbings, taken from monuments produced during the last three thousand years, offer invaluable studies of Chinese fine arts, literature, calligraphy, religion, and daily life. An adequate storage and filing system has been worked out, and Mrs. Miller has generously undertaken to arrange and classify the rubbings, index their contents, and prepare a draft catalogue of a large number presented to the Museum by Dr. Laufer. Her knowledge of Chinese makes her work especially valuable.

Reference has already been made to two of the publications issued during the year: Part I of *American Plant Migration (The Potato)* and *Anthropometry of the Ovimbundu*. Other publications which came from the press were: *Archaeological Work in the Ackmen-Lowry Area*, by Dr. Paul S. Martin, and *The High Priest's Grave of Chichen Itza*, written by Mr. Edward H. Thompson, and prepared for publication by Mr. J. Eric Thompson, who was formerly a member of the staff. On the press at the end of the year was Part II, Section 2, *Archaeology of Santa Marta, Colombia*, by Dr. J. Alden Mason, another former member of the Department staff.

Fifty articles for *Field Museum News* complete the list of the published material authored by the staff of the Department during 1938. Data were furnished also for thirty-five newspaper articles.

The rendering of assistance to students, the making of identifications of specimens brought in by visitors, and the answering of numerous inquiries by telephone and letter occupied much of the time of the staff.

ACCESSIONS—ANTHROPOLOGY

During 1938 the Department of Anthropology received twenty-three accessions comprising 32,817 specimens. Of the total number, 32,725 specimens resulted from a Museum expedition, one specimen was acquired by exchange, one by purchase, and the remaining eighty-nine were gifts.

A complete list of these accessions is appended to this Report (p. 424), but several deserve special mention here.

The outstanding accessions fall mainly into two categories: textiles and ceramics. The textile collections were enriched by the addition of old and rare specimens of Navaho, Mexican, and Algerian weaving, given by Mr. Homer Sargent, of Pasadena, California (formerly of Chicago), and by an unusual specimen of Balinese

painted cloth donated by Miss Helen R. Gilbert, of Chicago. Two rare ceramic statues of knights, from an anonymous donor, augment the Chinese collection of mortuary figurines collected thirty years ago by Dr. Berthold Laufer, to show how these guardians of the tomb developed in China out of the ancient Indian god of death. Mrs. William B. Berger, of Denver, Colorado, added to the Near Eastern collection a gift of two tablets inscribed with Babylonian contracts. An exchange with the Brooklyn Museum gave the Department a beautifully executed model of a Yucatecan Mayan temple. Through the generosity of Curator Henry Field, five rare pieces of Roman marble were received. Chief Curator Martin brought the Department its largest single accession as a result of the Archaeological Expedition to Southwestern Colorado. It is notable not for quantity alone, but also because it includes material, mainly pottery, on which no report has ever before been issued. Study of it, when completed early in 1939, will produce a much needed addition to archaeological knowledge of the southwestern United States.

An important addition to the Chinese collections is a brown pottery jar about ten inches high, covered with a stamped design of stags or ibexes (Plate XXVII). This piece came from the region of Loyang in Honan province, and is thought to date from the third century B.C. It has been placed on exhibition in George T. and Frances Gaylord Smith Hall (Hall 24). Similar Chinese jars are known only in the University Museum, Philadelphia, and in the Louvre, Paris.

CATALOGUING, INVENTORYING, AND LABELING—ANTHROPOLOGY

For sixteen of the twenty-three accessions received, entries were made. Twenty-six accessions of previous years likewise were entered or partly entered.

Catalogue cards prepared during the year totaled 1,653. Of these, 1,220 were entered. Since the opening of the first volume, the total number of catalogue cards entered is 217,290.

Distribution of the catalogue cards for the current year was as follows: North American archaeology and ethnology, 706; Central and South American, and Mexican archaeology and ethnology, 23; European archaeology and ethnology, 82; Japanese and Chinese archaeology and ethnology, 134; African ethnology, 16; Egyptian ethnology, 3; Kish and other Near Eastern archaeology, 623; East

Indian ethnology, 31; Balinese ethnology, 1; Malagasy ethnology, 12; Polynesian ethnology, 1; and physical anthropology, 21.

For use in exhibition cases, 1,781 labels were supplied by the Division of Printing. These were distributed as follows: Hall of the Stone Age of the Old World, 9; North American archaeology, 11; ethnology of the Southwest, 2; Korea, 24; India, 884; China, 213; Chinese jades, 323; Kish, 243; Africa, 6; Madagascar, 4; Egypt, 56; physical anthropology, 6.

In the departmental albums 698 additional photographs were mounted. Four new albums were opened.

INSTALLATIONS AND REARRANGEMENTS—ANTHROPOLOGY

One of the major installations completed in the Department was that by Curator Lewis of the Hall of Asiatic Ethnology (Hall L) which was opened to the public in August. Two and one-half years of steady work, including much research, were necessary to prepare this hitherto unexhibited material. Preparators J. William Harrison and Herbert E. Weeks co-operated with Dr. Lewis throughout the task. This hall is devoted to Asiatic ethnology exclusive of China, Japan, and Tibet. Among the places represented are Korea, India, Nicobar Islands, Andaman Islands, Siberia, Siam, Ceylon, and the islands of Sakhalin and Yezo, the last named being the home of the interesting and almost extinct Ainu people.

In Hall 24 (Archaeology of China), Curator Wilbur and Mrs. Mandel, Associate in Chinese Collections, made a new departure in exhibition of porcelains. In a case remodeled by Preparator Weeks, the usual painted background has been replaced by a wood veneer which displays the specimens to better advantage. Curator Wilbur, assisted by Preparator Harrison, rearranged a second case of Chinese pottery to eliminate over-crowding of specimens.

The largest single cache of flint discs ever found in America was placed on exhibition in Hall B at the beginning of the year. They are installed as nearly as possible in the same position that they occupied in the Hopewell Mounds of Ohio.

The final case of lower invertebrates, in a series begun in 1937, was completed for the Department of Zoology by Preparator Weeks. He also prepared a small temporary exhibit of American Indian material for the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Curator Henry Field began rechecking all specimens in the Hall of the Stone Age of the Old World (Hall C), and revised the labels

and maps in Chauncey Keep Memorial Hall (Races of Mankind, Hall 3).

Hall K, in which Near Eastern exhibits are being prepared, will probably be opened in 1939. It now contains three cases of stucco, four cases of pottery, one arch, and a beautiful Sasanian gateway, all of which resulted from the Field Museum-Oxford University Joint Expedition to Kish. These have been restored and repaired, under the supervision of Curator Richard A. Martin, by an expert plaster artist employed for the Museum through the federal government's Works Progress Administration. To facilitate access to the newly opened Hall L, the western end of Hall K, containing the Sasanian gateway and arches, has already been placed on exhibition.

Mr. Tokumatsu Ito, Ceramic Restorer, treated, repaired, and restored 350 objects.

Mr. Robert Yule, Preparator, marked catalogue numbers on many objects, made the drawings and maps for the report of Dr. Martin's 1937 expedition to the Southwest, and set the Chinese type used in the late Dr. Berthold Laufer's book, *The Potato*, which was published in 1938. Mr. Yule was photographer for Dr. Martin's 1938 expedition and, upon his return, edited the natural color motion picture films, inserting explanatory titles. He also made 138 colored lantern slides showing phases of the summer's work.

Three volunteer associates have given valuable assistance in Southwestern archaeology. Prior to her transfer in June to the staff of the James Nelson and Anna Louise Raymond Foundation, Miss Elizabeth McM. Hambleton helped Dr. Martin complete and publish the report of his 1937 expedition to Colorado. Mr. John Rinaldo joined the 1938 expedition as a volunteer, and is now engaged in research work and in restoration of the pottery which Dr. Martin excavated. Miss Marjorie Kelly, of the University of California, is assisting him in this work. She has classified and computed percentages on more than 30,000 pieces of pottery from the 1938 expedition, and has compiled these data statistically and graphically.

In addition to the plaster work in Hall K, previously mentioned, workers employed for the Museum by the Works Progress Administration have rendered much-needed services in all sections of the Department. A competent assistant has completed the sorting, cleaning, repairing, and identifying of stored collections in five large rooms.

The subject-geographical index of the Department's collections, begun in 1937, now covers approximately one-third of the total number of specimens. The largest section, that for North America, is more than half finished, and is rapidly moving toward completion in the hands of a skilled cataloguer. Another worker has nearly completed the immense task of checking and correcting all labels in the exhibition cases, while a librarian is working on a subject index of articles in periodicals published in several languages. Much clerical and statistical work of great value, including checking photographs and manuscripts, sorting specimens, etc., has been accomplished.

Technical and editorial aid was furnished by an especially qualified worker. She inaugurated work on the subject-geographical index of the North American collections, helped prepare two reports for publication, and compiled data on the collections for inclusion in a handbook of Hispanic collections in the United States.

DEPARTMENT OF BOTANY

EXPEDITIONS AND RESEARCH

With funds given by Mr. Sewell L. Avery, a Trustee of the Museum, an expedition was sent to the Nova Scotia shore of the Bay of Fundy to obtain data, material, photographs, and color notes for an ecological group showing typical inter-tidal vegetation of northern Atlantic shores.

The task was entrusted to Mr. John R. Millar, formerly on the staff of the Department of Botany, and now Curator of the N. W. Harris Public School Extension. He left Chicago in July, taking the necessary collecting equipment in his automobile. On the advice of Dr. Hugo P. Bell, of Dalhousie University, Halifax, Nova Scotia, who was consulted for his knowledge of the marine plants of the region, a collecting locality was selected, after investigation of several situations, at Sandy Cove on Digby Neck, Nova Scotia. Digby Neck is a narrow peninsula between the Bay of Fundy and St. Mary's Bay. It proved desirable for collecting because the rocky shore and the absence of extreme currents permitted a luxuriant growth of marine algae, while the tidal range of twenty-eight feet provided a great exposure of vegetation with the characteristic zoning of the plants distinctly evident.

Because of the time and nature of the tides, inclemency of weather, and the physical difficulties of exploring a boldly rocky and precipitous shore, the work at Sandy Cove was not completed until August 14. After leaving the area, a circuitous route was fol-

lowed around the southern and eastern shores of Nova Scotia for the purpose of making comparative observations in other localities. Additional material was collected at Quoddy Head, Maine, a peninsula opposite the Island of Grand Manan in the Bay of Fundy. Quoddy Head is the easternmost point of the United States mainland. The duplicate specimens obtained there were taken with the expectation that certain forms would lend themselves to treatment with preservatives so that the natural material might be used as far as possible in the exhibit.

Mr. Avery sponsored also an expedition to Guatemala, and Mr. Paul C. Standley, Curator of the Herbarium, was placed in charge. He left about the middle of November for Puerto Barrios. Beginning his collecting near Antigua, Curator Standley at the end of the year reported considerable progress made in the short time elapsed since his arrival in the field.

Several field trips, of one to two weeks' duration, were made into Missouri by Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, for the purpose of collecting herbarium specimens and county records for his book, *A Spring Flora of Missouri*, and for a manual of the flora of Missouri, Arkansas, and the adjacent Ozark region. About 20,000 specimens, including duplicates, were gathered, and these will be incorporated in the Herbarium of Field Museum and used for exchanges with other institutions. Included among specimens collected on these trips are a number of varieties and forms new to science, as well as a number of species new to Missouri and not hitherto represented in the Herbarium of Field Museum.

Dr. Francis Drouet, appointed to the staff during the year as Curator of Cryptogamic Botany, has taken advantage of opportunities for collecting algae in the states of Illinois, Indiana, and Missouri, the algal floras of which are as yet very inadequately represented in herbaria. With the assistance of Dr. Paul D. Voth, of the Hull Botanical Laboratory, University of Chicago, and members of the Department of Botany staff at the Museum, 521 specimens of algae were thus added to the cryptogamic herbarium of this institution.

Dr. B. E. Dahlgren, Chief Curator of the Department, made a visit to the lower Amazon in the months of August and September, the time of minimum rainfall in that region. In Belem, Dr. Dahlgren was joined by the veteran botanical explorer, Mr. C. Raymundo Monteiro da Costa, to whose collecting the Museum owes so many of its Amazon plants, particularly those of economic interest. From Santarem, at the junction of the Amazon and Tapajoz rivers, excur-

sions were made to the *terra firma* in the elevated land of the region as well as to the river margins.

Collections were made of palms and other plants and plant products especially desired for the Museum. Particular attention was given to vegetation of the small lakes off the river. These lakes constitute the native habitat of the *Victoria regia*, and photographs and full collections were secured for use in a habitat group featuring this largest of fresh-water aquatics.

A visit was also made to the new rubber plantation of the Ford Motor Company on the east bank of the Tapajoz River, a few hours by launch from the city of Santarem. Ancient rubber trees of great yield, wild, or planted many years ago, at the margin of the river, give some indication of what may be expected of the carefully planned and tended plantation on the still more favorable level ground of the nearby plateau.

The return trip was made by way of Ceará in order to visit the carnaúba plantation of S. C. Johnson and Son, near Fortaleza. There the Amazon collections were properly dried and packed, arrangements were made for some special collections, and some reliable data were obtained on the rate of growth and the development of the root system of young carnaúba wax palms.

Courtesies offered by Dr. P. Campos Porto, of the Brazilian Instituto de Biologia Vegetal, and in Belem-Pará, Brazil, by the Director of the Museu Goeldi, Dr. Carlos Estevão de Oliveira, as well as by other members of the staff of that small but important institution, are gratefully recorded.

In order to enlarge his field experience in tropical South America, Mr. Llewelyn Williams, Curator of Economic Botany, was given a leave of absence to enter the service of the government of Venezuela where he is at present acting as aid to Dr. Henry Pittier in the botanical exploration of that country.

Aside from expeditions, the research work of the Department of Botany during 1938 continued, in the main, as during the preceding years, but with one notable modification, long overdue: the extension of active work to the non-flowering plants. This has been effected by the addition to the staff of Curator Drouet, and it is expected that under his care a well-organized working herbarium of cryptogams will emerge from the present collection, augmented with such additions as can be provided by purchase, expeditions, and exchanges.



DIORAMA SHOWING ALPINE VEGETATION

The first of a series of dioramas illustrating plant ecology, this exhibit represents a scene above the timberline, at about 12,000 feet, in the Medicine Bow Mountains of eastern Wyoming, with characteristic spring and late summer flowers present simultaneously

Foreground by Emil Sella. Background by Arthur G. Rueckert

Hall of Plant Life (Hall 29)

Mr. J. Francis Macbride, Associate Curator of the Herbarium, continued his work of searching out and photographing type specimens in European herbaria, especially in the Muséum National d'Histoire Naturelle (Phanérogamie), in Paris. In that institution working quarters and other privileges, and valuable assistance, were generously provided for him through the kindness and interest of the Director, Professor Henri Humbert. During the summer Mr. Macbride returned to Geneva to resume previously uncompleted work, and made visits to some herbaria in Italy.

At the end of 1937 the Museum received 8,587 negatives made under Mr. Macbride's direction during the preceding two years. A shipment of about 1,500 more was made during 1938, but had not arrived at the end of the year. The total number of such negatives of type specimens at hand at the end of 1938 was 34,289, illustrating almost as many species of tropical American plants. They represent, in fact, the majority of species of flowering plants known from South America, and form a study series which for completeness is equaled in few, if any, other institutions.

The practical utility of these photographs is recognized by all botanists who have seen them, and they are constantly in demand for monographic research in both America and Europe. Similar photographic work upon so extensive a scale has never before been undertaken by any botanical institution. Prints from the negatives are made available by the Museum to botanists generally. During the past year requests were received from institutions in North and South America, for 5,417 such prints, which are furnished at cost of production. Many others have been sent in exchange for similar type photographs and specimens desired by Field Museum.

Collections received for determination and study from widely scattered sources have occupied fully the time of the Herbarium staff. Care of the Herbarium has been greatly facilitated by the employment throughout 1938 of a large number of workers supplied by the Works Progress Administration of the federal government. Although direction of the WPA workers has consumed much of the time of the staff, this is justified by the results accomplished.

There have been mounted and added to the Herbarium 40,000 sheets of specimens and 4,126 photographs. More than 11,959 printed or typewritten descriptions of species of plants have also been added. These figures indicate rapid growth, and compare well with similar data for other large herbaria of the world. The total number of specimens now in the Herbarium exceeds 939,000. All

work of mounting has been brought up to date, and current collections are handled promptly. The mounted specimens are distributed into the permanent study collections within a few weeks of receipt, making new accessions quickly available for consultation.

Progress has been made at cleaning and repairing sheets in the Herbarium. Several persons were engaged in this work during the year, and thereby greatly improved the appearance of the specimens. Many hundreds of new covers for genera and species were written, and data upon the sheets were corrected and amplified.

In the cryptogamic herbarium a small beginning has been made in the long and tedious work of renovating the packaging of the specimens already filed in the Herbarium. For this, and for the task of mounting and filing specimens, two WPA assistants have given valuable service during the period since September.

Considerable work was accomplished in the organization, with consequent reduction of bulk, of the large quantities of palm material on hand for incorporation into the Herbarium.

The rearrangement, according to recent literature, of certain groups of plants was started on the grasses, in which group it has now been completed. Similar work has been begun on the large genus *Carex*, and will be extended eventually to all the plants in the Herbarium. The nomenclature of North American plants is being brought up to date first.

More than 15,000 specimens of plants were submitted to the Department for study and determination. These were principally from tropical America, Mexico, and the United States, but represented various other regions as well. After determinations had been made, the larger portion of this material was retained for preservation in the Museum, but part was returned to the senders. Named, but not retained for the collections, were many specimens of plants of the Chicago region forwarded to the Museum by students, teachers, and visitors. The most varied botanical matters were the subjects of hundreds of inquiries answered by mail and telephone.

Many visiting botanists, not only from the Chicago region but from near and remote parts of the United States, and also from foreign countries, have consulted the Herbarium during 1938. Frequent use of it has been made by scientists and students from the several large universities in or near Chicago, and elsewhere in Illinois or neighboring states. The fact that it is the only large herbarium within a radius of several hundred miles has intensified

its use. Naturally, it is utilized constantly as a source of information, and as the basis of original studies by the Museum's staff botanists.

Botanical publications of 1938 were concerned chiefly with the flora of tropical America. Of Volume XIII, *Flora of Peru*, by Associate Curator J. Francis Macbride, one part was issued. This treats of the families from Berberidaceae to Connaraceae, inclusive. Accounts of certain families were contributed by Dr. R. E. Fries, of Stockholm, Sweden, Mr. Albert C. Smith, of New York, and Mr. Paul C. Standley and Dr. Julian A. Steyermark of the Museum staff. Except for the index, Volume XVIII, *Flora of Costa Rica*, by Curator Standley, has been completed. The two parts published during 1938 consist of 788 pages.

The only volume of the Botanical Series completed in 1938 is the two parts of Volume XIX, *The American Species of Passifloraceae*, by Mr. Ellsworth P. Killip, Associate Curator, Division of Plants, United States National Museum. This publication is based upon the many years of monographic research devoted to this group by Mr. Killip, and represents an exhaustive study of material from the leading herbaria of the world. Of Volume XVII, Nos. 4 and 5 were published during 1938. They are: *A Contribution to the Flora of Honduras*, by Dr. T. G. Yuncker, Professor of Botany, DePauw University, and *Studies of the American Flora*, by Assistant Curator Steyermark, containing primarily descriptions of new species of Mexican and tropical American plants.

One addition to the Museum's series of Botanical Leaflets was made during 1938. Following the leaflet *Tea*, by Assistant Curator Llewelyn Williams, issued last year, No. 22, *Coffee*, by Chief Curator B. E. Dahlgren, deals briefly with this commercial plant commodity in all its aspects.

Many abstracts and reviews of current literature relating to woody plants of the tropics were prepared by members of the Department staff for the periodical *Tropical Woods*, edited and published at Yale University by Professor Samuel J. Record, Field Museum's Research Associate in Wood Technology.

The staff also contributed many articles to *Field Museum News*, and furnished data for various newspaper articles. Assistant Curator Steyermark published during the year in various periodicals nine articles on plants of the United States, chiefly those of Missouri.

Various manuscripts by members of the Department staff, research associates, and assistants, have been prepared for publication in 1939, and several of these are already in press.

Curator Drouet, at the annual meeting of the Botanical Society of America, at Richmond, Virginia, on December 30, read a résumé of his manuscript on *Francis Wolle's Filamentous Myxophyceae*, a consideration of the specimens and publications of one of the early American phycologists.

ACCESSIONS—BOTANY

There were received during 1938 in the Department of Botany 390 accessions, comprising 50,823 items. The total number of accessions received during 1938 was almost a third greater than in 1937, but the total number of specimens included in them was slightly smaller. Included in the accessions were specimens for the exhibits, the herbarium, and the wood and economic collections. Classified by sources, 13,586 came as gifts, 21,483 were acquired in exchange, 9,251 were purchased, 2,377 were obtained by Museum expeditions, and the remainder, consisting chiefly of about 4,000 photographic prints, were received from the Museum's Division of Photography.

Of the total receipts, items for the Herbarium amounted to more than 50,000, including plant specimens, photographs, and typed descriptions. A large amount of exceptionally valuable herbarium material was received through exchange. First in importance was a sending of 3,358 specimens from the Muséum National d'Histoire Naturelle (Phanérogamie), Paris, transmitted by Professor Henri Humbert, Director. This series consisted in major part of old collections from Brazil, representing type material of several hundred species discovered by early collectors, and not represented previously in American herbaria. Another exchange of similarly valuable material, amounting to 1,085 specimens, chiefly from South America, was received from the Conservatoire et Jardin Botaniques, Geneva, through the courtesy of the Director, Dr. B. P. G. Hochreutiner.

Other important receipts of specimens through exchange included 350 specimens of flowering plants of Poland, from the Musée Physiographique de l'Académie Polonaise des Sciences, Cracow, Poland; 345 specimens from Panama and Costa Rica, from the Missouri Botanical Garden Herbarium, St. Louis; 260 specimens of Hawaiian plants, from Dr. F. Raymond Fosberg, Philadelphia; 904 specimens of plants, chiefly of the state of Washington and the Aleutian Islands, from Mr. Walter J. Eyerdam, Seattle; 2,030 plants of California and Nevada, representing material exceptionally well prepared and from a little known region, from Mr. Ira W. Clokey, South Pasadena, California; 1,988 specimens of plants of Guatemala and Mexico from

the Arnold Arboretum, Jamaica Plain, Massachusetts; 321 specimens of plants of the United States from the Academy of Natural Sciences, Philadelphia; 237 specimens of plants of the central United States from Dr. F. J. Hermann, Bureau of Plant Industry, Washington, D.C.; 229 specimens of North Dakota plants from the Department of Botany, North Dakota Agricultural College at Fargo; 336 specimens of California and Oregon plants from Dudley Herbarium, Stanford University, California; 706 specimens of plants, chiefly of central and South America, from the United States National Museum, Washington, D.C.; 707 specimens of flowering plants, chiefly of Central and South America, from the New York Botanical Garden Herbarium; 606 specimens of plants, chiefly of Central America and Mexico, from the Herbarium of the University of Michigan, Ann Arbor; 386 specimens of Argentinian plants from Instituto de Botánico Darwinion, San Isidro, Argentina; 211 specimens of Argentinian plants from Universidad de La Plata, Instituto del Museo, La Plata, Argentina; 307 specimens of Kansas plants from Kansas State Teachers College, Hays, Kansas; and 100 specimens of Costa Rican plants from Mr. Austin Smith, Zarcero, Costa Rica.

Of the 6,600 cryptogams added, chiefly in the last three months of the year, 1,962 came by way of exchange. There were 389 specimens from Naturhistoriska Riksmuseet, Stockholm, Sweden; 938 specimens from the Farlow Herbarium of Harvard University; 326 from the herbarium of William Randolph Taylor; 470 algae, mosses and hepatics from the New York Botanical Garden; 45 mosses and hepatics from the Department of Plant Pathology, Florida Agricultural Experiment Station at Gainesville; 41 specimens from the herbarium of J. C. Strickland; 4 from George H. Giles; 17 from Harold C. Bold; and 10 from Joan C. Bader.

Among the numerous gifts of herbarium material accessioned during the year are many of outstanding value, particularly from tropical America and Mexico. Among these may be mentioned 557 Honduras plants from Professor T. G. Yuncker, Greencastle, Indiana; 262 specimens of Peruvian plants, from Dr. César Vargas, Cuzco, Peru; 537 specimens of plants, chiefly of Missouri, from Dr. Julian A. Steyermark, of Field Museum; 209 specimens of Peruvian plants from Professor J. Soukup, Puno, Peru; 220 specimens of Uruguay plants, from Professor Bernardo Rosengurtt, Montevideo, Uruguay; 338 specimens of Costa Rican plants, from Museo Nacional, San José, Costa Rica, through its Director, Professor Juvenal Valerio Rodriguez; 292 specimens of plants of Ecuador and Puerto Rico,

from Mr. B. A. Krukoff, New York; 328 specimens of Mexican plants, from Mr. Irving W. Knobloch, San Juanito, Chihuahua, Mexico; 645 specimens of Mexican plants from Professor L. A. Kenoyer, Kalamazoo, Michigan; 265 specimens of Guatemalan plants from Dr. John R. Johnston, Chimaltenango, Guatemala; 344 specimens of Brazilian plants, from Dr. August Ginzberger, Vienna; 782 specimens of Brazilian plants, from Dr. Francis Drouet, of Field Museum; and 427 specimens of Costa Rican plants from Centro Nacional de Agricultura, San Pedro Montes de Oca, Costa Rica.

The Department of Botany of the University of Texas, through Professor Benjamin C. Tharp, presented 720 specimens, chiefly from northeastern Mexico, most of which were named at Field Museum. Professor Samuel J. Record, of the Yale School of Forestry, New Haven, Connecticut, continued his practice of former years, by forwarding 198 specimens representing woody plants of Central and South America. The year's largest single gift consisted of 2,127 specimens of Brazilian plants from Jardim Botânico de Bello Horizonte, in Brazil. This material consists of beautifully prepared specimens collected by Professor Mello Barreto, and includes many species previously not in the Herbarium of Field Museum.

Other gifts include 220 specimens of United States plants, from Mr. Hermann C. Benke, Chicago; 139 specimens of Colombian plants, from Rev. Brother H. Daniel, Medellín, Colombia; 184 specimens of Colombian plants, from Rev. Brother Elias, Barranquilla, Colombia; 126 specimens of Missouri plants, from Mr. George Moore, Lebanon, Missouri; 306 specimens of plants, chiefly from Hawaii, from Dr. E. E. Sherff, Chicago; and 208 specimens of Mexican plants, from Mr. Howard Scott Gentry, Tucson, Arizona.

Of 1,686 cryptogamic plants sent as gifts since September, 1938, the largest collections received consisted of 1,186 specimens from Missouri, sent by Mrs. Cora Shoop Steyermark, Chicago; 318 specimens of algae from the herbarium of Dr. Francis Drouet, Chicago, and 100 specimens of mosses of Iowa from Dr. H. S. Conard, Grinnell, Iowa. Other material, chiefly of Myxophyceae, sent to the Curator of Cryptogamic Botany for determination, and retained for the Herbarium, includes 96 specimens from Burma; 29 from China, and about 200 from various parts of North and South America.

Of specimens purchased, the most important acquisition for the cryptogamic collections was the herbarium of Mr. H. Royers, a German phycologist. It contains 2,000 or more specimens of algae from Europe, collected principally by botanists of the nineteenth century.



MERCHANTS OF ST. MALO AT YEMEN

A historic moment in world commerce—the first visit of vessels from western Europe to buy coffee directly from the Arabs

One of a series of mural paintings by Julius Moessel

Hall of Food Plants (Hall 25)

A considerable series of these specimens is reported to have been studied by Gomont, and by Bornet and Flahault, monographers of the filamentous Myxophyceae. Many specimens from Rabenhorst, *Die Algen Europas*, are included. This herbarium, purchased early in December, has not yet been sorted and prepared for filing.

Several sets of published exsiccatae were also added through purchase, the largest of these being Tilden, *American Algae*, with 650 specimens.

In August, 1938, the Museum received on loan the personal herbarium of Curator Drouet, containing 3,263 specimens of algae on 2,760 herbarium sheets. These have been made available for reference. This herbarium contains, besides Dr. Drouet's own collections from North America and Brazil during the period 1928-38, a large series of specimens collected and studied by many early and contemporary American and European botanists.

CATALOGUING, INVENTORYING AND LABELING—BOTANY

During 1938 there were distributed, to institutions and individuals in North and South America, and Europe, eighty-one lots of material, including 12,888 herbarium specimens, wood specimens, photographs, and typed descriptions of new species. Eighty-six lots of specimens were lent for study, and eighty-six lots were received on loan for study or determination.

Records of botanical accessions, loans, and exchanges have been carefully kept by Miss Edith Vincent, Librarian of the Department. The geographical and collectors' indexes have been kept up to date, as has been the card catalogue of economic collections, with the aid of federal Works Progress Administration workers. Many WPA workers rendered great assistance in reorganization and arrangement of reference and exchange material, herbarium and economic specimens, and woods. They also performed much needed typing. More than 205,000 catalogue cards were written by them for permanent and temporary files, and many thousands of herbarium and wood collection labels were prepared.

Labels have been prepared, printed, and installed for all current additions to the exhibits, and many old ones have been revised.

The only collections of the Department requiring a thorough check-over during the year were those of non-vascular cryptogams acquired in the course of years, mostly without having had the attention of a specialist.

Upon the assumption of his duties as Curator of Cryptogamic Botany, a general inventory of these became Dr. Francis Drouet's first concern. As a matter of record his report is quoted as follows: "Until September 1, 1938, specimens of cryptogams had accumulated in the Herbarium of the Museum in a rather desultory fashion. The collection had attained sizable proportions; it lacked much, however, in both organization and content of historical collections, to make it as useful to botanists as is the phanerogamic herbarium. Its chief constituents were the herbaria of: E. T. and S. A. Harper, principally of North American fungi; W. S. Moffatt, entirely of North American fungi; L. J. Wahlstedt, chiefly charophytes of the world; Ed. Jeanpert, principally of mosses and hepatics; Arthur Schott, of algae; Mrs. E. (M. S.) Snyder, of southern California marine algae; and portions of the private herbaria of Elihu Hall, M. S. Bebb, and H. N. Patterson.

"A survey of the representation of published sets of exsiccatae has yet been attempted only among the algae. In this group there were present the full set of 2,350 specimens of North American algae of Collins, Holden and Setchell, and parts (150 specimens) of Areschoug.

"Since September 1, 1938, when the Curator of Cryptogamic Botany assumed his duties at the Museum, some other sets of published exsiccatae have been added, viz., Tilden, *American Algae*, portions of Wagner, *Cryptogamen Herbarium*, and of Wittrock and Nordstedt. New additions, totaling 6,600 specimens, are included in the account of botanical accessions elsewhere in this report.

"It is the desire of the Curator to build a large and useful cryptogamic herbarium at Field Museum. The collection should be enlarged by the addition of material of historic value and of new specimens from the Americas and other parts of the world. Although the species of cryptogams are generally considered to be of wide distribution over the face of the earth, one cannot hope to accumulate a herbarium complete in itself, with material representing copiously each and every species from its entire range. It is hoped, however, that large collections will be accumulated from both North and South America, and thus, by co-operation with other institutions, to make available for future researches a fairly complete representation of the flora of the world. The purchase of specimens, and expeditions into regions little-explored for cryptogams, will be necessary for the realization of such an aim."

INSTALLATIONS AND REARRANGEMENTS—BOTANY

The most important addition to the botanical exhibits resulted from completion, early in the year, of the plant habitat group representing an alpine meadow described in the 1937 Report. This was completed in February, 1938. A photograph of it is reproduced in this Report (Plate XXVIII, opposite page 366). The exhibit was prepared under the supervision of Mr. Emil Sella, of the Department Laboratories' staff, and occupied the time of several workers for more than two years. The necessary field studies and botanical collections were made in Wyoming by Mr. Sella. The second group planned for the Hall of Plant Life (Hall 29) is well advanced, and may be completed in the spring of 1939. It will represent the spring flora of this part of the world in a typical woodland scene such as formerly might have been found almost anywhere on the present site of Chicago, and still survives in a few favored or well-guarded localities near the city. In contrast with the low growing and relatively meager carpet of arctic vegetation shown at its moment of greatest perfection in the alpine meadow, that of the medium temperate local environment represented in this group will appear truly luxuriant and many-dimensional, with its mingling of trees, shrubs, and flowering herbs. The large amount of work required to produce it has been in progress for more than a year, occupying, under the supervision of Mr. Sella, the efforts of selected workers furnished by the federal Works Progress Administration who, in the course of time, have become sufficiently skilled to prepare the bulk of material required. The more exacting portions of the task have been performed by Mr. Sella, and by Mr. Milton Copulos, also of the Museum's own staff. The background was painted by Staff Artist Arthur G. Rueckert from photographs taken by Mr. Sella, and a preliminary sketch made by the late Charles A. Corwin, former Staff Artist.

As mentioned in the section of this Report on Expeditions, material has been collected for two further botanical habitat groups for the north and south ends of the Hall of Plant Life, viz., one of marine algae of the inter-tidal zone of the northern Atlantic shore, and the other of tropical fresh-water aquatics. Some preliminary work has been done on both of these.

While work on these groups has occupied most of the time and attention of the Department's staff of preparators, other exhibits in the Hall of Plant Life have not been neglected. To the still inadequate representation of the rose family, the botanical source of

most of our fruits and berries of the temperate zone, there has been added one more example, a reproduction of a branch of Bartlett pear. This is the work of Mr. Copulos. From the standpoint of museum technique this reproduction is of special interest because of the use of a new plastic known as *vinylite*, employed as material for leaves.

An interesting addition to the orchids in this hall was made with the installation, in a separate floor case, of a reproduction of the striking epiphytic bee swarm orchid, *Cyrtopodium punctatum*, collected for the purpose by the Chief Curator several years ago in southeastern Brazil. This orchid, which grows as well on bare rock as in the tree-tops, stands about five feet in height. It has large clusters of yellow flowers with brown spots that are responsible for its common name. Of special interest are its palmlike foliage, long thick leaf stems which also function as storage organs for water, and its mass of aerial roots at the base. This exhibit, completed early in the year, is the work of Mr. John R. Millar and Mr. Copulos, with some assistance from WPA craftsmen.

The exhibits in Hall 25 received a desirable addition in a reproduction of a fruiting specimen of the nipa palm, an apparently stemless palm inhabiting brackish water swamps of the East Indies, growing in solid formations and scattering its water-borne fruits over huge areas. Because of the plant's large size, only the basal part of its leaves could be shown. The material for this exhibit was secured from specimens growing in the Botanic Gardens of Georgetown, by the Stanley Field British Guiana Expedition of 1922, which furnished so much exhibition material for the Department.

Some improvements of other exhibits in Hall 25 were made by the reinstallation of the cane sugar case (Case 22), and of the case containing the carnaúba and Pritchardia palms (Case 7). The acquisition of new material, recently collected and prepared, made these improvements possible.

A fine fruiting spadix of the American oil palm, collected last year in Panama by one of the Department's Research Associates, Professor A. C. Noé, was brought to the Museum preserved in formalin. Satisfactorily dried, it has been installed in conjunction with its more important relative, the African oil palm, which was already represented in the exhibits.

Preparation of a diorama showing a cassava starch mill, begun last year, has made some progress in the hands of a WPA preparator to whom it was entrusted.

The series of transparencies in the windows of Hall 25 has been extended until there now remains only a single space unfilled, and this has been reserved for pictures relating to sorghum or Kaffir corn.

A few excellent photographs for use as transparencies have been found by searching the files of the *National Geographic Magazine*, which has kindly lent negatives on request. Western railroads, especially the Chicago, Milwaukee, St. Paul and Pacific, have supplied the largest number of those used in connection with the small grains. The large film positives made from them have been produced by the Museum's Division of Photography, and colored by Mr. Thomas Jelinek.

Some transparencies have been made also for the windows in Charles F. Millspaugh Hall of North American Woods (Hall 26) from photographs illustrating American trees, forests, forestry, and phases of the lumber industry and of forest conservation. Here the Museum's own files have furnished some subjects, and others have been lent by western lumbermen's associations and by the United States Forest Service.

In the Hall of Foreign Woods (Hall 27) one case was installed. It contains four planks from New Zealand, the gift of Mr. O. A. Oakes, of Evanston, Illinois.

The most important new undertaking begun during the year to further improve the botanical exhibits is a series of murals in Hall 25, paralleling the food plant exhibits which form the theme. The murals will deal with the human activities which grow out of man's use of plants for food; the primitive gathering, hoeing and planting, plowing, sowing, and other steps in development of crop production; processes connected with the preparation of staple vegetable foods such as threshing, milling and baking, sugar production and wine-making; and transportation, trade, and distribution. In short, they will condense in pictorial form the story of man's use of food plants. Fortunately, it has been possible to entrust this task to Mr. Julius A. Moessel, as able and experienced a mural painter as could be desired. Plate XXIX, opposite page 372, of this Report, shows one of two paintings which are already in place on the north wall of Hall 25. This depicts a historic moment in European commerce in food stuffs—merchants of St. Malo buying coffee in Arabia. The other one so far installed shows a Mexican market scene. Two other subjects were almost completed at the end of the year.

An important addition was made to the Herbarium during 1938 by the purchase and installation of eighteen new metal herbarium

cases, serving in part for the cryptogamic herbarium, in part to accommodate expansion in the general herbarium of flowering plants, and finally to replace old wooden cases which were still in use.

DEPARTMENT OF GEOLOGY

EXPEDITIONS AND RESEARCH

An expedition, sponsored by Mr. Sewell L. Avery, a Trustee of the Museum, and conducted by Mr. Sharat K. Roy, Curator of Geology, continued the work begun last year of collecting specimens for the enlarged collection illustrating structural and dynamic geology now being organized for Clarence Buckingham Hall (Hall 35). The expedition spent eleven weeks in the field in northern Colorado, the Black Hills of South Dakota, and in some eastern states as well. Although the main purpose of the expedition was to collect specimens relating to structural and dynamic geology, minerals of high quality, when available in the localities visited, were also collected, and photographs of unusual geological features were secured.

During the first six weeks, devoted to collecting in the Boulder region of northern Colorado and the Black Hills of South Dakota, eleven localities were visited, and ninety-six specimens were collected. In the last five weeks field work was shifted to New York, Connecticut, Vermont, and Rhode Island, where twelve localities were visited and seventy-eight specimens collected. The 174 specimens collected by the expedition include dikes (in sedimentary and igneous rocks), folds (synclinal, anticlinal, isoclinal, similar, recumbent, etc.), flow structures, faults (normal and reverse), slickensides, fault breccia, breccia, tension joints, progressive weathering, raindrops, ripple marks, and various minerals. Many of the specimens represent features which are entirely new to the Museum's collection, and fill to a large extent the gap that has existed in the collections of the hall devoted to physical geology. But the present enlarged collection, greatly superior as it is to the display of former years, cannot be regarded as an adequate representation of physical geology. Some important phases of the subject can be illustrated only if persistent search for further specimens is conducted in the field.

Dr. Albert J. Walcott, working in the Department under a special arrangement, spent a month in Washington, Oregon, and Wyoming, collecting cryptocrystalline quartzes for a new exhibit of ornamental and semi-precious quartzes in preparation for Hall 34. The expedition collected 193 specimens, mostly of the ornamental and semi-precious cryptocrystalline quartzes, and obtained 206 others, many

of them polished, as gifts from local collectors. Much of the success of the expedition was due to the enthusiastic co-operation extended by local collectors, and especially to the valued assistance of Dr. H. C. Dake, Editor of *The Mineralogist*. The specimens secured, when added to those which were already in the collections, provide ample material for the new exhibit, although it should be further extended by addition of material from other parts of the world.

There were no expeditions to collect vertebrate fossils during 1938. It has been increasingly evident for some years that the full value of the Museum's extensive collection of South American fossil mammals and birds could be developed only after comparisons with similar specimens in European and eastern museums; and that, if such comparisons were made, studies based mainly on the large collection here would have increased scientific significance. For this reason, Mr. Bryan Patterson, Assistant Curator of Paleontology, working under a grant-in-aid for travel made by the American Association of Museums from a fund provided by the Carnegie Corporation, spent two months in Europe making the necessary studies. During July he studied the South American fossil mammals at the Muséum d'Histoire Naturelle, Paris, and in August he studied South American fossil birds in the British Museum (Natural History), London. Returning, he spent two weeks at the American Museum of Natural History, New York, and at Princeton University, studying fossil birds. Results from these studies admirably supplement those obtained from work on Field Museum's collections. The synonymy of many genera and species can now be straightened out. The morphology of various forms is better understood, as well as the range of variation of a number of them.

Research in vertebrate paleontology continued steadily throughout the year. It was based on material accumulated from past expeditions, and on specimens included in recent important gifts. The study and description of Miocene carnivores in the Museum collections by Mr. Elmer S. Riggs, Curator of Paleontology, is nearly completed. A study of some Notoungulate brain casts by Assistant Curator Patterson, completed in 1937, appeared as a Museum publication at the beginning of 1938. A paper on *Animal Remains from the Alishar Hüyük in Central Anatolia*, by the same writer, was published by the Oriental Institute, University of Chicago, as part of its Publications, Vol. 30, *The Alishar Hüyük, Seasons of 1930-32*. A paper by Mr. Paul McGrew, Assistant in Paleontology, on *Dental Morphology of the Procyonidae with a Description of*

Cynarctoides, *Gen. nov.*, appeared as a Museum publication. It is based on specimens presented by Mr. McGrew.

Mr. Edwin C. Galbreath, of Ashmore, Illinois, contributed a paper on *Post-Glacial Fossil Vertebrates from East-Central Illinois*, which was published in the Geological Series of the Museum. Two new Paleocene crocodiles collected in 1937 were described by Curator Karl P. Schmidt of the Department of Zoology, in a Museum publication issued as No. 21 of Volume VI, and entitled *New Crocodilians from the Upper Paleocene of Western Colorado*.

Curator Roy prepared a paper, *Additional Notes on the Grinnell Glacier*, published at the end of the year. It brings his earlier paper on this subject up to date by incorporating discoveries made by recent expeditions under the leadership of Commander Donald B. MacMillan.

Dr. Walcott has begun a research on the constitution, classification, and nomenclature of the cryptocrystalline quartzes. This is to proceed in conjunction with his preparation of the new collection illustrating the subject.

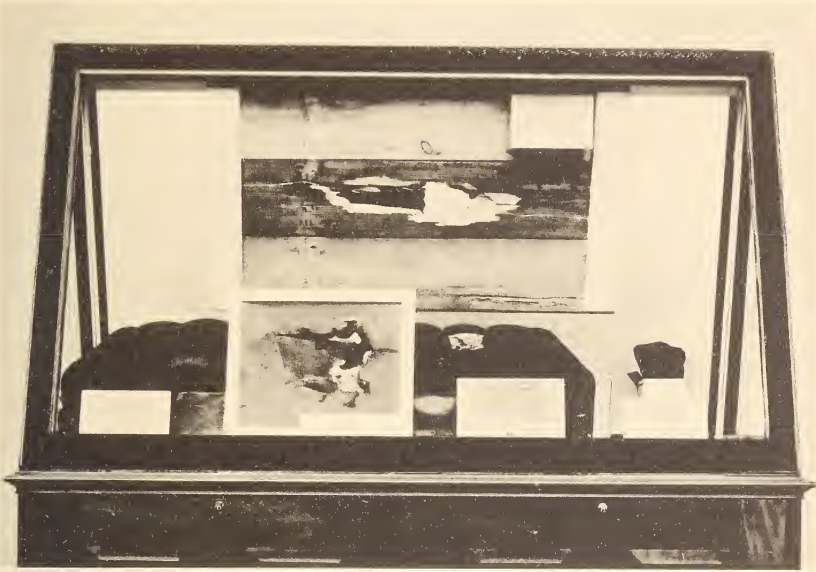
Other demands on the time of Chief Curator Henry W. Nichols made it necessary for him to confine work in the chemical laboratory to routine tests and analyses immediately needed for identification of specimens or preparation of labels. Four bronzes were restored by the Fink electrolytic process for the Department of Anthropology, and 882 gallons of alcohol were purified for the Department of Zoology.

ACCESSIONS—GEOLOGY

The Department of Geology recorded during the year eighty-five accessions, an increase of nearly one-quarter over the number in the preceding year. These accessions added 4,559 specimens, nearly four times as many as were received in 1937, to the collections. Of these specimens, 3,883 were gifts, 248 were obtained by exchange, 404 came from expeditions and 24 were purchased.

The most important accession of the year was the Benld (Illinois) meteorite with material showing the damage it caused when it fell. This unusual and important meteorite was secured through the efforts of Messrs. Ben Hur Wilson and Frank M. Preucil, Jr., of the Joliet (Illinois) Astronomical Society, who undertook the negotiations which resulted in its purchase.

The *Chicago Tribune* presented a large relief map of North America, fifteen feet long and ten feet wide. It has been placed on the west wall of Hall 36.



THE BENLD METEORITE (at right) WITH DAMAGED PARTS OF AUTOMOBILE AND GARAGE
Hall 34

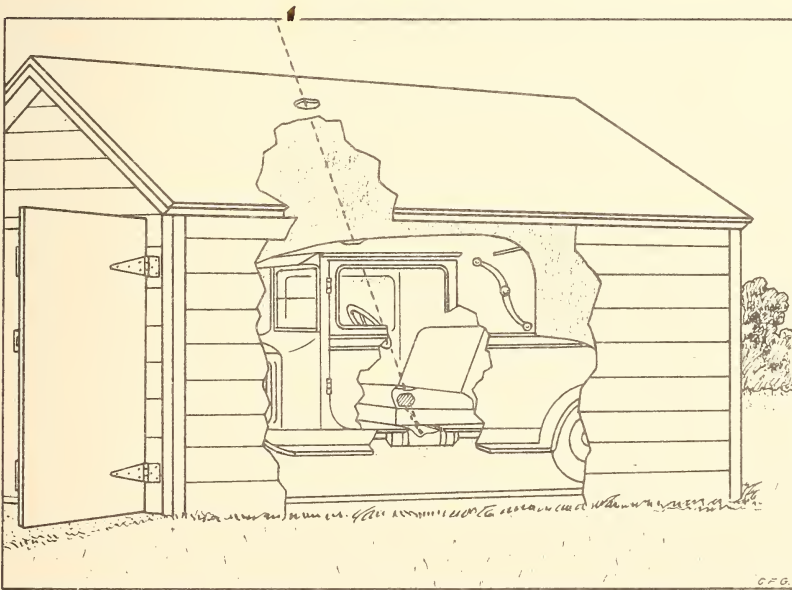


DIAGRAM SHOWING PATH OF BENLD METEORITE THROUGH GARAGE AND CAR

A gift of forty-four pieces of jewelry from the Estate of Mrs. Carrie Ryerson permits an important enlargement of the gem collections in H. N. Higinbotham Hall (Hall 31). Another gift of more than usual interest and beauty is a 3.97-carat beryllonite presented by Mrs. Joan A. Chalmers, and the late William J. Chalmers, former Trustee of the Museum.

Mr. William B. Pitts, of Sunnyvale, California, presented a beautiful plaque of transparent sections of chiastolite crystals displaying the characteristic strange dark crosses in an unusually effective way. He also added a number of specimens to his former gifts of "orbicular jasper."

The most important additions to the mineral collection were the cryptocrystalline quartzes obtained by the Expedition to the Pacific Northwest. This expedition secured, in addition to its collected specimens, gifts from local amateur collectors of 206 specimens, many of them cut and polished. Among those who contributed were: *The Mineralogist*, a magazine, and its editor, Dr. H. C. Dake, Mr. Jack Barry, Mr. A. R. Hine, Dr. E. W. Lazell, Mr. Walter Nelson, Mr. Peter Peterson, Mr. J. Lewis Renton, Mr. A. J. Schneider, Mr. Ray Schneider, Smith's Agate Shop, and Mr. F. S. Young, all of Portland, Oregon; Mr. P. L. Forbes and Mr. M. T. Green, of Bend, Oregon; Mr. J. R. Wharton, of Roseburg, Oregon; Mr. W. A. Brox, of Rawlins, Wyoming, and Mr. Paul Weiss, of Denver, Colorado.

Mr. Lloyd Curtis, of Lander, Wyoming, presented eleven specimens of sapphire with damourite, and three jades from a newly opened deposit.

Twelve "glacial gems"—polished cabochons cut from ordinary pebbles from local gravels—were received as a gift from Mr. William C. McKinley, of Peoria, Illinois. They demonstrate the beauty that can be given many of our ordinary stones by suitable treatment. Mr. J. O. Shead, of Norman, Oklahoma, added nine to the Museum's collection of barite roses. Mr. Frank Von Drasek, of Cicero, Illinois, added sixty-seven minerals to his gifts of former years. Miss Ann Trevett, of Casper, Wyoming, presented a specimen of the rare mineral uranophane. Another rare mineral, gillespite, was the gift of Miss Bertha Gordon, of Porterville, California, who also presented four photographs of geological features in Death Valley.

Mr. S. M. Snyder, of Metamora, Illinois, presented a petroleum-filled geode, and Mr. Edward M. Brigham of Battle Creek, Michigan, gave seven blue agates. Excellent examples of asterism in phlogopite were presented by Mr. Hugh S. Spence, of Ottawa, Canada.

Other additions to the mineral collection came as gifts from Mr. Clark W. Walter, Mr. Harry Changnon, and Mrs. Beatrice Norden, all of Chicago; Mr. R. G. Slocum, of Riverside, Illinois; The Asphalt Shingle and Roofing Institute, of Chicago, and Mr. H. V. Schiefer, of Cleveland Heights, Ohio.

A fine gem quality crystal of aquamarine, and two gems cut from sphalerite, were obtained for the gem collection by exchange. The meteorite collection was enlarged by the purchase of fourteen meteorites. Six tectites and four meteorites were obtained by exchanges.

The principal acquisitions for the physical geology collections were the 174 carefully selected specimens collected by a Museum expedition sponsored by Mr. Sewell Avery. The Marquette Geologists' Association, a Chicago society of amateur geologists, collected for the Museum twenty-three specimens, mostly glacial striae, needed to fill gaps in the collection. This gift was supplemented by Mr. William E. Menzel, of the same association, with a collection of twenty-eight specimens.

Six European rocks and sands were the gift of Dr. Henry Field, of the Museum staff. A collection of six siderite concretions which have peculiar features, worthy of much study, was presented by Wheaton College and Professor L. A. Higley, of Wheaton, Illinois. Gifts of other specimens illustrating physical geology came from Mrs. Keith Griswold, of Evanston, Illinois, Mr. John W. Jennings, of Eureka Springs, Arkansas, Mr. Donald C. Boardman, of Fillmore, California, and Mr. C. W. McLeod, of Michigan City, Indiana.

A large slab of the highly colored and patterned calico rock from Calico Canyon, South Dakota, was obtained by an exchange with Wheaton College. It has been given a prominent position among the exhibits in Clarence Buckingham Hall (Hall 35).

Accessions to the economic collections were comparatively few. One consisted of a collection of minerals used as medicine in Arabia, obtained by the Field Museum Anthropological Expedition to the Near East (1934). Gypsums and diatomite, collected in Nova Scotia by a botanical expedition of 1938, sponsored by Mr. Sewell Avery, formed another addition. The medicines are interesting as illustrations of strange therapeutics practiced in primitive times and by primitive peoples. Of similar interest is a geophagist's or clay-eater's clay, presented by Mr. W. O. Swett, of Chicago. This clay is eaten by Indians in Oaxaca, Mexico. Coals and oil shales from mines in Fu-shun, Manchukuo, were presented by Mr. Tokumatsu Ito, of the Museum staff. They represent the product of one of the

most important mines of western Asia. The Texas Planning Board, and the University of Texas, Austin, presented examples of the newly developed marbles and granites of that state.

A valuable gift of fossil plants collected near Rifle Gap, Colorado, came from Messrs. William B. Hilton and G. Bradley Harris of nearby Rifle. This collection demonstrates the Paleocene age of the beds in which the specimens occur, and may help in correlating mammal and plant sequences of the Paleocene. Other gifts of invertebrate fossils came from Messrs. F. C. Cleveland, of Chicago, Fred E. Gray, of Oak Forest, Illinois, Duncan MacMillan, of Chicago, R. A. Yeager, of Kankakee, Illinois, C. A. Quinn, of Ainsworth, Nebraska, and J. K. Strecker, Jr., of Waco, Texas. A collection of Miocene fossil shells was obtained by exchange with Princeton University.

Two important additions were made to the collection of vertebrate fossils. One, the gift of Mr. Elmer S. Riggs, of the Department staff, is a collection of forty-six specimens of fossil mammals from the Miocene and Pliocene of Devil's Gulch, Nebraska, which includes three skulls of fossil horses, one of a fossil camel, one of a canid, and two of procyanids which are new to the collections. The other, a gift from Mr. Paul O. McGrew, also of the Department staff, is a collection of nine skulls, and some 3,000 jaws and teeth, of micro-mammals from the White River formation of Nebraska. This, the largest collection of the kind known, includes important specimens and new species.

Other gifts of vertebrate fossils came from Messrs. Charles H. Flory, Bellingham, Washington, Alfred A. Look, Grand Junction, Colorado, George W. Bowen, Chicago, C. G. Colyer, Sheridan, Wyoming, and C. H. McPherson, Pana, Illinois.

By exchange with the Museo Argentino de Ciencias Naturales, Buenos Aires, Argentina, came five casts of holotypes of five South American fossil birds. A cast of the skeleton of the great Eocene bird *Diatryma* was received through an exchange with the American Museum of Natural History, New York. The skull and jaws of a musteline were obtained by an exchange with the Peabody Museum, of Yale University, and two other mustelines, two rodents, and two carnivores came through an exchange with the Dyche Museum, of the University of Kansas.

CATALOGUING, INVENTORYING AND LABELING—GEOLOGY

In the Department catalogues, which now comprise twenty-eight volumes, there were 4,381 new entries. These, added to previous

entries, make a total of 201,559. With the exception of such vertebrate fossils as require much preparation and study, all specimens received during the year have been catalogued. The classified card catalogues of the meteorites and of photographs have been kept up to date, and the classified minerals and rock card catalogues have been completed.

In vertebrate paleontology, the stratigraphic card index, begun during the summer of 1937, was completed early in the year, and the systematic specimen catalogue was brought up to date. These two catalogues have been of great value in providing convenient and complete information regarding the specimens. The bibliographic index of the working library of vertebrate paleontology has been brought up to date by the typing of 610 cards. The bibliography of South American vertebrate fossils, prepared by Assistant Curator Patterson, has likewise been kept up to date.

Preparation of a classified catalogue of the invertebrate fossils continued. Owing to previous bad over-crowding in storage, these specimens and their labels were found to be in poor order, and it became necessary to compare each of the thousands of specimens with the records in the accession books. This has been done for all specimens up to the close of Pennsylvanian time. Catalogue cards have now been typed for all specimens. As the collection contains many duplicates, the 8,262 cards typed represent the handling of some 55,000 specimens. These cards are now placed in the trays with the specimens, and will be checked for errors before they are filed. The file will be in two sections, one with biological, the other with stratigraphic arrangement.

Copy was prepared for 1,959 specimen labels, and all labels received from the Division of Printing were installed in the cases. To the Department albums 361 labeled prints of photographs were added. They now contain 9,085 prints. One hundred and five United States Geological Survey maps were received, labeled, and filed, bringing the number now available to 4,624. Nearly all of the work of preparing these classified records was performed by men and women assigned to the Department by the federal Works Progress Administration. Without their aid the work could not have been undertaken. The work of the regular staff has been greatly facilitated by the WPA assistance, and more has been accomplished than would otherwise have been possible either in the preparation and improvement of exhibits, or in research.

INSTALLATIONS AND REARRANGEMENTS—GEOLOGY

The principal addition to the collections in Hall 34, devoted to minerals and meteorites, was a case containing the Benld (Illinois) meteorite, and related material. This meteorite, which fell September 29, 1938, crashed through the roof of a garage, penetrated the top of a car, and then after passing through the seat of the car, and the floor board, struck the muffler, whence it rebounded and came to rest among the springs of the seat cushion. It is exhibited with the damaged car cushion and muffler, and sections of the damaged garage roof and car top. It is only the second recorded meteorite to fall in Illinois, and the eleventh known to have penetrated a building anywhere in the world. Examples of eight of these eleven are in the Museum collection. The meteorite collection has been further enlarged by the addition of seventeen other specimens. It now contains examples of 766 of all recorded falls, which total approximately 1,300. As many authorities believe that tectites, peculiar glassy objects of unknown origin, may be meteorites, a group of six of these was placed on exhibition with the meteorites.

The mineral collection, which occupies half of Hall 34, was little changed during the year. A few minerals were added, and seven cases and their contents were thoroughly cleaned.

As in the previous year, most of the installation work was concerned with the revision and enlargement of the exhibits of rocks and structural geology in Clarence Buckingham Hall (Hall 35). The enlarged rock collection was completed by the addition of six cases. Work of planning, installing, and incorporation of new material in the structural and physical geology collection filling the east end of the hall proceeded steadily during the year. Specimens to fill seven cases were prepared and installed. There are now fourteen cases of the new exhibit in place, and six cases remain to be prepared before the exhibit is complete. The case of fluorescent minerals, formerly installed in this hall, has been moved to an adjoining corridor where it can be seen to better advantage.

The large model of an iron mine which stood against the west wall of Hall 36 has been discarded and replaced by a relief map of North America, presented by the *Chicago Tribune*. This map, fifteen feet high and ten feet wide, hangs against the wall where it can be seen from all parts of the hall. As it is intended to illustrate the physiography of continents, and of North America in particular, it is colored to show physiographic features, and is not obscured by lettering or markings of political divisions.

In Frederick J. V. Skiff Hall (Hall 37), the economic geology collections were increased by the addition of five marble specimens from Poland and eleven from Texas, as well as a case of potash and salt deposits from Poland.

Cases in Ernest R. Graham Hall (Hall 38) were provided with a new type of translucent labels which are much easier to read than those formerly used. Labels for the fossil vertebrates were revised. Two large skeletons of vertebrate fossils, each occupying an individual case, were added to the collections in this hall. One, *Pseudomegatharium*, is a fossil sloth collected by a Museum expedition in Bolivia in 1927. The other, *Moropus*, is the skeleton of a strange animal related to the horses and rhinoceroses, but provided with claws instead of hoofs. A collection of Paleocene animals, obtained by a Museum expedition to Colorado in 1937, was installed this year. It includes the skull of a crocodile unique for its possession of horns.

Rearrangement, by WPA workers, of the large reserve collection of invertebrate fossils in Room 111 has been completed, but final checking of identifications, which must be done by a skilled paleontologist, is still required.

The work of conditioning the reserve collections of ores, minerals, rocks, and physical geology specimens on the third floor continued throughout the year. As comparatively little sorting and rearrangement was needed, the improvements consisted chiefly of restoring faded and lost numbers, cleaning specimens, treating them to prevent decay, perfecting the labeling, and sorting and classifying the large quantity of new material received during the year. This work has been satisfactorily done by WPA labor with a minimum of supervision by the staff.

Preparation of vertebrate fossils for exhibition and study proceeded steadily in the paleontology laboratories. Although much of the work is of such character that it can be trusted only to skilled preparators, a great deal has been accomplished by WPA labor after a short period of training. It has been possible to use the services of WPA men to the extent that the output of these work-rooms has been materially increased.

DEPARTMENT OF ZOOLOGY

EXPEDITIONS AND RESEARCH

The most important zoological expedition of the year was the Sewell Avery Expedition to British Guiana, led by Mr. Emmet R. Blake, Assistant Curator of Birds. In spite of misfortune, this

expedition reached its geographic objective, broke new ground in zoological exploration, and preserved a considerable portion of its tangible results. The expedition was planned to take advantage of an opportunity, not likely to recur, which was presented by special circumstances existing in 1938. The British Guiana-Brazil boundary had recently been surveyed with the result that many areas could be reached this year that would be inaccessible later because of the rapid growth of jungle vegetation. The region had been practically unexplored zoologically, and was especially interesting because the British Boundary Commission, whose co-operation is gratefully acknowledged, had discovered mountains, hitherto unknown, with an altitude of several thousand feet. The expedition, which consisted of fifteen men, including the former manager of transport for the Boundary Commission, ascended the Courantyne River and the New River to their head-waters by launch and dugout canoe. At this point, in virgin territory, a splendid collection of about two thousand specimens was made.

On the return trip, while attempting to pass the King William Rapids, a boat containing personnel, collections and equipment foundered, the level of the river having suddenly and unexpectedly fallen to the danger point. The entire personnel was marooned for ten days on a rocky islet in the river, surrounded by uninhabited country.

The expedition reached Georgetown late in the year, having salvaged more than half of the collections. The fact that no lives were lost in an extremely hazardous situation, and that collections were made from the previously unreached divide between the Atlantic and Amazonian drainages, is a demonstration of Mr. Blake's resourcefulness and energy.

Other expeditions were confined to the United States, Chief Curator Wilfred H. Osgood conducting one in New Mexico, and Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, another in Arkansas.

Dr. Osgood, accompanied by Mr. W. F. Nichols, of Pasadena, California, and Dr. F. W. Gorham, of Los Angeles, spent several weeks in the Tularosa Basin of south central New Mexico. They collected specimens of the animals of the "white sands" and the adjoining black lava beds, which provide interesting illustrations of contemporary processes of evolution. Further collections were made in the Mogollon Mountains of western New Mexico, and in southwestern Colorado.

Mr. Schmidt, assisted by his son, Mr. John M. Schmidt, and Mr. Charles M. Barber, of Hot Springs, Arkansas, worked principally in the Ouachita Mountains of Arkansas. The party obtained 258 specimens, mostly amphibians and reptiles, including a series of the rare salamander *Plethodon ouachitae*.

Mr. Colin C. Sanborn, Curator of Mammals, while in London for research at the British Museum (Natural History), found time for a short expedition to Scotland during which he collected specimens, photographs, and accessories for a habitat group of red grouse planned for one of the series now under way in Hall 20. For much assistance and invaluable co-operation, he was greatly indebted to Mr. J. P. Loudon, of Symington, Lanarkshire.

Publications for the year include one leaflet and fourteen technical papers in the Zoological Series. In addition, the zoological staff contributed fifteen signed articles to *Field Museum News*.

The leaflet, No. 14 in the Zoology Series, is *Turtles of the Chicago Area*, by Curator Karl P. Schmidt. It provides a convenient manual for those interested in the local fauna, and is illustrated with two colored plates. The following were issued in the technical Zoological Series: *The Birds of El Salvador* (609 pages), by Donald R. Dickey and A. J. van Rossem; *General Function of the Gall Bladder from the Evolutionary Standpoint*, by F. W. Gorham and A. C. Ivy; *A New Catalogue of the Fresh-water Fishes of Panama*, by S. F. Hildebrand; *Catalogue of Birds of the Americas, Part XI (Fringillidae, etc., 662 pages)*, by Charles E. Hellmayr; *Snakes of the Genus Tantilla in the United States*, by F. N. Blanchard; *A Geographic Variation Gradient in Frogs*, by Curator Karl P. Schmidt; *Notes on the Anatomy of the Treeshrew Dendrogale*, by Assistant Curator D. Dwight Davis; *Food Habits of Some Arctic Birds and Mammals*, by Clarence Cottam and H. C. Hanson; *Hemiptera from Iraq, Iran, and Arabia*, by W. E. China; *Orthoptera from Iraq and Iran*, by B. P. Uvarov; *Birds of the Crane Pacific Expedition*, by Ernst Mayr and Sidney Camras; *A New Woodrat from Mexico*, by Chief Curator Wilfred H. Osgood; *A New Pigeon from Colombia*, by Research Associate H. B. Conover; *A New Wood Owl from Chile*, by the late Research Associate Leslie Wheeler.

Curator Sanborn continued research on the classification of bats, and during the last half of the year was assigned to work exclusively on this subject in European museums, especially the British Museum. This was made possible through his appointment as a Fellow of the John Simon Guggenheim Memorial Foundation.



A NEW SPECIES OF CROCODILIAN

Skull of a hitherto unknown fossil horned crocodile-like reptile, *Ceratosuchus burdoshi*, discovered by a Field Museum expedition; and restoration based on this skull



Dr. Charles E. Hellmayr, Associate Curator of Birds, proceeded with his work on the *Catalogue of Birds of the Americas*, working in Vienna until political conditions there obliged him to move to London where he has been afforded every facility at the British Museum. His work is now far advanced toward completion, and only one part consisting of two numbers remains to be published. One of these will include the game birds on which Mr. H. B. Conover, Research Associate in Ornithology, is collaborating.

Mr. Rudyerd Boulton, Curator of Birds, spent a month and a half at the American Museum of Natural History, New York, studying the birds of Portuguese West Africa, and thereafter continued other research on African birds. Also, he completed a new restoration of the dodo from a fresh examination of pertinent data. Late in the year, as the guest of Messrs. James Leavell and Carl Birdsall, of Chicago, he made some brief field studies in Mississippi, in company with Mr. Stephen S. Gregory, Jr., of Winnetka, Illinois. Collections of birds from that part of the south are very limited in number and scope. It is hoped that a more extensive program can be planned for further work in this zoologically neglected area.

In the Division of Amphibians and Reptiles, Curator Schmidt centered his research on the Central American collections and on the material from southwestern Asia, of which an annotated catalogue is in preparation.

Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology, has been engaged in a detailed study of the gross anatomy of the giant panda, Su-Lin, the body of which was presented by the Chicago Zoological Society. "Embalmed" and injected especially for dissection, this specimen furnished an opportunity for the first thorough anatomical study ever made of this interesting species of mammal.

ACCESSIONS—ZOOLOGY

Zoological specimens accessioned during 1938 reached the unusual total of 25,794, including by far the largest number of vertebrates ever received in one year, and approximately double the average for the last fifteen years (the largest previous number was 20,630 in 1932). This great total is due mainly to a large single gift of more than 8,000 fishes, and a purchase of a collection of more than 6,000 birds. The accessions classify as follows: mammals 961; birds and birds' eggs 9,246; amphibians and reptiles 3,308; fishes 9,639; insects 942; lower invertebrates 1,698. Received as gifts were 13,436 speci-

mens; by exchange, 2,244; from Museum expeditions, 1,681; and by purchase, 8,433.

Among the most important gifts of mammals were thirty-five specimens from the Chicago Zoological Society, including the famous giant panda named Su-Lin. Mr. Carl Dreutzer, of Chicago, presented six well-prepared skins of bearded and ribbon seals, and the semi-fossilized skull of a musk-ox from Alaska. Mr. Paul O. McGrew, of the Department of Geology, gave a collection of eighty-four bats from Honduras, including various species new to the Museum's collection. Other bats from Honduras came from Miss Margaret Ennis, of Chicago. Dr. Henry Field, of the Department of Anthropology, supplemented previous gifts of mammals with twenty-one further specimens from Iraq and England. Dr. Harold Nelson, of the Oriental Institute, University of Chicago, contributed twenty-one bats taken at Luxor, Egypt. A collection of thirty-one small mammals from Wyoming was donated by Mr. R. S. Sturgis, of Winnetka.

Several of the fifty-five separate gifts of birds are noteworthy. Mr. H. B. Conover, Research Associate in Ornithology, presented sixty-seven specimens from Alaska, Iceland, Argentina and Tanganyika Territory. Mr. and Mrs. J. Andrews King, of Lake Forest, Illinois, gave twenty-seven specimens which they collected in Guatemala, including several magnificent ocellated turkeys and black chachalacas. Mrs. Hermon Dunlap Smith, of Lake Forest, Illinois, gave fifty specimens from Tanganyika Territory. The Colorado Museum of Natural History, Denver, presented two mounted eagle chicks which will be used in remodeling the golden eagle habitat group in Hall 20. Mrs. M. Don Clawson, of Beirut, Syria, gave twenty-four specimens representing her own collecting in Iraq. The Chicago Zoological Society presented 143 specimens of rare and exotic birds, most of which were used to augment the collection of study skeletons.

In addition to the above mentioned specimens, a gift of material and accessories for the construction of a habitat group of kiwis, curious flightless birds from New Zealand, was received from the Dominion Museum in Wellington, New Zealand.

Among gifts of amphibians and reptiles, the most notable for the year are thirty-two from the Instituto de La Salle, of Bogotá, Colombia, received through Brother Niceforo Maria; thirty-six specimens from Mr. Paul O. McGrew, of the Department of Geology, collected in the course of a paleontological expedition in Honduras; thirty-seven from Miss Margaret Ennis, of Chicago, which she collected in Honduras while engaged in archaeological field work at

Copan; six crocodile skulls, including one very large one, collected in the Philippine Islands, from Mr. A. W. Exline, of San José, Mindoro; eight specimens from Dr. W. P. Kennedy, of Baghdad, Iraq; three Bahaman fresh-water turtles of recently described species, from the University of Miami, Miami, Florida; and two fine pink rattlesnakes (the rare species *Crotalus lepidus lepidus*), from Dr. and Mrs. Paul Rudnick, of the McDonald Observatory, Fort Davis, Texas. As in previous years, the Chicago Zoological Society, the Lincoln Park Zoo, and the General Biological Supply House, of Chicago, have turned over important material to the Museum.

A large and important gift was that of 8,424 preserved fishes from the Zoology Department of the University of Chicago. These were collected by students and members of the faculty over a period of years and are of much value in studies of the local fauna of Illinois and neighboring states. Added to these were 248 specimens collected in Indiana and presented by Dr. Hurst Shoemaker of Stanford University, California. For exhibition, a number of game fishes were donated. Mr. Leon Mandel, of Chicago, gave a large "Mako" shark which he secured off the north coast of Cuba. Colonel Warren R. Roberts, of Chicago, contributed a white marlin, and Mr. Al Pflueger, of Miami, Florida, gave a specimen of Allison's tuna, a long-finned variety of the yellow-finned tuna. Mr. Michael Lerner, well-known sportsman of New York, presented an excellent mounted specimen of North Atlantic broadbill swordfish caught on rod and reel by Mrs. Lerner off Cape Breton, Nova Scotia—the first swordfish ever thus taken by a woman angler in Canadian waters. The John G. Shedd Aquarium, Chicago, continued its courtesy of past years by contributing a number of fish specimens.

Excepting six specimens received in exchange, all the somewhat limited accessions of insects were obtained through various donors. The most noteworthy acquisition was a lot of 543 named beetles, mainly from the Austrian Tyrol. These were received as a gift from Dr. Wolfgang Amschler, of Zeiyarn bei Cronach, Bavaria, Germany. Mr. Gordon Grant, of Los Angeles, California, continued to show his interest in the Museum by donating 161 insects that he collected in his vicinity. Through the kindness of Dr. Orlando Park, Evanston, Illinois, forty-five species of named New Zealand moths were added to the collection.

Of the 1,698 specimens of lower invertebrates accessioned, some 1,200 were shells presented by Mr. Clark W. Walter, of Chicago.

Gifts from the Chicago Zoological Society continued to provide much valuable material for anatomical study. Besides many specimens of which skeletons were preserved, forty-seven particularly interesting ones were especially prepared for investigation of the soft anatomy.

Material from Museum expeditions was unusually limited in amount, consisting mainly of small lots from various sources. In point of numbers, the most important material actually collected during 1938 was a collection from New Mexico, obtained by Chief Curator Osgood, assisted by Mr. W. F. Nichols and Dr. F. W. Gorham. Included were 265 mammals, sixty-four birds, and thirty-eight reptiles. From the 1937 expedition of Assistant Curator Blake to British Guiana and Brazil there was considerable material not received until 1938, the principal items being some eight hundred birds, sixty-eight mammals, and thirty-four reptiles. Material from Mr. Blake's 1938 expedition will not be accessioned until early in 1939. Curator Schmidt, during his brief expedition to Arkansas, assisted by his son, Mr. John M. Schmidt, and Mr. Charles M. Barber, of Hot Springs, obtained 258 specimens of reptiles and amphibians, including thirty-two of the rare salamander *Plethodon ouachitae*, which was a special desideratum.

The record of exchanges for the year shows the following totals: mammals 20; birds 997; amphibians and reptiles 1,216; fishes 5; insects 6. Of the birds, 994 are comprised in a selected lot of beautifully prepared specimens from El Salvador, received from the Donald R. Dickey Collection in Pasadena, California, not as an exchange, strictly speaking, but in return for the publication by Field Museum Press of a report on *The Birds of El Salvador*. The 1,216 amphibians and reptiles received in exchange were from numerous institutions and individuals. These included the Museum of Comparative Zoology, Cambridge, Massachusetts; the Carnegie Museum, Pittsburgh; the Museum of Zoology of the University of Oklahoma, at Norman; Dr. Walter P. Taylor, College Station, Texas; Dr. Vasco M. Tanner, Provo, Utah; Dr. L. H. Snyder, Seoul, Korea; Dr. Ventura Barnes, Caracas, Venezuela; Dr. Charles E. Burt, Winfield, Kansas; Mr. N. Bayard Green, Elkins, West Virginia, and Dr. Frieda Cobb Blanchard, Ann Arbor, Michigan.

Through the fund established by the late Leslie Wheeler, former Trustee of the Museum, and Research Associate in the Division of Birds, 188 specimens of birds of prey were acquired from India,

Manchukuo, Dutch East Indies, Iceland, Paraguay, Colombia, and Argentina.

The Sir Frederick Jackson collection of East African birds purchased during the year is the largest single accession of birds received by the Museum since the Cory collection in 1900, and certainly one of the most important. More than 6,600 specimens belonging to about 600 species are contained in the collection. It was made in Uganda and Kenya, between 1899 and 1917, by Sir Frederick during his long and distinguished career as a colonial officer, culminating in the governorship of Uganda. Many species are represented by large series from numerous localities which provide ample opportunity for detailed taxonomic and statistical studies on variation and speciation. The collection provides the necessary link, from the research point of view, between two important collections the Museum has possessed for some time—that made by Chief Curator Osgood in Ethiopia in 1926–27, and the South African collection of the Vernay Kalahari Expedition, made in 1930–31.

Other purchases include 225 small mammals from Mexico, and various small lots mainly from South America and the West Indies.

The principal purchases of amphibians and reptiles were 348 specimens of Australian species, forming a notable addition to the reference series for that region, from the collections of the late F. N. Blanchard; 502 specimens from northeastern Mexico; and 215, supplementing previous purchases, from Ecuador.

CATALOGUING, INVENTORYING AND LABELING—ZOOLOGY

During 1938 the number of zoological specimens catalogued was 20,472. These are divided by subjects as follows: mammals, 973; birds, 13,373; amphibians and reptiles, 2,750; fishes, 1,760; lower invertebrates, 590; anatomical specimens, 1,026.

In the Division of Mammals, an extensive program of reattaching original labels to skins, and other work connected with modernizing an outmoded system has continued. Details of this include the following: 10,192 skin labels typed; 5,510 skull labels typed; 4,107 skin labels tied; 2,000 field labels punched and strung; 4,400 skull tags punched; 1,079 skulls renumbered; 550 cards added to the systematic index, and 2,610 cards refiled. Three cases containing alcoholic specimens of mammals were rearranged, and fourteen cases were supplied with fresh alcohol. Skulls of large mammals were transferred to new cases and some progress made in their labeling and rearrangement.

The work on the arrangement of the birds' egg collection progressed rapidly, the full-time services of four persons, on the average, having been devoted to it. Fifty-six hundred and fifty-eight sets of eggs were catalogued, and 5,332 sets were sorted, packed in cotton and arranged systematically. This, plus the preceding year's total of 1,246, makes 6,578 in this stage of arrangement. Nine hundred and fifty-six additional sets were sorted, although not yet packed. Completely checked with respect to data were 2,609 sets—cards, labels, original data blanks, and catalogue being brought into agreement. Twelve hundred and eight sets were finally and permanently arranged in cotton, systematically sorted, and completely labeled with data blanks and reference cards filed.

As in 1937, a vast amount of work, involving on an average the full-time services of about seven persons, was devoted to the collection of study skins. This includes: re-identification of each specimen; correlation of old and present-day nomenclature; checking the catalogue against the original label; assembling the data on index cards; preparing a geographic cross-reference file; typing and lettering a new label and sewing it to the original; finding the often obscure locality on some map or in a published journal, and plotting that locality on maps especially drawn for the purpose.

Bird skins to a total of 1,647 were remade and degreased through the services of four federal Works Progress Administration taxidermists. This service is extremely important.

The collections of amphibians and reptiles in alcohol were subjected to the usual supervision. Cataloguing was kept fully up to date. About fifty gallons of stained alcohol were redistilled, and the alcohol level on all specimens in tanks and large jars was checked. The addition of new cases on the fourth floor of the Museum made possible the rearrangement of specimens in large bottles and the supplying of printed labels throughout. The dry material of turtles and crocodylians was relabeled.

Continued work on the fishes has brought the collection to a very satisfactory condition, with practically all the specimens arranged and labeled so that they can be located quickly when needed. Discolored alcohol has been removed and reclaimed by distillation. Labels that have become illegible from any cause have been replaced. Considerable time in the Division of Fishes was devoted to the preparation of indices of literature, and of colored figures of fishes, which have proved useful in current work.

In the Division of Anatomy and Osteology, after several years of effort, all dried skeletal material was finally cleaned, brought up to date, and boxed and labeled for the first time in the history of the Museum. Only current material remains to be cared for in the future.

The services of from one to three WPA workers made possible considerable progress in preparing insects that were in storage. Thus, 4,535 insects were pinned or spread, 4,200 were pin-labeled, and 1,609 bibliographic cards on butterflies were written. Assistant Curator Emil Liljebblad continued the collation and arrangement of North American beetles in new drawers. For this needed work, 106 species represented by 1,084 specimens of lady beetles, twenty-four species of comb-clawed beetles, and 1,425 specimens of darkling beetles were identified, and in many cases repinned and relabeled.

Under the direction of Curator Fritz Haas, who assumed his duties August 1, a Division of Lower Invertebrates was organized. After equipment was installed, the collections of mollusks and crustaceans were brought from storage. The work of sorting this material and identifying it was soon under way. Three hundred and forty-six lots of mollusks, and 423 lots of decapod crustaceans, were labeled and filed. Much help was received from Miss Claire Nemec, who served as a volunteer student assistant, and devoted herself to the classification and care of the crustacea.

Volunteer or student workers contributed much assistance in several divisions of the Department. In field work, aid was contributed by Mr. C. M. Barber, of Hot Springs, Arkansas, Dr. F. W. Gorham, of Los Angeles, California, and Mr. W. F. Nichols, of Pasadena, California.

Mr. Melvin Traylor, Jr., spent some time as a volunteer in the Division of Birds, working on Central American collections. In the same division, Miss Miriam Geller was engaged in the preparation of an ecological bibliography of the Chicago region with special reference to birds.

In the Division of Amphibians and Reptiles, Mr. John Kurfess, who worked four days a week during July and early August, relabeled the dry material of turtles and crocodilians. Mr. Fred Bromund spent some time in the preparation of a list of the living crocodilians. Dr. Hobart M. Smith volunteered much time to complete a catalogue of Field Museum's collections of amphibians and reptiles from Mexico. Mr. Robert Burton spent about thirty days identifying New Mexican reptiles and preparing a report on the scale count

variation of broods of garter snakes and water snakes. Mr. Don Kemp assisted in making scale counts of snakes. Mr. Philip Clark spent several months during the summer studying the Museum's collection of box tortoise skeletons. Mr. Albert A. Enzenbacher completed a number of water-color paintings of Illinois snakes, and made seven pencil drawings of frogs and lizards, which have been used in the Museum's technical publications.

The assistance given by increased personnel provided by the federal Works Progress Administration has been still more effective than in 1937. This is due to continually improving organization, and to accumulated experience on both sides. The average number of workers assigned to the Department was 50. A typical distribution of these is as follows: taxidermy, preparation, and exhibition work, 15; map-making, drafting, and illustrating, 7; Division of Mammals, 4; Division of Birds, 9; Division of Reptiles, 4; Division of Fishes, 1; Division of Anatomy and Osteology, 7; Division of Insects, 1; Division of Lower Invertebrates, 1.

INSTALLATIONS AND REARRANGEMENTS—ZOOLOGY

Seven large habitat groups were completed and opened to public view. Two of these were mammal groups in the Hall of Marine Mammals (Hall N), and five were bird groups in Hall 20. Numerous important additions to the synoptic exhibits also were made.

A group of Weddell's seal from the Antarctic adds an interesting animal to the Hall of Marine Mammals. The specimens were collected by Rear-Admiral Richard E. Byrd's Second Antarctic Expedition (1935). They were mounted with great fidelity to nature by Taxidermist C. J. Albrecht. The background was painted by Staff Artist Arthur G. Rueckert. Weddell's seal is a species of large size and rich coloration. In the group an adult female and her young pup are shown on a field of ice and snow. Other seals are seen in the distance, scattered about as is their habit during the breeding season.

In the same hall, an element of variety is provided by a very successful and somewhat unusual group of narwhals, small Arctic whales famous for their long, slender tusks. Three adults and one young animal are shown beneath the surface, swimming about the submerged foot of an iceberg. Specimens and data for this group were obtained in Greenland waters by Captain Robert A. Bartlett. These served as the basis for the very lifelike models used in the exhibit, which were skillfully prepared by Taxidermist Leon L.



EUROPEAN STORK

Specimens and accessories presented by Polish-American Chamber of Commerce, Warsaw, Poland
Taxidermy by John W. Moyer. Background by Arthur G. Rueckert
Hall 20



Walters, using his "celluloid" process. The background was painted by Staff Artist Rueckert.

The addition of two cases greatly improved the synoptic or systematic exhibit of mammals in Hall 15. One of these, devoted to baboons, shows eight of the principal species variously disposed on an appropriate background of rock work. This was done mainly by Taxidermist W. E. Eigsti. Another case in the same hall shows several species of hyenas, also mounted by Mr. Eigsti, and on a separate screen the varied mammals comprising the raccoon family. Space in this case is reserved for the giant panda which appears to find its nearest relationships among these animals.

On the death of Su-Lin, the first giant panda to be exhibited alive, the body was presented to the Museum by the Chicago Zoological Society especially for anatomical study. The skin, however, was skillfully removed by Taxidermist Albrecht and mounted in a pose representing one of the animal's characteristic playful attitudes so familiar to the public. The specimen is temporarily installed in a special case in Stanley Field Hall where it has attracted much attention.

A further addition to Hall 15 was a single specimen of the strikingly marked Indo-Chinese monkey known as the douc langur.

Five habitat groups of birds were completed during the year. The Laysan Island group of oceanic birds was reinstalled by Taxidermist Leon L. Pray, with new accessories prepared by Mr. Frank Letl and his assistants. Two species of albatross are the predominant feature of the foreground, while in the background, painted by Mr. Pray, are some of the myriads of birds for which this mid-Pacific Island is noted. In addition to the albatrosses, two species of boobies, the red-tailed tropic bird, the man-o'-war bird, two species of terns, and several petrels are included.

The four other groups are entirely new. The backgrounds of three were painted partly by Staff Artist Charles A. Corwin, who died during the year, and were completed by Staff Artist Rueckert, who painted the fourth also. The birds were mounted by Taxidermist John W. Moyer, and the accessories were prepared under the direction of Mr. Letl.

Three of the groups are the gift of Mr. Leon Mandel, of Chicago, and contain specimens collected by Assistant Curator Emmet R. Blake during the Mandel Guatemala Expedition of 1934. They occupy an alcove in Hall 20 and well illustrate three different ecological habitats in the neo-tropics. The oropendula group shows a nest-

ing colony of giant orioles that overlooks a savanna scene from its lofty tree-top location. The nests, some of which are six feet long, are among the most remarkable constructed by any birds. Along with the eight giant orioles in the group is shown a rice grackle which parasitizes the orioles by taking possession of their nests. The second of the Guatemalan groups shows two species of toucans feeding on the fruit of a tree in the lowland rain-forest. Ten specimens are shown in spirited action. Other tropical species of woodpeckers, finches, etc., attracted to the same food supply, also appear in the group. Especially interesting is a wood thrush of northern climes which, during the winter months, associates with these tropical and exotic birds. The last habitat group from the Mandel Guatemala Expedition shows a pair of quetzals in their cloud forest habitat just below the tree-line on the slopes of the Volcan Tajumulco. In the background is a sea of clouds and mist through which lesser mountains poke their crests like islands. The principal vegetation in the group consists of tree ferns. In a clump of bromeliads in the foreground are several salamanders of two species discovered by the expedition. The quetzal has long been the national symbol of Guatemala.

The fifth group completed during the year was that of the European white stork, which is shown in a typical village habitat in southeastern Poland. The four specimens (two adults and two young), the nest, and even the thatched house-top were the gift of the Polish-American Chamber of Commerce in Warsaw. This group admirably illustrates the uncommon but important principle of change of habitat due to development of a more favorable environment. White storks have almost universally adopted a life associated with human society, just as chimney swifts have in America.

A life size model of the dodo, which became extinct in 1681, was made by Mr. Frank Gino, WPA sculptor, under the supervision of Curator Rudyerd Boulton. Dodos and their relative, the solitaire, comprise a unique family of birds related to pigeons. Since there are no complete specimens in existence, it is only by resorting to a reconstruction such as this that it is possible to make available in the Museum's exhibition halls a representation of this bird. Dodos, which were completely isolated on three small islands in the Indian Ocean, and became extinct through the agency of man shortly after their discovery, point lessons in evolution as well as conservation, and it is profitable to emphasize their history.

Considerable material was prepared and accumulated for exhibition in the Hall of Reptiles (Albert W. Harris Hall, Hall 18) but

installation has not yet taken place. Models in cellulose-acetate of two frogs, six lizards, and two snakes, were finished, as well as other reptiles of special interest. Among these is a rhinoceros iguana from a specimen collected by Mr. Leon Mandel on Gonave Island, Haiti; two specimens of the remarkable small American night lizard of the genus *Xantusia*; and a pink rattlesnake from material presented by Dr. and Mrs. Paul Rudnick, of Fort Davis, Texas. Numerous molds for future use were made of notable reptiles received from the Chicago Zoological Society and the Lincoln Park Zoo, and from specimens received by gift or purchase. Among these is an exceptionally large boa constrictor which is to be shown hanging from the limb of a tree.

Much work was done in preparation for the Hall of Fishes (Hall O), which it is hoped may be opened in the near future. Most important of the new exhibits prepared was a twenty-five foot whale shark, mounted by Taxidermist Julius Friesser from a specimen presented (through the American Museum of Natural History, New York), by Messrs. Spencer W. Stewart and Robert J. Sykes, of New York, who obtained it at Acapulco, Mexico.

An exhibit tracing the bones in the human skull was installed in Hall 19. Four parallel series of models of the skulls of eight vertebrates are colored to show graphically the changes that have taken place in four regions of the human skull. The models were prepared by Miss Nellie Starkson, under the direction of Assistant Curator D. Dwight Davis. Other models for a proposed exhibit illustrating the history of the muscular system are in preparation.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

During the spring and summer months the members of the Harris Extension staff made short collecting trips in the vicinity of Chicago to obtain plant material needed for new cases and for the replacement of older deteriorated models in the traveling exhibits which this Department circulates among the schools. Plant specimens included in early exhibits, either as accessories or as the principal object, were made of wax. Some of these are now twenty or more years old. The extremes of temperature, and the unavoidable jarring and jolting which the exhibits undergo in being transported from school to school, have adversely affected such models, making it desirable to replace them with others of more durable materials, such as celluloid. Approximately 370 plaster of paris molds of leaves

and flowers, as well as necessary photographs and color notes, were made for this purpose.

Specimens were collected for exhibits showing the cliff swallow, the American merganser, the black duck, the woodcock, and the progressive changes in the plumage of the starling. In addition, several skins of birds and small mammals were prepared and added to the reserve collection.

Curator John R. Millar visited a number of schools and attended science demonstrations to become more familiar with the present-day approach to the teaching of natural science in the grade schools. He also visited six representative eastern museums to become acquainted with their methods in school extension work.

Six new exhibits of the habitat type, with curved photographic backgrounds, were completed early in the year. Four of these show the tall or later buttercup, one the parasitic jaeger, and one the long-tailed jaeger.

Artifacts of the Alaska and Northwest Coast Indians were selected from surplus storage material in the Department of Anthropology and turned over to the Harris Extension. The Departments of Botany, Geology, and Zoology also released surplus specimens of plants, minerals, and shells. In all of this material there is a fair proportion of specimens suitable for loan study collections or for new portable exhibits.

In anticipation of the eventual storage of all the school cases on the ground floor, near the service entrance of the Museum, a move which will considerably reduce the amount of trucking in the building and the use of the elevator, a new card file has been made which will contain all information pertinent to the nature and condition of each individual exhibit, as well as a record of the repairs and changes made. A subject index of the exhibits now available for circulation also was made.

In furtherance of plans to lend to the schools a new type of special study collections of material which can be handled for closer examination by pupils and teachers, work has been begun on identification, labeling and indexing of reserve collections. Cases to transport such collections were designed, and one trial cabinet, to accommodate a loan study collection of rocks, was constructed in the shops of the Museum.

More than 1,000 herbarium specimens of local plants were collected by members of the staff during the year for inclusion in loan



UNDERSEA GROUP OF NARWHAL
Reproduced in cellulose-acetate by Leon L. Walters
From specimens collected by Captain Robert A. Bartlett
Hall of Marine Mammals (Hall N)



collections. This development of school service by the Museum is one of generally recognized merit. It is capable of great and varied expansion to include material useful not only in the study of natural history, but other subjects as well, particularly geography in its racial and economic aspects.

In order to make fuller and more efficient use of valuable third floor office space, a new office with connecting work-room was provided for the Curator by partitioning portions of the rooms occupied by the Assistant Curator and the Department's taxidermist. A space for plaster-casting, die-making and celluloid-pressing was provided by arranging wall cabinets to form an alcove in the south end of Room 95. The space has been equipped with transite-covered work tables, a stove, an exhaust fan, and a sink. New asbestos-covered benches were added to other work-rooms in the Department, and new storage shelves were constructed for approximately one hundred school cases.

The customary annual cleaning and polishing of all cases available for distribution were carried out during the summer vacation of the schools. Repairs of various kinds were made on 165 cases. This includes painting of case interiors, reinstallations, replacement of broken glass, and repairs of other damages occurring in the schools.

Seven schools were added to the list of those receiving Harris Extension cases, bringing the total now served to 472.

Difficulties which had been experienced in maintaining the usual bi-weekly schedule in the delivery of cases on the south side of the city were eliminated by completely revising the truck routes and reapportioning the number of schools to be called on each day.

Twenty special loans, totaling ninety-three cases, were made during the year in response to special requests from schools; from the Horticultural Committee of the Garden Club of Evanston; the Evanston Public Library; the United Charities Camp at Algonquin, Illinois; the Glenwood Park Training Camp for Recreational Workers (a WPA project) at Batavia, Illinois; and the International Live Stock Exposition at the Union Stock Yards, Chicago.

The two Museum trucks traveled a total of 11,727 miles in the distribution of cases, maintaining their regular schedule without accident. Scores of letters of appreciation were sent to the Museum praising the school exhibits for their value in classroom instruction and commending the reliability of the service.

THE JAMES NELSON AND ANNA LOUISE RAYMOND
FOUNDATION FOR PUBLIC SCHOOL
AND CHILDREN'S LECTURES

The James Nelson and Anna Louise Raymond Foundation continued in 1938 the presentation of various series of motion pictures, lectures, and other activities to supplement the educational work of the schools, and to provide many enjoyable hours of entertainment for the children. Included were special patriotic programs in addition to the spring, summer and autumn series of motion pictures shown in the James Simpson Theatre; guide-lecture tours in the exhibition halls, and extension lectures given in the classrooms and assembly halls of schools and in auditoriums made available by civic organizations. The year, like the previous one, has seen an increase in the number of groups from out-of-the-state schools asking for guide-lecture service at the Museum, and in the requests for lectures to be presented in the schools, and elsewhere. The Foundation co-operated with the schools also by arranging special activities as follow-ups to educational radio broadcasts.

ENTERTAINMENTS FOR CHILDREN—RAYMOND FOUNDATION

Motion picture entertainments were augmented by presentation, during July and August, of a summer series of six entertainments, in addition to the customary spring and autumn courses. Many of the films had talking, musical, and other sound effects. The programs of the three series were as follows:

SPRING COURSE

- March 5—The Circus City; Trailing the Sea Horse; Dances of the Nations.
 March 12—Trailmates, including: Wrongstart; Fun with a Bear Cub; The Porcupine Family; Shivers!
 March 19—Travels of a Postage Stamp; Souvenirs of Singapore; Paws and Claws; Glimpses of China and Bali.
 March 26—In the Land of the Harmonica; Water Folks; The Black Giant; The Navajo Demon.
 April 2—The Settlement of Jamestown, including: Life within the Stockade; The Village of Powhatan; The Capture of Pocahontas; The Spanish Spy; The Marriage of Pocahontas and John Rolfe.
 April 9—The Farmer's Friend; Peculiar Pets; Cairo to the Pyramids; The Veldt.
 April 16—Gold Mining in the Klondike; Animals of the Salton Sea; The World of Paper; The Art of the Cave Man.
 April 23—From Red Earth to Steel Girder; A Visit to Czechoslovakia.
 April 30—Magic Myxies; Hindu Holiday; The Bittern; 200 Fathoms Deep.

SUMMER COURSE

- J u l y 7—Pied Piper of Hamelin (color cartoon by Walt Disney); The Covered Wagon.
- J u l y 14—The Grasshopper and the Ant (color cartoon by Walt Disney); Death Fangs; Songs of the Range; The Nightingale.
- J u l y 21—Black Beauty.
- J u l y 28—Itchy Scratchy; Songs of the Southland; Barefoot Boy.
- A u g u s t 4—Old King Cole (color cartoon by Walt Disney); The Great Raccoon Hunt; Songs of the Hills; Let 'er Buck.
- A u g u s t 11—King Neptune (color cartoon by Walt Disney); Robinson Crusoe; Brock the Badger.

AUTUMN COURSE

- O c t o b e r 1—The China Shop (color cartoon by Walt Disney); Water Boy; Isle of Desire, including: Enchanting Tahiti; Manea Battles an Octopus; Walking Upon Hot Stones.
- O c t o b e r 8—An Alpine Shepherd Lad; Geysers; The Throne of the Gods.
- O c t o b e r 15—Jenny Wren and Her Neighbors; Columbus and His Son.
- O c t o b e r 22—Nature's Rogue; Pirates of the Deep; Siamese Journey; The Stork Family from Poland; The Seventh Wonder.
- O c t o b e r 29—Arctic Antics (cartoon by Walt Disney); Work Dogs of the North; A Young Explorer; Ikpuk, the Igloo Dweller; Gathering Moss.
- N o v e m b e r 5—Shades of Noah; Songs of the Plantations; Thrills on the Faroe Islands.
- N o v e m b e r 12—In the Land of Montezuma; Land of the Eagle; Fiesta of Calaveras; Quaint Animals of Guatemala.
- N o v e m b e r 19—Pied Piper of Hamelin (color cartoon by Walt Disney); Make a Mask; Beautiful Tyrol; Woodland Pals; Freaks of the Deep.
- N o v e m b e r 26—Mickey's Orphans (cartoon by Walt Disney); Snow Fun; Winter; Travels in Toyland.

During the Spring Course, special temporary exhibits for children were placed in Albert W. Harris Hall (Hall 18) to illustrate certain of the Museum Stories for Children for which it was not possible to secure good films. The dates and subjects of these exhibits were as follows:

- M a r c h 12—Evergreens.
- M a r c h 19—Bats.
- M a r c h 26—Indian Musical Instruments.
- A p r i l 2—Native American Nuts.
- A p r i l 23—Agates.

The Raymond Foundation had the hearty co-operation of staff members and their assistants in collecting, arranging and labeling the objects displayed in the special exhibits.

In addition to the afore-mentioned series of entertainments, the following two special patriotic programs were offered in February:

- F e b r u a r y 12—Lincoln's Birthday Program: My Father; My First Jury; Native State.
- F e b r u a r y 22—Washington's Birthday Program: George Washington's Life and Times.

In all, twenty-six programs were offered in the James Simpson Theatre for the children of the city and its suburbs. Total attendance at these entertainments was 34,061. Of this number, 5,681 came to the patriotic programs, 8,587 to the spring series, 6,243 to the summer programs, and 13,550 to the autumn entertainments.

Newspapers which co-operated by giving publicity to the programs included the *Chicago Daily News*, *Chicago Tribune*, *Chicago Herald and Examiner*, *Chicago Evening American*, *Chicago Daily Times*, and *Downtown Shopping News*, as well as many neighborhood and suburban papers.

Opportunity is taken here to express appreciation to the University of Texas, the Chicago information office of the German Railways, the General Electric Company, and the Cunard-White Star Line (Chicago office), for the films they lent for use on the programs.

MUSEUM STORIES FOR CHILDREN—RAYMOND FOUNDATION

Two series of Museum Stories for Children were prepared by members of the Raymond Foundation staff. A new feature of these was the use of illustrations. Eighteen line drawings were made for this purpose by the Museum Illustrator. These stories were printed by Field Museum Press in folder form and distributed to all children attending the entertainments. The subjects of the stories correlated with films and slides shown, and with the special exhibits arranged for children. Following are the titles of the stories in each series:

Series XXX—Hippocampus, the Sea Horse; Evergreens; The Bats—Ace Fliers; North American Indian Musical Instruments; Some Native American Nuts; The Egyptian Pyramids; The First Artists; Agates; The Bitterns.

Series XXXI—Tahiti, "The Queen of the Pacific"; Nature's Fountains; The Wren Family; A Stork Family; Sheep, Past and Present; The Mosses; American Marsupials; Masks and Their Meanings; Strange Toys.

Copies of these stories were given to children during the summer by displaying them at the North Door in a special holder from which they could be taken, as well as by the regular distribution at the James Simpson Theatre on the mornings of the entertainments. Total distribution of the stories for the year amounted to 37,500 copies.

LECTURE TOURS FOR CHILDREN—RAYMOND FOUNDATION

By conducted tours, the use of the exhibition halls for classwork was extended to various groups, as follows:



STEEL CASES FOR ZOOLOGICAL SPECIMENS OF LARGE SIZE

Reference collections of mammals, birds, and reptiles

West Gallery of Fourth Floor



	Number of groups	Attendance
Tours for children of Chicago schools		
Chicago public schools	541	18,984
Chicago parochial schools	42	1,469
Chicago private schools	13	228
Tours for children of suburban schools		
Suburban public schools	335	10,043
Suburban parochial schools	11	328
Suburban private schools	14	321
Tours for special groups from clubs and other organizations	220	8,043

Thus, 1,176 groups received guide-lecture service, and the aggregate attendance was 39,416. The year has been outstanding for the many groups of children from other states to whom this service was extended. From New York, Virginia, Alabama, Missouri, Kansas, Iowa, Wisconsin, Michigan, and Indiana, 157 groups requested and received an hour to an hour and a half each of exhibition hall instruction. They included college, high school, and elementary school classes, as well as various youth organizations. On November 29 and December 1, the Museum was host to parties of Four-H Club boys and girls who visited the Museum for special tours of the halls devoted to prehistoric plant and animal life, prehistoric man, and the living races of mankind. The total number of delegates to the National Four-H Clubs Congress who attended these special tours was 1,585.

EXTENSION LECTURES—RAYMOND FOUNDATION

Extension lectures were offered to the schools under the plans so successfully employed for many years. In classrooms, laboratories, and assemblies, these talks were presented before audiences in both elementary and high schools. The subjects were:

FOR GEOGRAPHY AND HISTORY GROUPS

Glimpses of Eskimo Life; South America; North American Indians; Glimpses of Chinese Life; Native Life in the Philippines; Mexico and Its Southern Neighbors; The Romans; The Egyptians; Migisi, the Indian Lad.

FOR SCIENCE GROUPS

Field Museum and Its Work; Prehistoric Plants and Animals; Insect Life; Amphibians and Reptiles; The Story of Rubber; Coal and Iron; The Changing Earth; A Trip to Banana Land; Birds of the Chicago Region; Animal Life in the Chicago Region; Trees of the Chicago Region; Wild Flowers of the Chicago Region; Animals at Home; Our Outdoor Friends.

The addition of one more member to the staff made it possible to handle a few of the many requests from organizations other than schools for the extension lecture service. Thirty such lectures were given before club, camp, and church groups, with total attendance of 2,449.

In all, the extension lectures given by the staff of the Raymond Foundation totaled 540, and the aggregate attendance was 182,608.

RADIO PROGRAMS—RAYMOND FOUNDATION

The staff of the Raymond Foundation is again co-operating with the Public School Broadcasting Council in presenting a series of science broadcasts. Two days after a broadcast based upon Museum exhibits, groups of pupils from the grades most concerned visit the Museum and meet in the Lecture Hall. There mimeographed sheets containing additional information on the subject, with illustrations, are distributed, sample material is examined, and informal discussions are held. The pupils are then conducted on a tour of exhibition halls devoted to the subject of the broadcast. The topic for an October meeting was "Birches," and for one in December, "Black Diamonds."

ACCESSIONS

For use in the Theatre, the Lecture Hall, and in extension lectures, the Raymond Foundation acquired 590 stereopticon slides made by the Division of Photography. The Museum Illustrator colored 175 of these.

The Foundation received also a reel of motion picture film from the American Museum of Natural History, New York, to complete the *Simba* series. The title of this reel is *Man Versus Beast*. Professor Higley, of Wheaton College, Wheaton, Illinois, presented nine colored slides of Calico Rock, a famous natural feature near Buffalo Gap, South Dakota.

LECTURE TOURS AND MEETINGS FOR ADULTS—RAYMOND FOUNDATION

To clubs, conventions, colleges, hospital students, church groups, and other organizations, and to Museum visitors in general, guide-lecture service was made available without charge. During July and August, morning tours, as well as the regular afternoon ones, were given. The monthly schedules of subjects offered on tours were printed, and copies distributed at the main entrance of the Museum. City and suburban libraries, and other civic organizations, co-operated by distributing the tour schedules also. Tours for the public included 105 of a general nature, and 205 on specific subjects. In the 278 groups which participated gross attendance amounted to 4,593 persons. There were also special tours for 107 groups from colleges, clubs, hospitals and other organizations, with 2,944 persons participating.

On June 9, the Raymond Foundation assisted in commencement exercises for 845 foreign-born adults. The James Simpson Theatre, as in past years, was made available to the Board of Education for this purpose.

The use of the Lecture Hall was granted to the WPA workers employed on Museum projects for several meetings concerned with their activities. Two other groups also were permitted to hold meetings there. One adult group, members of a club, attended a lecture on minerals, after which they took part in a tour led by a Raymond staff member. Ten high school groups attended instructional meetings conducted by the Raymond Foundation staff in the hall, and four radio groups met there for informal talks and examinations of exhibits. In all, fifteen groups, totaling 762 persons, were served by the Raymond staff in the Lecture Hall.

SUMMARY OF ATTENDANCE AT ENTERTAINMENTS, LECTURES, ETC.

The various activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures reached a grand total of 2,143 groups, with an aggregate attendance of 265,229 individuals.

LECTURES FOR ADULTS

During the spring and autumn months, the Museum's sixty-ninth and seventieth courses of free lectures for adults were given on Saturday afternoons in the James Simpson Theatre. They were illustrated, as in past years, with notable motion pictures and stereopticon slides. The autumn course especially was outstanding for the number of natural-color films and slides used. Following are the programs of both series:

SIXTY-NINTH FREE LECTURE COURSE

- March 5—The Last Stand of the Great Ice Age.
Mr. Bradford Washburn, Harvard University, Cambridge, Massachusetts.
- March 12—Wings Over Utah.
Mr. Alfred M. Bailey, Colorado Museum of Natural History, Denver.
- March 19—Adventures with Insects.
Mr. Brayton Eddy, Providence, Rhode Island.
- March 26—Primeval Stone Monuments: The Mystery of the Megaliths.
Dr. Freiherr Robert von Heine-Geldern, Vienna.
- April 2—The Search for the Congo Peacock.
Dr. James P. Chapin, American Museum of Natural History, New York.
- April 9—Home Life of the Gibbon: A Manlike Ape.
Professor C. R. Carpenter, Columbia University, New York.
- April 16—The Picture Book of a Canadian Naturalist.
Mr. Dan McCowan, Banff, Canada.

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- April 23—An Expedition to Prehistoric Pueblos.
Dr. Paul S. Martin, Field Museum.
- April 30—From London to the South Seas (*in natural color*).
Mr. William B. Holmes, Evanston, Illinois.

SEVENTIETH FREE LECTURE COURSE

- October 1—A Winter in Oaxaca.
Dr. W. H. Camp, New York Botanical Garden.
- October 8—Around Again in the *Yankee*.
Captain Irving Johnson, Springfield, Massachusetts.
- October 15—Jacklighting Wild Animals for the Movies.
Mr. Howard Cleaves, Staten Island, New York.
- October 22—Our Stone-Pelted Planet.
Dr. H. H. Nininger, Denver, Colorado.
- October 29—Birds and Animals of the Far North.
Commander Donald MacMillan, Provincetown, Massachusetts.
- November 5—Where the Rainbow Ends.
Mr. Howard MacDonald, Yonkers, New York.
- November 12—Primitive Tribes of the Guianan Jungle.
Colonel Charles Wellington Furlong, Cohasset, Massachusetts.
- November 19—America and Isles of the Pacific.
Mr. Fred Payne Clatworthy, Estes Park, Colorado.
- November 26—The Human Side of Nature.
Mr. Sam Campbell, Three Lakes, Wisconsin.

At these eighteen lectures the total attendance was 15,997 persons, of whom 7,109 attended the spring series, and 8,888 the autumn series.

LAYMAN LECTURE TOURS

Ever increasing popularity of the Sunday afternoon lecture tours, inaugurated in the autumn of 1937 by Mr. Paul G. Dallwig, led to their continuance in 1938. Mr. Dallwig, who has been appointed as a volunteer member of the staff with the title of Layman Lecturer, is a Chicago business man and Member of the Museum. He contributes this service for the public as a result of his deep interest in science, and his desire that science should be interpreted to other laymen in easily understood terms. An able speaker, he has developed a unique dramatic style which conveys information in a highly appealing manner. Mr. Dallwig lectured during eight months in 1938 (all except the summer period from June 1 to September 30) and it is noteworthy that applications for participation in these lecture tours grew constantly, and to such an extent, that it was twice necessary to increase the size to which parties were limited—first from 75 to 100 persons, and then to 125 persons. The interest which he stimulated in his listeners is further indicated by the fact that not a single person in any of the groups dropped out of a lecture tour prior to its conclusion, and frequently his talks were interrupted by spontaneous outbursts of applause. Participants in the tours

included, besides Chicagoans, visitors from all sections of the United States and Canada, and even from European countries. Numbered among them were business men and women, lawyers, physicians, clergymen, office workers, university professors and instructors, high school principals and teachers, college students, world travelers, actors, and professional lecturers, as well as groups from women's clubs, business men's associations, and other organizations.

The Sunday lecture-tours are presented without charge. The groups assemble at 2 P.M. in Stanley Field Hall. The demands have proved so great that it is always necessary to make reservations in advance, sometimes several weeks ahead. As far as practicable, however, Members of the Museum are accommodated regardless of whether or not they have made advance reservations, but it is advisable to make application beforehand.

The subjects presented during 1938 were as follows:

- January (five Sundays)—Nature's "March of Time" (Hall of Historical Geology).
 February (four Sundays)—Digging Up Our Ancestral Skeletons (Hall of the Stone Age of the Old World).
 March (four Sundays)—Parade of the Races (Hall of Man).
 April (four Sundays)—Digging Up Our Ancestral Skeletons (Hall of the Stone Age of the Old World).
 May (five Sundays)—Parade of the Races (Hall of Man).
 October (five Sundays)—Digging Up the Cave Man's Past (Hall of the Stone Age of the Old World).
 November (four Sundays)—Nature's "March of Time" (Hall of Historical Geology).
 December (three Sundays)—Gems, Jewels, and "Junk" (Hall of Minerals and the Gem Room).

In all, thirty-four Sunday lecture-tours were given, the total attendance for the eight months being 2,741.

SUMMARY OF ATTENDANCE AT LECTURES, ETC.

Instruction or other similar services were rendered by the Museum to a total of 2,195 groups comprising 283,967 individuals. These figures include all those reached in the 2,143 groups aggregating 265,229 children and other persons who participated in the various activities under the auspices of the James Nelson and Anna Louise Raymond Foundation, plus the 15,997 who attended the lectures for adults in the James Simpson Theatre, and the 2,741 who participated in the Sunday afternoon Layman Lecture Tours.

THE LIBRARY

During 1938 the functions of the various divisions of the Library have steadily increased, both with respect to internal improvement

of organization, and in services to those who have consulted its collections of scientific literature.

There have been accessioned 3,310 books. For these, necessary cards have been written, as well as author cards for 666 pamphlets. In all, approximately 24,000 cards have been added to the various catalogues, or about 5,000 more than in 1937. Some 400 letters in foreign languages have been translated. No record has been kept of telephone calls for various items of information, which sometimes are answered quickly, but often require considerable research.

The regular periodical list was increased by resumption of various subscriptions that had been suspended for several years. Intervening volumes were purchased also to make the sets consecutive. The list was further enlarged by gifts from members of the Museum staff of current issues of desired periodicals. It is of interest to note that the number of periodicals and serials received in 1938 numbered 1,550 more than in 1937.

The physical appearance of the Reading Room in the General Library has been greatly improved by the replacement of the old shades with a "sunlight" type, and attractive draperies hung at the windows greatly soften the outlines of the room. Both of these changes have enhanced the atmosphere of hospitality which greets the Library's patrons. Experiments in better lighting, begun during the year, are being continued.

The number of readers has noticeably increased, especially those from universities, colleges, and high schools. They have come not only from the city and nearby suburbs, but from all parts of this country and even from foreign lands. The total number during the year, exclusive of Museum personnel, was 2,510.

The Library depends to a large extent for its growth on its exchanges of publications with other scientific and educational institutions. During 1938 there have been effected some very desirable exchanges which have brought and will continue to bring important material.

In fulfillment of the desires of the different Departments of the Museum, opportunities have been embraced to fill out incomplete sets of valuable periodicals, thus increasing the usefulness of the sets. Among sets thus completed are the *Quarterly Journal* of the London Geological Society; Palaeontographical Society (London) Publications; *Memoirs* of the Geological Society of India; *Anatomischer Anzeiger*; *Internationales Archiv für Ethnographie*; *Revue de Zoologie*

et de Botanique Africaines; and *Sudan Notes and Records*. Also the greater part of the *Journal of Morphology* was obtained. In the coming years further additions will be made.

One of the outstanding purchases of the year was the *Fossilium Catalogus*, complete to date, which was much desired by the Division of Paleontology. Another was the *Manual of Conchology* by Tryon and Pilsbry. Other especially interesting purchases were: *The Botanical Cabinet*, 1818-1833; Umehara, *Shina-kodo-seikwa*; Oba and Kayanoto, *Tomb of Wang Kuang*; Siren, *Chinese Paintings in American Collections*; Jackson, *Birds of Kenya Colony*; Martius, *Nova Genera et Species Plantarum*; Smitt, *Skandinaviens Fiskar*; Fischer and Crosse, *Etudes des Mollusques Terrestres*; Milne-Edwards, *Histoire Naturelle des Crustacés*, and *Die Tierwelt* (26 numbers).

Among gifts of the year should be mentioned especially the books received from the Carrie Ryerson Estate, numbering about 800 volumes. These are largely botanical or zoological, but include also works on travel and more general subjects. Several dictionaries were very welcome additions, particularly Littré, *Dictionnaire de la Langue Française*; and Dupiney de Vorpière, *Dictionnaire Française Illustrée et Encyclopédie Universelle*. Also received in this gift were Prescott's *History of Ferdinand and Isabella*, *Charles the Fifth*, *History of the Conquest of Mexico*, and *History of the Conquest of Peru*. In addition, a copy of *Cyclopaedia of Agriculture* and also the last edition of *Encyclopaedia Britannica* were included.

Colonel Theodore Roosevelt, a Trustee, presented two religious books written on parchment in the beautiful Tibetan script. This is a valuable addition to the extensive Tibetan language material in the Library.

President Stanley Field presented a fine copy of Lewin's *Papilios of Great Britain*, published in 1795. This contains forty-five beautiful hand-colored plates made by the author. It was originally issued under the title *Insects of Great Britain, etc.*, Volume 1. Mr. Field again presented the weekly numbers of the *Illustrated London News*, copies of *Bird-Lore*, and publications on the conservation of wild life, including some from the Institut des Parcs Nationaux du Congo Belge.

Among other most helpful gifts are those received from the Carnegie Institution, of Washington, D.C. The Carnegie Corporation, of New York, presented *Mammals of Southwest Africa* (in two volumes) by Shortridge. Dr. Henry Field, Curator of Physical Anthropology, presented the current numbers of several periodicals

as well as various useful books on archaeology. Mr. H. B. Conover, Research Associate in Ornithology, gave the *Catalogue of Maps of Hispanic America* issued by the American Geographical Society. From Dr. Francis Drouet, Curator of Cryptogamic Botany, interesting botanical publications were received.

Mr. Julius Friesser, of the Department of Zoology, gave a copy of the second edition of Schlechter's *Orchideen*. Dr. Fritz Haas, Curator of Lower Invertebrates, gave nine numbers of Bronn's *Klassen und Ordnungen des Tierreichs*. Mr. E. W. Lazell, of Portland, Oregon, presented several geological works issued between 1883 and 1889. Mr. Elmer S. Riggs, Curator of Paleontology, assisted in the acquisition of the publications of the Geological Society of America, and a series of the *Journal of Paleontology*. Mr. Karl P. Schmidt, Curator of Amphibians and Reptiles, gave the *Scientific Monthly* and several other helpful and interesting volumes. Dr. E. E. Sherff, Research Associate in Systematic Botany, gave desirable botanical works. Mr. George Siverling, Chicago, presented Francisco Pi y Margall, *Historia General de America*, Volume 1, Part 2. Dr. Albert B. Lewis, Curator of Melanesian Ethnology, gave several interesting and helpful books. Mr. Paul C. Standley, Curator of the Herbarium, and Dr. Alexander de Sushko, Chicago, also presented valuable books. Many others have presented publications which likewise have been gratefully received.

Helpers assigned by the federal Works Progress Administration aided materially in the accomplishments of the year. One of the projects carried on by them has been the binding of books and pamphlets. A press was built which enabled them to do much better work than in previous years. A machine for sewing was also constructed. Both of these increased production. Maps have been mounted in a manner that will preserve many which had shown signs of hard use. Another project has been the translation of some Russian publications into English. WPA helpers have also catalogued material that otherwise would have had to wait indefinitely.

The Library has again been indebted to other libraries for loans of much needed books. Acknowledgment is especially made to the Library of Congress, Washington, D.C.; the Library of the United States Department of Agriculture; the John Crerar Library, Chicago; the University of Chicago Libraries; the Libraries of the Museum of Comparative Zoology, the Peabody Institute, and the Gray Herbarium at Harvard University; the New York Public Library; the Library of the Missouri Botanical Garden, St. Louis; Northwestern



THE BOOK SHOP OF THE MUSEUM

Opened in April, this shop, located near the North Entrance, extends a new service to Museum Members and the general public
All books carried in stock have the endorsement of the scientific staff



University Library, Evanston, Illinois; the Library of the American Museum of Natural History, New York; the Newberry Library, Chicago; and the Library of the University of Michigan, Ann Arbor. Conversely, Field Museum loaned books and periodicals to fifteen different organizations.

PUBLICATIONS AND PRINTING

The number of scientific papers published during 1938 again showed an increase over any previous year, and the Museum distributed copies extensively to both foreign and domestic museums, libraries, and other institutions on its exchange lists. To these, and to individuals engaged in scientific work, the Museum sent 16,533 copies of technical publications, 1,084 popular leaflets, and 482 miscellaneous publications and pamphlets. It also sent 3,838 copies of the *Annual Report of the Director* for 1937, and 636 copies of leaflets, to Members of the Museum.

Sales during the year totaled 10,985 scientific publications, 8,364 leaflets, and 11,023 miscellaneous publications and pamphlets, such as Guides, Handbooks, and Memoirs.

Thirty-two large boxes containing 6,393 individually addressed packages of publications were shipped to the Smithsonian Institution at Washington, D.C., for distribution to foreign destinations through its exchange bureau. This courteous co-operation on the part of the Washington institution in effecting deliveries is deeply appreciated at Field Museum. An approximately equal quantity of these books was sent by stamped mail to the institutions and individuals on the domestic exchange list. Seventy-three new exchange arrangements with domestic and foreign institutions and scientists were established.

For future sales and distribution, 16,781 copies of various publications and leaflets were wrapped in packages, labeled, and stored in the stock room.

Second editions were issued of the anthropology leaflet *Indian Tribes of the Chicago Area*, and the botany leaflet *Poison Ivy*, of which the first editions were printed in 1926. Great public interest in both the living races of man, and their predecessors on earth, again was evidenced by the sale of a total of some 1,800 copies of the leaflets *The Races of Mankind* and *Prehistoric Man*.

The total number of post cards sold during 1938 was 108,194, of which 16,165 were grouped into 745 sets.

The Museum issued three colored post cards of zoological habitat groups, reproduced from color photographs made by Mr. Clarence B.

Mitchell, Research Associate in Photography at Field Museum. The subjects are: the giant panda, the klipspringer, and the quetzal.

Fifteen new zoological subjects were added to the assortment of individual post cards printed in black-and-white.

The production of the Division of Printing, measured in number of printed pages and miscellaneous printing jobs, in 1938 exceeded that of the previous year. In the regular publication series there were issued thirty new numbers, comprising 4,188 pages of type composition. The number of copies of these printed by Field Museum Press was 30,044. Four of these publications were in the Anthropological Series, seven in the Botanical Series, four in the Geological Series, fourteen in the Zoological Series, and one was the *Annual Report of the Director* for 1937. Also printed were 144 pages (in an edition of 1,350 copies) of the first part of the *Bibliography of Birds*, by Dr. R. M. Strong. These are being held in the bindery until the early part of 1939. One number of the Museum Technique Series, consisting of six pages (775 copies), also was issued. Of the two leaflets published in second editions, comprising forty-eight pages of type composition, 3,579 copies were printed. Three new leaflets were issued: one each on botanical and zoological subjects, and one, dealing with the educational work of the Museum in the schools, under the title *Field Museum and Group Education*. The number of pages in these three booklets was 118, and the copies aggregated 6,974. Of two reprints of the eighteenth edition of the *General Guide* in forty-eight pages, and a revised nineteenth edition, containing fifty-six pages and six illustrations, 10,147 copies were printed. A seventh edition of the 74-page *Handbook of Field Museum* was also issued. This consisted of 3,521 copies.

Exhibition labels printed for the year reached a total of 5,371, including those for all Departments of the Museum. Other printed matter, such as the twelve issues of *Field Museum News*, Museum stationery, posters, lecture schedules, post cards, etc., brought the total number of miscellaneous impressions for the year to 956,448.

The following is a detailed list of publications:

PUBLICATION SERIES

- 405.—Botanical Series, Vol. XVII, No. 4. A Contribution to the Flora of Honduras. By T. G. Yuncker. January 31, 1938. 124 pages, 18 plates. Edition 870.
- 406.—Zoological Series, Vol. XXIII. The Birds of El Salvador. By Donald R. Dickey and A. J. van Rossem. March 21, 1938. 610 pages, 24 plates, 29 text figures. Edition 811.
- 407.—Botanical Series, Vol. XIX, Part I. The American Species of Passifloraceae. By Ellsworth P. Killip. March 31, 1938. 332 pages. Edition 831.

- 408.—Botanical Series, Vol. XIX, Part II. The American Species of Passifloraceae. By Ellsworth P. Killip. April 20, 1938. 282 pages. Edition 836.
- 409.—Zoological Series, Vol. XX, No. 28. Snakes of the Genus *Tantilla* in the United States. By Frank N. Blanchard. April 20, 1938. 8 pages. Edition 1,229.
- 410.—Zoological Series, Vol. XX, No. 29. A Geographic Variation Gradient in Frogs. By Karl P. Schmidt. April 29, 1938. 6 pages. Edition 926.
- 411.—Geological Series, Vol. VI, No. 20. Post-Glacial Fossil Vertebrates from East-Central Illinois. By Edwin C. Galbreath. April 29, 1938. 12 pages, 2 text figures. Edition 859.
- 412.—Anthropological Series, Vol. 27, No. 1. The High Priest's Grave, Chichen Itza, Yucatan, Mexico. By Edward H. Thompson, prepared for publication by J. Eric Thompson. April 29, 1938. 64 pages, 25 text figures. Edition 665.
- 413.—Report Series, Vol. XI, No. 2. Annual Report of the Director for the Year 1937. January, 1938. 156 pages, 10 plates. Edition 5,684.
- 414.—Botanical Series, Vol. XVII, No. 5. Studies of the American Flora—I. By Julian A. Steyermark. May 27, 1938. 36 pages, 2 text figures. Edition 880.
- 415.—Zoological Series, Vol. XX, No. 30. Notes on the Anatomy of the Treeshrew *Dendrogale*. By D. Dwight Davis. May 27, 1938. 22 pages, 8 text figures. Edition 817.
- 416.—Zoological Series, Vol. XX, No. 31. Food Habits of Some Arctic Birds and Mammals. By Clarence Cottam and Harold C. Hanson. June 14, 1938. 22 pages. Edition 867.
- 417.—Zoological Series, Vol. XXII, No. 3. General Function of the Gall Bladder from the Evolutionary Standpoint. By Frank W. Gorham and Andrew Conway Ivy. June 21, 1938. 58 pages, 1 text figure. Edition 907.
- 418.—Anthropological Series, Vol. 28, No. 1. The American Plant Migration, Part I: The Potato. By Berthold Laufer, prepared for publication by C. Martin Wilbur. July 28, 1938. 132 pages, 6 text figures. Edition 685.
- 419.—Anthropological Series, Vol. XXIII, No. 2. Archaeological Work in the Ackmen-Lowry Area, Southwestern Colorado, 1937. By Paul S. Martin. July 28, 1938. 88 pages, 67 plates, 4 text figures, 4 maps. Edition 781.
- 420.—Botanical Series, Vol. XVIII, Part III. Flora of Costa Rica. By Paul C. Standley. July 29, 1938. 356 pages. Edition 818.
- 421.—Geological Series, Vol. VI, No. 21. New Crocodilians from the Upper Paleocene of Western Colorado. By Karl P. Schmidt. August 30, 1938. 8 pages, 2 text figures. Edition 875.
- 422.—Zoological Series, Vol. XX, No. 32. Hemiptera from Iraq, Iran, and Arabia. By W. E. China. August 30, 1938. 12 pages, 2 text figures. Edition 873.
- 423.—Zoological Series, Vol. XX, No. 33. Orthoptera from Iraq and Iran. By B. P. Uvarov. August 30, 1938. 14 pages, 2 text figures. Edition 880.
- 424.—Zoological Series, Vol. XX, No. 34. Birds of the Crane Pacific Expedition. By Ernst Mayr and Sidney Camras. August 30, 1938. 22 pages. Edition 840.
- 425.—Zoological Series, Vol. XXII, No. 4. A New Catalogue of the Fresh-Water Fishes of Panama. By Samuel F. Hildebrand. September 28, 1938. 146 pages, 12 text figures. Edition 849.
- 426.—Anthropological Series, Vol. XXV, No. 2. Anthropometry of the Ovimbundu, Angola. By Wilfrid D. Hambly. September 30, 1938. 60 pages, 8 text figures. Edition 678.
- 427.—Geological Series, Vol. VI, No. 22. Dental Morphology of the Procyonidae with a Description of *Cynarctoides*, Gen. Nov. By Paul O. McGrew. October 31, 1938. 18 pages, 10 text figures. Edition 829.
- 428.—Botanical Series, Vol. XIII, Part II, No. 3. Flora of Peru. By J. Francis Macbride. October 31, 1938. 474 pages. Edition 827.

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- 429.—Botanical Series, Vol. XVIII, Part IV. Flora of Costa Rica. By Paul C. Standley. November 30, 1938. 438 pages. Edition 818.
- 430.—Zoological Series, Vol. XIII, Part XI. Catalogue of Birds of the Americas and the Adjacent Islands. By Charles E. Hellmayr. December 31, 1938. 668 pages. Edition 825.
- 431.—Zoological Series, Vol. XX, No. 35. A New Woodrat from Mexico. By Wilfred H. Osgood. December 31, 1938. 2 pages. Edition 807.
- 432.—Zoological Series, Vol. XX, No. 36. A New Pigeon from Colombia. By H. B. Conover. December 31, 1938. 2 pages. Edition 856.
- 433.—Zoological Series, Vol. XX, No. 37. A New Wood Owl from Chile. By Leslie Wheeler. December 31, 1938. 4 pages. Edition 820.
- 434.—Geological Series, Vol. VII, No. 4. Additional Notes on the Grinnell Ice-Cap. By Sharat K. Roy. December 31, 1938. 12 pages, 4 text figures, 1 map. Edition 801.

MUSEUM TECHNIQUE SERIES

- No. 5. Unique Construction of an Exhibit of Pliocene Edentates. By Phil C. Orr. March 30, 1938. 6 pages, 1 text figure. Edition 775.

LEAFLET SERIES

- Anthropology, No. 24 (second edition). Indian Tribes of the Chicago Region. By William Duncan Strong. 36 pages, 8 plates. August, 1938. Edition 1,061.
- Botany, No. 22. Coffee. By B. E. Dahlgren. 44 pages, 14 plates, 1 text figure. June, 1938. Edition 2,536.
- Botany, No. 12 (second edition). Poison Ivy. By J. B. McNair. 12 pages, 5 text figures. August, 1938. Edition 2,518.
- Zoology, No. 14. The Turtles of the Chicago Area. By Karl P. Schmidt. 24 pages, 2 colored plates, 11 text figures. June, 1938. Edition 3,086.
- General. Field Museum and Group Education. 50 pages, 12 text figures. September, 1938. Edition 1,252.

GUIDE SERIES

- General Guide to Field Museum of Natural History Exhibits. Eighteenth edition (reprint). 1938. 48 pages, 1 plate. Edition 1,087.
- General Guide to Field Museum of Natural History Exhibits. Eighteenth edition (reprint). 1938. 48 pages, 1 plate. Edition 3,010.
- General Guide to Field Museum of Natural History Exhibits. Nineteenth edition. 1938. 56 pages, 6 text figures. Edition 6,050.
- Handbook. General information concerning the Museum, its history, building, exhibits, expeditions and activities. Seventh edition. February, 1938. 74 pages, 8 plates. Edition 3,521.

PHOTOGRAPHY AND ILLUSTRATION

During 1938 the Division of Photography's production, including negatives, prints, photographic enlargements, lantern slides, transparencies and transparent exhibition labels, totaled 20,227 items. Most of this work was done in fulfillment of the needs of the various Departments and Divisions of the Museum, but includes also 542 prints, enlargements, and slides made for sales on orders received from the public.

Of the total items produced, 9,481 were the work of the Staff Photographer and his Assistant, and 10,746 resulted from the em-

PARASITIC JAEGER

The usual description, however, is that the bird of the year. It is a small, slender bird, with a long, thin bill, and a dark cap. It is found in the Arctic region, and is a common sight in the mountains of Alaska and Siberia. It is a very common bird in the Arctic region, and is a common sight in the mountains of Alaska and Siberia. It is a very common bird in the Arctic region, and is a common sight in the mountains of Alaska and Siberia.

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50443-50445. W. HARRIS. N. W. HARRIS PUBLIC SCHOOL EXTENSION, CHICAGO, ILL.

A RECENT ADDITION TO THE PORTABLE EXHIBITS LOANED TO THE SCHOOLS OF CHICAGO BY THE N. W. HARRIS PUBLIC SCHOOL EXTENSION OF FIELD MUSEUM OF NATURAL HISTORY
One-sixth actual size

ployment of several workers assigned by the federal Works Progress Administration. The WPA work was of a more routine character, chiefly making prints, including several thousand prints of type specimens of plants for the Herbarium from the negatives secured in Europe through the Department of Botany's project in foreign herbaria.

In addition to photographers, the WPA furnished clerks to the Division to carry on the important tasks of classifying, indexing, and numbering negatives and prints, and maintaining in good order the Museum's vast negative collection which at the end of the year had reached a total of approximately 88,000 negatives on file. The systematization of these files has increased enormously their availability for prompt and efficient service in filling requisitions. The number of cards written and filed, negatives captioned and filed, and other clerical operations performed, aggregated more than 80,000 items.

A total of 724,525 prints was produced by the Museum Collo-typer. Included among these were illustrations for publications and leaflets, covers for various books and pamphlets, picture post cards, and headings for lecture posters.

Three hundred and thirty-five orders for art work of various types were filled by the Museum Illustrator to meet the needs of the various Departments and Divisions of the institution. This total included, among other items, more than eighty-four drawings, the coloring of sixty-seven stereopticon slides, and the retouching of photographs, preparation and lettering of maps, etc.

PUBLIC RELATIONS

Field Museum during 1938 maintained its relations with the press on a scale which resulted in almost daily appearance of announcements of its activities, such as lectures, tours, etc., and more elaborate articles on its exhibits, its expeditions, and other topics. Thus the public was promptly and constantly informed of the institution's services and researches. The interest thereby engendered promoted attendance, and created a general awareness of the functions of the Museum, and of its civic and scientific importance.

The Public Relations Counsel prepared and distributed to the daily newspapers a total of 324 news releases, accompanied in many cases by photographs and captions which aggregated several hundred in number. This represented a substantial increase over 1937. Although the principal objective in this press campaign was space

in the several great metropolitan dailies of Chicago, the releases were circulated also to the various small community papers published in various sections of the city, and its suburbs, thus reaching many thousands of additional readers. News releases and photographs were also circulated on a national scale, and to some extent internationally, through the co-operation of such news agencies as the Associated Press, United Press, International News Service, Science Service, Wide-World Photos, and others.

The releases issued by the Museum, in addition to attaining publication as sent, were often effective also in stimulating editors of newspapers and magazines to assign staff writers and camera-men to develop "angles" of their own, and to build up "feature stories" and series of pictures. A number of editorials also were inspired by news from Field Museum.

Among the outstanding publicity features of the year were an entire page of photographs in color of Museum exhibits, published in the *Chicago Sunday Herald and Examiner*; a full-page article accompanied by illustrations and maps, on the Museum's expeditions of 1938, which also appeared in the *Sunday Herald and Examiner*; two full pages of pencil sketches made in the Museum by a staff artist of the *Chicago Sunday Times*; numerous front-page stories in the *Chicago Tribune*, *Chicago Daily News*, and *Chicago Evening American* on subjects such as the preparation and installation of Su-Lin, giant panda late of the Brookfield Zoo, as a Museum exhibit, and the germination in the Department of Botany of seeds of lotus plants estimated to be from 300 to 500 years old. Nine special releases, containing abstracts of the most interesting scientific papers presented before the American Oriental Society's annual meeting at a session held at the Museum, resulted in extensive publicity. Articles appeared also in various weekly and monthly periodicals, while a number of Museum photographs were published in various issues of the *Illustrated London News*. Nearly every week, as in the preceding year, one or more photographs and articles on the Museum appeared in the *National Corporation Reporter*, a periodical having wide circulation among members of the legal profession. Articles and photographs on specified subjects were supplied by the Museum in fulfillment of requests from various publishers.

In co-operation with officials of the Chicago Board of Education, the *Chicago Daily Times*, and the *Chicago Herald and Examiner*, the Museum supplied pictorial material for use in publicity to promote

a series of special educational radio programs presented for children by the Radio Council of the Chicago Public Schools.

The most curious publicity project in the history of the Museum was the preparation in the year 1938 of material for "release" in A.D. 8113! This was done by supplying photographs and data requested by Oglethorpe University for burial in an especially designed and safeguarded sealed crypt which, it is hoped, will simplify the task of future archaeologists more than 6,000 years from now in reconstructing the story of civilization in the twentieth century. The crypt is a co-operative project of Oglethorpe University and the *Scientific American*, and contains material representing all phases of contemporary life. The year 8113 was chosen because by that time 6,177 years will have passed since 1936, when assemblage of material for this crypt began. This period corresponds to the 6,177 years *preceding* 1936 from an ancient Egyptian date (4241 B.C.) regarded as the first fixed date in human history.

Field Museum News, the monthly bulletin which maintains contact between the Museum and its Members, was published with regularity, completing its ninth volume, and ninth year of operation. Every effort was made to improve editorial content and illustrations, and as an innovation there was printed in the December issue a special illustration, in four colors, of the new group of quetzal (national bird of Guatemala) opened in Hall 20 during the year. This was made from a color photograph taken by Mr. Clarence B. Mitchell, Research Associate in Photography. Toward the end of the year plans were completed for doubling the size and improving the typographical make-up of the *News*, and the first issue (January, 1939) in the new format was published and placed in the mail on December 30. By the changes made, distinctly better legibility is accomplished, and space is provided for a more complete and elaborate coverage of Museum activities. *Field Museum News*, in addition to serving as an organ for the information of the membership, performs additional functions as a publication for exchange with other institutions, and as a supplementary medium of publicity. Copies are sent to editors of newspapers and magazines, who frequently reprint or quote its articles.

As usual, the Museum received additional publicity in broadcasts of various radio stations and networks, and on several occasions its activities were the subject of motion picture newsreels. Advertising media of a number of organizations were made available, without charge, for the publicizing of Museum lectures and exhibits. Among

transportation systems which displayed Museum placards in their stations or cars were the Chicago and North Western Railway, Illinois Central System, Chicago Surface Lines, Chicago Rapid Transit Lines, Chicago, Aurora and Elgin Railroad, and Chicago, North Shore and Milwaukee Railroad. Many thousands of information folders about the Museum, and others about the Sunday afternoon lecture tours presented by Mr. Paul G. Dallwig, the Layman Lecturer, were distributed through the courtesy of hotels, clubs, commercial organizations, libraries, schools, travel bureaus, department stores and public institutions. In addition, some of these establishments displayed posters advertising the lecture courses.

Invitations, accompanied by folders, were sent to the delegates attending several hundred conventions held in Chicago, suggesting that they include the Museum among the places to be visited while in the city.

MEMBERSHIP

It is regretted that a decline in the number of persons on the Museum's membership lists must be reported for 1938. The total number of memberships recorded as of December 31, 1938, is 4,122, as against 4,266 on the same date in 1937.

Of those who resigned, the majority apparently found this step necessary because of the stress of economic conditions. To these former Members appreciation is expressed for their past support, and it is hoped they may find it possible to resume their memberships in the early future.

An expression of gratitude for their support is due to the new Members who have enrolled, as well as to those Members who have so loyally continued year after year their support of the Museum, thus helping to make possible the continuance and expansion of the institution's cultural activities.

The following tabulation shows the number of names on the list of each of the membership classifications at the end of 1938:

Benefactors	23
Honorary Members	14
Patrons	25
Corresponding Members	6
Contributors	117
Corporate Members	44
Life Members	271
Non-Resident Life Members	10
Associate Members	2,383
Non-Resident Associate Members	7
Sustaining Members	10
Annual Members	1,212
Total Memberships	4,122

The names of all persons listed as Members during 1938 will be found on the pages at the end of this Report.

In the pages which follow are submitted the Museum's financial statements, lists of accessions, *et cetera*.

CLIFFORD C. GREGG, *Director*

COMPARATIVE ATTENDANCE STATISTICS
AND DOOR RECEIPTS

FOR YEARS 1937 AND 1938

	1938		1937
Total attendance.....	1,391,580		1,292,023
Paid attendance.....	91,097		94,217
Free admissions on pay days:			
Students.....	46,861		29,460
School children.....	126,554		119,486
Teachers.....	2,900		2,492
Members.....	1,255		1,524
Admissions on free days:			
Thursdays (52).....	196,003	(52)	186,198
Saturdays (52).....	354,543	(52)	322,980
Sundays (51).....	572,367	(52)	535,666
Highest attendance (May 20, 1938).....	47,794	(May 21)	42,421
Lowest attendance (April 6, 1938).....	101	(Dec. 17)	129
Highest paid attendance (Sept. 5, 1938)....	3,115	(Sept. 6)	3,448
Average daily admissions (363 days).....	3,834	(363 days)	3,570
Average paid admissions (208 days).....	438	(209 days)	450
Number of guides sold.....	7,219		7,555
Number of articles checked.....	22,604		21,917
Number of picture post cards sold.....	108,194		127,827
Sales of publications, leaflets, handbooks, portfolios, and photographs.....	\$7,601.13		\$5,289.49

COMPARATIVE FINANCIAL STATEMENTS

FOR YEARS 1937 AND 1938

INCOME	1938	1937
Endowment Funds.....	\$191,247.11	\$175,878.29
Funds held under annuity agree- ments.....	28,878.51	37,022.16
Life Membership Fund.....	11,903.16	13,275.28
Associate Membership Fund...	12,843.41	12,754.67
Chicago Park District.....	117,904.31	92,122.69
Annual and Sustaining Member- ships.....	11,020.00	12,333.50
Admissions.....	22,774.25	23,554.25
Sundry receipts.....	19,757.51	19,193.00
Contributions, general purposes.	25,961.22	50,305.04
Contributions, special purposes (expended <i>per contra</i>).....	28,172.28	58,558.57
Special funds: Part expended this year for purposes designated (included <i>per contra</i>).....	<u>15,276.54</u>	<u>16,358.07</u>
	\$485,738.30	\$511,405.52
EXPENDITURES		
Collections.....	\$ 9,918.28	\$ 5,796.12
Operating expenses capitalized and added to collections...	43,731.66	46,338.05
Expeditions.....	13,159.97	10,305.17
Furniture, fixtures, etc.....	24,923.14	48,531.38
Wages capitalized and added to fixtures.....	6,141.68	2,240.86
Pensions, group insurance.....	15,361.67	15,904.12
Departmental expenses.....	42,860.28	43,202.37
General operating expenses.....	311,591.69	293,735.04
Annuities on contingent gifts...	30,044.40	35,929.23
Added to principal of annuity endowments.....		1,092.93
Interest on loans.....	1,229.00	2,191.06
Paid on bank loans.....	<u>9,400.00</u>	<u>20,375.80</u>
	\$508,361.77	\$530,642.13
Deficit..	\$ 22,623.47	Deficit.. \$ 19,236.61
Contribution by Mr. Marshall Field...	<u>19,530.00</u>	<u>28,750.00</u>
Net Deficit..	<u>\$ 3,093.47</u>	Balance.. <u>\$ 9,513.39</u>
Notes payable January 1.....	\$ 36,000.00	\$ 56,375.80
Paid on account.....	<u>9,400.00</u>	<u>20,375.80</u>
Balance payable December 31.....	\$ 26,600.00	\$ 36,000.00

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

	1938	1937
Income from Endowment.....	\$16,883.42	\$18,964.67
Operating expenses.....	<u>15,773.74</u>	<u>13,879.08</u>
December 31.....Balance	\$ 1,109.68	Balance \$ 5,085.59

LIST OF ACCESSIONS

DEPARTMENT OF ANTHROPOLOGY

BERGER, MRS. WILLIAM B., Denver, Colorado: 2 Babylonian contracts—ruins of Drehem, near Nippur (gift).

BREUIL, ABBÉ HENRI, Paris, France: 13 negatives taken in 1911 at Cap Blanc, Dordogne, France (gift).

BRONSON, MRS. H. P., Chicago: 1 blue-glazed Ushebti (1000 B.C.) and 1 string of glazed beads (1500 B.C. or later)—Egypt (gift).

BROOKLYN MUSEUM, Brooklyn, New York: Model of Maya temple at Xlopak, Yucatan, Mexico (exchange).

COHEN, ABRAHAM, Chicago: 1 beaded jacket—Brulé Sioux (gift).

FIELD, DR. HENRY, Chicago: 5 objects: 1 large sarcophagus, 1 carved marble bath, 1 marble basin with stand, and 2 marble capitals—Italy; 4 photographs of construction of Swiss Lake Dweller Village (Zurich Natural History Museum exhibit), Switzerland (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by Dr. Paul S. Martin (Field Museum Archaeological Expedition to the Southwest): approximately 2,500 objects: bone and stone tools, potsherds and whole or mendable pieces of pottery.

Purchase: 1 Chinese pottery jar—China.

GILBERT, MISS HELEN R., Chicago: 1 piece of painted cloth—interior of Bali (gift).

HAAS, DR. FRITZ, Chicago: 1 bow and 14 arrows—Vachokwe tribe, Angola, West Africa (gift).

HAMMILL, MISS EDITH K., Chicago: 1 pot—Apache(?), New Mexico(?) (gift).

KONSBERG, A. V., Chicago: 1 model outrigger canoe—Samoa (gift).

MCCUTCHEON, JOHN T., Chicago: 1 Peruvian jar—obtained in Panama by General Charles Dawes (gift).

MANDEL, MRS. EDNA HORN, Chicago: 1 lot of copper spindle whorls and beads strung together—Peru; 2 ceramic statues of Yama, the god of death—China (gift).

MEEKER, MRS. ARTHUR, Chicago: 1 necklace of two strands made up of coral and silver coins—Chichicastenango, Guatemala (gift).

OWEN, DR. A. K., Topeka, Kansas: 1 glazed pottery plumb bob—Eshmunen (Hermopolis Magna Shmun); 8 flint blades and 1 arrow point—east of Assiut, Egypt (gift).

RYERSON, CARRIE, ESTATE OF, Chicago: 3 Navaho blankets and 1 Mexican blanket—United States and Mexico (gift).

SARGENT, HOMER E., Pasadena, California: 6 textiles—2 from Navaho Indians, 3 from Mexico, and 1 from Algeria, North Africa (gift).

SHOOK, MISS RUBY, Norton, Massachusetts: 1 beaded doll, 1 beaded purse—Crow Indians, Montana (gift).

SIMONSON, MRS. E. B., and COLONEL D. F. HITT (deceased), Franklin Park, Illinois: 1 birch bark covered basket with porcupine quill decorations—Deer Park Township, Illinois (gift).

SMEATON, MISS WINIFRED, Ann Arbor, Michigan: 17 hair samples—Iraq, Anatolia, and Syria (gift).

DEPARTMENT OF BOTANY—ACCESSIONS

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pennsylvania: 1 algal specimen (gift); 321 specimens of United States plants (exchange).

AGUIRRE, GABRIEL, Mexico City, Mexico: 1 plant specimen (gift).

ARNOLD ARBORETUM, Jamaica Plain, Massachusetts: 1,988 plant specimens (exchange).

ARSÈNE, REV. BROTHER G., Santa Fe, New Mexico: manuscript list of Mexican plants (gift).

BADER, MISS JOAN, Toms River, New Jersey: 29 specimens of algae (gift); 10 specimens of algae (exchange).

BAILEY HORTORIUM, Cornell University, Ithaca, New York: 1 plant specimen (gift).

BAILEY, DR. LIBERTY H., Ithaca, New York: 135 photographic prints (exchange).

BARKLEY, DR. FRED A., Missoula, Montana: 32 specimens of algae (gift).

BENKE, HERMANN C., Chicago: 220 specimens of United States plants, 1 negative, 1 photograph (gift).

BOLD, HAROLD C., Nashville, Tennessee: 39 specimens of algae (gift); 17 specimens of algae (exchange).

BORIS FRÈRES E COMPANHIA, Fortaleza, Ceará, Brazil: 2 plant specimens (gift).

BOTANIC GARDENS, Singapore, Straits Settlements: 1 plant specimen (gift).

BOTANISCHES INSTITUT, Munich, Germany: 97 plant specimens (exchange).

BOTANISCHES MUSEUM, Berlin-Dahlem, Germany: 1 photographic print (exchange).

BUTLER UNIVERSITY, Department of Botany, Indianapolis, Indiana: 63 specimens of Indiana plants (exchange).

CANAL ZONE EXPERIMENT GARDENS, Summit, Canal Zone: 3 specimens of plants (gift).

CARNEGIE INSTITUTION OF WASHINGTON, Station for Experimental Evolution, Cold Spring Harbor, New York: 37 specimens of plants from Yucatan (gift).

CENTRO NACIONAL DE AGRICULTURA, San Pedro Montes de Oca, Costa Rica: 427 specimens of Costa Rican plants (gift).

CHAMBERLAIN, DR. CHARLES J., Chicago: 60 specimens of cycads, 6 seeds of nelumbo (gift).

CIFERRI, DR. RAFFAELE, Pavia, Italy: 1 plant specimen (gift).

CLOKEY, IRA W., South Pasadena, California: 6 plant specimens (gift); 2,030 specimens of United States plants (exchange).

CONARD, DR. HENRY S., Grinnell, Iowa: 100 specimens of mosses (gift).

CONSERVATOIRE ET JARDIN BOTANIQUE, Geneva, Switzerland: 1,035 plant specimens (exchange).

CORNELL UNIVERSITY, Department of Botany, Ithaca, New York: 82 specimens of plants from Washington (exchange).

CORNELL UNIVERSITY, Plant Breeding Department, Ithaca, New York: 28 plant specimens (gift).

CRAWFORD, MISS SARA W., Hatton Springs, Arkansas: 1 plant specimen, 3 photographic prints (gift).

DANIEL, REV. BROTHER H., Medellín, Colombia: 139 specimens of Colombian plants (gift).

DEAM, CHARLES C., Bluffton, Indiana: 17 plant specimens (gift).

DEGENER, OTTO, Waialua, Oahu, Hawaiian Islands: 31 specimens of Hawaiian plants (gift).

DEPAUW UNIVERSITY, Greencastle, Indiana: 146 specimens of Honduran plants (exchange).

DEUTZMAN, H. J., St. Louis, Missouri: 11 wood specimens (gift).

DIRECCION GENERAL DE AGRICULTURA, Guatemala City, Guatemala: 2 plant specimens (gift).

DODGE, DR. CARROLL W., St. Louis, Missouri: 8 specimens of algae (gift).

DONES, MATHIAS, Chicago: 3 plant specimens (gift).

DROUET, DR. FRANCIS, Chicago: 782 specimens of Brazilian plants, 338 specimens of algae (gift).

ELETT, G. C., Waterloo, Indiana: 1 photograph (gift).

ELIAS, REV. BROTHER, Barranquilla, Colombia: 184 specimens of Colombian plants (gift).

ESCUELA NACIONAL DE AGRICULTURA, Chimaltenango, Guatemala: 100 specimens of Guatemalan plants (gift).

ESTACION EXPERIMENTAL AGRONOMICA, Santiago de Las Vegas, Cuba: 1 plant specimen (gift).

EYERDAM, WALTER J., Seattle, Washington: 904 plant specimens (exchange).

FARLOW HERBARIUM, Cambridge, Massachusetts: 28 specimens of algae (gift); 938 cryptogamic specimens (exchange).

FIELD, DR. HENRY, Chicago: 73 plant specimens, 1 mespilus tree (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Emil Sella: 46 specimens of Wyoming plants.

Collected by Paul C. Standley and Dr. Julian A. Steyermark: 64 specimens of Illinois plants.

Collected by Paul C. Standley, Dr. Julian A. Steyermark and Dr. Francis Drouet: 443 specimens of algae.

Collected by Dr. Julian A. Steyermark: 903 specimens of Missouri plants.

Collected by Dr. Paul D. Voth, Dr. Julian A. Steyermark, Mrs. Cora Shoop Steyermark, and Dr. Francis Drouet: 50 specimens of algae.

Made in the Department Laboratories: 8 photographic prints of type specimens of plants.

Transferred from the Division of Photography: 7,970 photographic prints.

Purchases: 2,120 cryptogamic specimens; 1,341 plant specimens—Brazil; 3,450 plant specimens—Costa Rica; 183 plant specimens—Ecuador; 712 plant specimens—Mexico; 928 plant specimens—Panama; 233 plant specimens—Peru; 173 plant specimens—United States; 101 plant specimens—Venezuela; 30 photographic prints.

FISHER, GEORGE L., Houston, Texas: 104 plant specimens (gift).

FLORISTS' PUBLISHING COMPANY, Chicago: 6 plant specimens (gift).

FORRER, H., Chicago: 4 plant specimens (gift).

FOSBERG, F. RAYMOND, Philadelphia, Pennsylvania: 260 plant specimens (exchange).

FRENGUELLI, DR. JOAQUIM, La Plata, Argentina: 1 algal specimen (gift).

FREYMUTH, MRS. W. C., River Forest, Illinois: 1 plant specimen (gift).

GARRETT, PROFESSOR ARTHUR O., Salt Lake City, Utah: 70 specimens of Utah plants (gift).

GENTRY, HOWARD SCOTT, Tucson, Arizona: 208 specimens of Mexican plants (gift).

GIFFORD, DR. JOHN C., Coconut Grove, Florida: 1 plant specimen (gift).

GILES, GEORGE H., Wilsonville, Nebraska: 18 specimens of algae (gift); 4 specimens of algae (exchange).

GINZBERGER, DR. AUGUST, Vienna, Germany: 344 specimens of Brazilian plants (gift).

GORDON, MISS BERTHA, Porterville, California: 3 photographic prints (gift).

GRANT, GORDON, Los Angeles, California: 1 specimen of seeds of *Ricinus* (gift).

GRAY HERBARIUM, Cambridge, Massachusetts: 162 specimens of plants (exchange).

GREENMAN, DR. JESSE M., St. Louis, Missouri: 5 specimens of algae (gift).

GUEST, E. R., Kuala Lumpur, Federated Malay States: preserved material of cloves and durian (gift).

GUNTER, GORDON, Palacios, Texas: 2 plant specimens (gift).

HEATH, CHARLES A., Chicago: 1 economic specimen (gift).

HERMANN, PROFESSOR F. J., Washington, D.C.: 237 plant specimens (exchange).

HEWETSON, WILLIAM T., Freeport, Illinois: 2 plant specimens (gift).

HINCKLEY, L. C., Austin, Texas: 25 plant specimens (gift).

HINTON, GEORGE B., Zitacuaro, Michoacan, Mexico: 85 specimens of Mexican plants (gift).

HOLLENBERG, DR. GEORGE J., La Verne, California: 11 specimens of algae (gift).

HOOD, PROFESSOR J. DOUGLAS, Rochester, New York: 6 plant specimens (gift).

HOTTLE, WALTER D., Montgomery, Alabama: 1 plant specimen (gift).

INSTITUTO DE BOTÁNICA DARWINION, San Isidro, Argentina: 386 specimens of plants from Argentina (exchange).

ITO, TOKUMATSU, Chicago: 3 economic specimens (gift).

JARDIM BOTANICO, Rio de Janeiro, Brazil: 33 specimens of Brazilian plants (gift).

JARDIM BOTANICO DE BELLO HORIZONTE, Minas Geraes, Brazil: 2,127 specimens of Brazilian plants (gift).

JOHNSTON, DR. JOHN R., Chimalteango, Guatemala: 265 specimens of plants from Guatemala (gift).

KANSAS STATE TEACHERS COLLEGE, Hays, Kansas: 307 specimens of Kansas plants (exchange).

KENOYER, PROFESSOR LESLIE A., Kalamazoo, Michigan: 645 specimens of Mexican plants, 2 photographs (gift).

KHANNA, DR. LALIT P., Rangoon, Burma: 96 vials of algae (gift).

KISCHE, LEO R., Columbus, Georgia: 13 plant specimens, 3 wood specimens (gift).

KNOBLOCH, IRVING W., San Juanito, Chihuahua, Mexico: 328 specimens of Mexican plants (gift).

KOCH, CYRIL, Chicago: 12 specimens of conifers (gift).

KONSBERG, A. E., Evanston, Illinois: 1 specimen of fungus (gift).

KRUKOFF, BORIS A., Bronx Park, New York: 292 plant specimens (gift).

KUMMER, MRS. ANNA M., Chicago: 33 plant specimens (gift).

LABORATORIOS DEL MINISTERIO DE AGRICULTURA, San Salvador, Salvador: 7 plant specimens (gift).

LANKESTER, C. H., Cartago, Costa Rica: 1 plant specimen (gift).

LEAL, PROFESSOR ADRIAN RUIZ, Mendoza, Argentina: 32 specimens of plants from Argentina (gift); 66 specimens of plants from Argentina (exchange).

LEGRAND, PROFESSOR DIEGO, Montevideo, Uruguay: 60 specimens of plants from Uruguay (exchange).

LILICK, LOIS C., Cambridge, Massachusetts: 2 specimens of algae (gift).

LINDER, DR. DAVID H., Cambridge, Massachusetts: 1 algal specimen (gift).

LOOSER, PROFESSOR GUALTERIO, Santiago, Chile: 15 specimens of Chilean plants (gift).

MACMAHON, JOHN, Chicago: 2 economic specimens (gift).

MARONEY, J. E., Chicago: 1 specimen of *Moringa* seeds (gift).

MARSHALL COLLEGE, Huntington, West Virginia: 100 specimens of plants from West Virginia (exchange).

MARTIN, DR. PAUL S., Chicago: 1 plant specimen (gift).

MAYWOOD NURSERIES, Maywood, Illinois: 15 specimens of cultivated conifers (gift).

MEXIA, MRS. YNES, Berkeley, California: 83 specimens of South American plants (gift).

MEYER, PROFESSOR TEODORO, Fontana, Chaco, Argentina: 32 specimens of plants from Argentina (exchange).

MILLE, REV. LUIS, Manabí, Ecuador: 15 specimens of plants from Ecuador (gift).

MISSOURI BOTANICAL GARDEN, St. Louis, Missouri: 345 plant specimens (exchange).

MONTANA STATE UNIVERSITY, Missoula, Montana: 56 specimens of United States plants (exchange).

MONTEIRO DA COSTA, R. C., Belem, Pará, Brazil: 18 specimens of Brazilian plants (gift).

MOORE, GEORGE, Lebanon, Missouri: 126 specimens of Missouri plants (gift).

MOORE, O. G., Brownsboro, Alabama: 2 wood specimens (gift).

MUSÉE PHYSIOGRAPHIQUE DE L'ACADÉMIE POLONAISE DES SCIENCES, Cracow, Poland: 350 specimens of plants from Poland (exchange).

MUSEO ARGENTINO DE CIENCIAS NATURALES, Buenos Aires, Argentina: 51 specimens of plants from Argentina (gift); 11 specimens of algae (exchange).

MUSEO DE HISTORIA NATURAL, Montevideo, Uruguay: 14 plant specimens from Uruguay (exchange).

MUSEO NACIONAL, San José, Costa Rica: 338 specimens of Costa Rican plants (gift).

MUSÉUM NATIONAL D'HISTOIRE NATURELLE (PHANÉROGAMIE), Paris, France: 3,358 plant specimens, 7 specimens of *Welwitschia* (exchange).

NATURHISTORISKA RIKSMUSEET, Stockholm, Sweden: 314 specimens of mosses, 75 specimens of algae (exchange).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York: 707 plant specimens, 470 cryptogamic specimens, 9 photographic prints (exchange).

NORTH DAKOTA AGRICULTURAL COLLEGE, Department of Botany, Fargo, North Dakota: 229 specimens of North Dakota plants (exchange).

PALMER, PROFESSOR CHARLES M., Indianapolis, Indiana: 2 specimens of algae (gift).

PALMER, MISS NEVA, Roswell, New Mexico: 40 plant specimens from New Mexico (gift).

PATRICK, MISS RUTH, Philadelphia, Pennsylvania: 31 specimens of algae (gift).

PEARSALL, GORDON, Riverside, Illinois: 25 specimens of Illinois plants (gift).

PRIOR, MISS SOPHIA, Chicago: 7 specimens of algae (gift).

PUERTO RICO AGRICULTURAL EXPERIMENT STATION, Mayaguez, Puerto Rico: 1 plant specimen (gift).

PURER, MISS E., San Diego, California: 3 plant specimens (gift).

PURPUS, DR. C. A., Zacuapam, Mexico: 1 plant specimen (gift).

RANCHO SANTA ANA BOTANIC GARDEN, Anaheim, California: 50 specimens of California plants (exchange).

ROSENGURTT, PROFESSOR BERNARDO, Montevideo, Uruguay: 220 specimens of plants from Uruguay (gift).

SCONCE, HARVEY, Chicago: 3 wood specimens (gift).

SCULL, DR. ELEANOR, Crown Point, Indiana: 1 fruit of mahogany, 1 wood specimen (gift).

SHERFF, DR. EARL E., Chicago: 306 plant specimens, 133 negatives of type specimens of plants (gift).

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SHREVE, DR. FORREST, Tucson, Arizona: 133 plant specimens (gift).

SMITH, AUSTIN, Zarco, Costa Rica: 100 specimens of Costa Rican plants (gift).

SMITH, ERNEST C., Fort Collins, Colorado: 3 plant specimens (gift).

SMITH, PRESTON, Ottawa, Ohio: 17 specimens of algae (gift).

SOBRINHO, J. VASCONCELOS, Pernambuco, Brazil: 6 plant specimens, 1 wood specimen (gift).

SOLANO, J. V., Lima, Peru: 1 map (gift).

SOUKUP, PROFESSOR J., Puno, Peru: 209 specimens of Peruvian plants (gift).

STANDLEY, PAUL C., Chicago: 154 specimens of plants from Florida, 21 illustrations of plants (gift).

STANFORD UNIVERSITY (DUDLEY HERBARIUM), California: 336 plant specimens (exchange).

STEFFA, MRS. GRACE M., Fox Lake, Wisconsin: 1 plant specimen (gift).

STEYERMARK, MRS. CORA S., Chicago: 1,186 cryptogamic specimens (gift).

STEYERMARK, DR. JULIAN A., Chicago: 537 plant specimens (gift).

STILLINGER, RICHARD, Spokane, Washington: 85 specimens of Idaho plants (gift).

STRICKLAND, J. C., Charlottesville, Virginia: 41 specimens of algae (exchange).

TAFT, DR. C. E., Columbus, Ohio: 1 algal specimen (gift).

TAYLOR, DR. WILLIAM R., Ann Arbor, Michigan: 1 algal specimen (gift); 326 specimens of algae (exchange).

THOMPSON, DR. RUFUS H., Stanford University, California: 1 algal specimen (gift).

UNITED STATES DEPARTMENT OF AGRICULTURE, DIVISION OF PLANT EXPLORATION, Washington, D.C.: 1 plant specimen (gift).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 706 plant specimens, 424 photographic prints, 3,104 typewritten descriptions of type specimens of plants (exchange).

UNIVERSIDAD DE CUZCO, Cuzco, Peru: 125 specimens of Peruvian plants (gift).

UNIVERSIDAD DE LA PLATA, INSTITUTO DEL MUSEO, La Plata, Argentina:

211 plant specimens from Argentina (exchange).

UNIVERSITY OF CALIFORNIA AT LOS ANGELES, Los Angeles, California: 3 plant specimens (exchange).

UNIVERSITY OF FLORIDA, AGRICULTURAL EXPERIMENT STATION, Gainesville, Florida: 45 cryptogamic specimens (exchange).

UNIVERSITY OF MICHIGAN, UNIVERSITY MUSEUMS, Ann Arbor, Michigan: 606 plant specimens (exchange).

UNIVERSITY OF TENNESSEE, Knoxville, Tennessee: 208 plant specimens (exchange).

UNIVERSITY OF TEXAS, DEPARTMENT OF BOTANY, Austin, Texas: 720 specimens of Mexican plants (gift).

UNIVERSITY OF WISCONSIN, DEPARTMENT OF BOTANY, Madison, Wisconsin: 103 plant specimens (exchange).

UPHOF, PROFESSOR J. C. T., Winter Park, Florida: 3 plant specimens (gift).

VALERIO, PROFESSOR MANUEL, San José, Costa Rica: 26 specimens of Costa Rican plants (gift).

VARGAS C., DR. CÉSAR, Cuzco, Peru: 262 specimens of Peruvian plants (gift).

VAUGHAN'S SEED STORE, Chicago: 1 plant specimen (gift).

VOTH, DR. PAUL D., Chicago: 2 specimens of algae (gift).

WALKER, DR. JAMES, Chicago: 6 economic specimens (gift).

WEED, ALFRED C., Chicago, Illinois: 1 plant specimen (gift).

WHITE, PROFESSOR ORLAND E., Boyce, Virginia: 70 specimens of Mexican plants (gift).

WITTE MEMORIAL MUSEUM, Austin, Texas: 54 plant specimens from Texas (gift).

WOLCOTT, A. B., Downers Grove, Illinois: 1 plant specimen (gift).

WOLF, REV. WOLFGANG, St. Bernard, Alabama: 8 plant specimens (gift).

WOLLE, PHILIP W., Princess Anne, Maryland: 27 specimens of algae (gift).

WOOD, MERRILL J., Salt Lake City, Utah: 1 economic specimen (gift).

WOYTKOWSKI, FELIX, Lima, Peru: 59 specimens of Peruvian plants (gift).

YALE UNIVERSITY, SCHOOL OF FORESTRY, New Haven, Connecticut: 198

plant specimens (gift); 25 microscopic slides of specimens of tropical woods (exchange).

YORK, ROY J., Chicago: 1 plant specimen (gift).

YUNCKER, PROFESSOR T. G., Greencastle, Indiana: 557 specimens of Honduran plants (gift).

ZETEK, JAMES, Balboa, Canal Zone: 45 specimens of Panama plants (gift).

DEPARTMENT OF GEOLOGY—ACCESSIONS

AMERICAN MUSEUM OF NATURAL HISTORY, New York: cast of *Diatryma* skeleton (exchange).

ASPHALT SHINGLE AND ROOFING INSTITUTE, Chicago: 20 specimens of asphalt roofing (gift).

BARRY, JACK, Portland, Oregon: 1 specimen of opalized wood—Estacada, Oregon (gift).

BOARDMAN, DONALD C., Fillmore, California: 2 specimens of lava and tuff interstratified (gift).

BOWEN, GEORGE W., Chicago: 1 fossil crane leg bone—Oceana County, Michigan (gift).

BRIGHTMAN, EDWARD M., Battle Creek, Michigan: 7 blue agate specimens—Luna National Forest, New Mexico; 2 concretions—Michigan and New Mexico (gift).

BROX, W. A., Rawlins, Wyoming: 37 chalcedony and agate specimens—Wyoming and Montana (gift).

CHALMERS, JOAN A. and WILLIAM J., Chicago: 1 brilliant cut beryllonite—Paris, Maine (gift).

CHANGNON, HARRY, Chicago: 4 mineral specimens, 6 ore specimens—Colorado (gift).

THE CHICAGO TRIBUNE, Chicago: 1 relief map of North America (gift).

CLEVELAND, F. C., Chicago: 1 specimen of calymene niagarensis—Chicago area (gift).

COLYER, C. G., Sheridan, Wyoming: 16 specimens of fish teeth—near Edgemont, South Dakota (gift).

CURTIS, LLOYD, Lander, Wyoming: 11 specimens of sapphire with damourite in matrix, 3 specimens of nephrite jade—near Lander, Wyoming (gift).

DAKE, H. C., Portland, Oregon: 1 specimen of corundum changing to damourite, 1 geode, 23 almandite crystals and 12 mineral specimens—western United States (gift).

DYCHE MUSEUM, UNIVERSITY OF KANSAS, Lawrence, Kansas: 8 casts of vertebrate fossils (exchange).

EHRMANN, MARTIN, New York: 1 gem aquamarine crystal—Minas Gerais, Brazil (exchange).

FIELD, DR. HENRY, Chicago: 2 specimens of sand—Florida; 2 specimens of beach sand—Copenhagen, Denmark; 3 rock specimens, 1 specimen of sand—Norway and Sweden (gift).

FIELD MUSEUM OF NATURAL HISTORY:

Collected by Dr. Henry Field (Field Museum Anthropological Expedition to the Near East—1934): 25 specimens of medicines used in Iraq.

Collected by John R. Millar (Sewell Avery Botanical Expedition to Nova Scotia): 4 gypsum specimens, 1 diatomite specimen—Nova Scotia.

Collected by Bryan Patterson: 7 specimens of fossil fern leaves—Braidwood, Illinois.

Collected by Sharat K. Roy (Sewell Avery Expedition for Physical Geology): 138 physical geology specimens, 25 mineral specimens, 11 rock specimens—United States.

Collected by Dr. A. J. Walcott (Field Museum Expedition to the Pacific Northwest): 193 mineral specimens—Pacific Northwest.

Purchases: 14 meteorites and 3 objects showing damage to garage and automobile by fall of meteorite, 6 tectites—various localities; 1 copy *Rocks and Minerals* partly printed in fluorescent ink.

FLORY, CHARLES H., Bellingham, Washington: 2 specimens of mammoth tusk—Fairbanks, Alaska (gift).

FORBES, P. L., Bend, Oregon: 5 mineral specimens—Oregon (gift).

GORDON, MISS BERTHA, Porterville, California: 1 gillespite specimen, 4 volcanic splatter bombs—California; 4 photographs of crumpled strata and erosion features—Mohave Desert and Death Valley, California (gift).

GRAY, FRED E., Oak Forest, Illinois: 1 specimen of fossil cephalopod—Chicago area (gift).

GREEN, E. E., Manhattan Beach, California: 1 kaolin specimen—San Bernardino County, California (gift).

GREEN, M. T., Bend, Oregon: 1 specimen of chalcedony and quartz tree cast—near Bend, Oregon (gift).

GRESKY, BENEDICT, Chicago: 36 specimens of rare metals, 3 norbide specimens (gift).

GRISWOLD, MRS. KEITH, Evanston, Illinois: 9 graphic granite specimens—North Carolina (gift).

GROESBECK, DR. M. J., Porterville, California: 2 gem sphalerite specimens—Bisbee, Arizona (exchange).

HIGLEY, PROFESSOR L. A., Wheaton, Illinois: 12 manganese concretions—south of Buffalo, South Dakota; 6 photographs of calico rock (gift).

HILTON, WILLIAM B. and G. BRADLEY HARRIS, Rifle, Colorado: 66 fossil plants—Rifle Gap, Colorado (gift).

HINE, A. R., Portland, Oregon: 33 agate specimens—Oregon (gift).

ITO, TOKUMATSU, Chicago: 10 coal specimens, 5 oil shale specimens—Fushun, Manchukuo (gift).

JENNINGS, JOHN W., Eureka Springs, Arkansas: 2 lithographic limestone specimens, 2 feldspathic shale specimens, 1 bryozoan specimen, 2 flint specimens—Eureka Springs, Arkansas; 1 slate specimen—northern Arkansas (gift).

LAZELL, DR. E. W., Portland, Oregon: 1 moss agate, 11 slides of fossil wood—Oregon (gift).

LOOK, ALFRED A., Grand Junction, Colorado: 1 vertebrate fossil, 2 fossil teeth—Colorado (gift).

MCGREW, PAUL O., Chicago: 3,000 vertebrate fossils (Tertiary micro-mammals), 2 invertebrate fossils—western Nebraska (gift).

MCKINLEY, WILLIAM C., Peoria, Illinois: 12 glacial gems—Peoria, Illinois (gift).

MCLEOD, C. W., Michigan City, Indiana: 30 claystones—Michigan City, Indiana (gift).

MACMILLAN, DUNCAN, Chicago: 34 invertebrate fossils—Sag Canal, Blue Island, Illinois (gift).

MCPHERSON, C. H., Pana, Illinois: partial skeleton of badger, *Taxidea taxus*—gravel pit near Witt, Illinois (gift).

MARQUETTE GEOLOGISTS' ASSOCIATION, Chicago: 17 glacial pebbles, 6 marcasite concretions—Wilmington and Coal City, Illinois (gift).

MENZEL, WILLIAM E., Chicago: 4 pyrite concretions, 1 chalcedony concretion, 19 minerals, 4 geological specimens—United States (gift).

MINERALOGIST MAGAZINE, Portland, Oregon: 22 mineral specimens—Oregon (gift).

MORRISON, MORRIS G., Evanston, Illinois: 4 specimens building stones, 1 basalt specimen—Palestine (gift).

MUSEO ARGENTINO DE CIENCIAS NATURALES, Buenos Aires, Argentina: 5 casts of fossil birds (exchange).

NELSON, WALTER, Portland, Oregon: 1 opalized wood specimen—Washington (gift).

NORDEN, MRS. BEATRICE, Chicago: 1 cinnabar specimen, 1 verite specimen—Arkansas (gift).

PAPE, JOHN C., Los Angeles, California: 6 specimens of massive hornblende, 1 hornblendite specimen—California (gift).

PEABODY MUSEUM, YALE UNIVERSITY, New Haven, Connecticut: 1 cast of skull and lower jaws of *Oligobunus darbyi* (exchange).

PERRY, STEWART H., Adrian, Michigan: 4 meteorites—United States (exchange).

PETERSON, PETER, Portland, Oregon: 8 agate specimens—Oregon (gift).

PITTS, WILLIAM B., Sunnyvale, California: plaque of 25 chiastolite sections, 42 specimens orbicular jasper—California (gift).

PRINCETON UNIVERSITY, Princeton, New Jersey: 177 Mioceneshell specimens—Yorktown, Pennsylvania (exchange).

QUINN, C. A., Ainsworth, Nebraska: 1 land gastropod—Rifle, Colorado (gift).

RENTON, J. LEWIS, Portland, Oregon: 55 mineral specimens—Oregon and California (gift).

RIGGS, ELMER S., Chicago: 46 specimens of Miocene and Pliocene mammals, 11 skulls and one incomplete skeleton of modern animals—various localities (gift).

RYERSON, CARRIE, ESTATE OF, Chicago: 44 pieces of jewelry (gift).

SCHIEFER, H. V., Cleveland Heights, Ohio: 1 jasper specimen—Flint Ridge, Ohio (gift).

SCHNEIDER, A. J. and RAY, Portland, Oregon: 2 agate specimens—Madras, Oregon (gift).

SHEAD, J. O., Norman, Oklahoma: 9 specimens of barite roses—Norman, Oklahoma (gift).

SLOCOM, R. G., Riverside, Illinois: 1 cinnabar specimen (gift).

SMITH'S AGATE SHOP, Portland, Oregon: 1 iris agate specimen—Oregon (gift).

SNYDER, S. M., Metamora, Illinois: 1 petroleum-filled geode—Tyson Creek, near Niota, Illinois (gift).

SPENCE, HUGH S., Ottawa, Canada: 3 specimens of asterism in phlogopite—Frontenac County, Ontario (gift).

STANDARD OIL COMPANY (Indiana), Chicago: 14 specimens of petroleum products (gift).

STRECKER, J. K., JR., Waco, Texas: 6 specimens of *Exogyra arietina*—Hog Creek, Texas (gift).

SWETT, W. O., Chicago: 1 specimen of clay-eater's clay (Chagasta)—Jaltipan, Oaxaca, Mexico (gift).

TEXAS PLANNING BOARD AND UNIVERSITY OF TEXAS, Austin, Texas: 11

slabs of polished marble; 4 discs of polished granite—Texas (gift).

TREVETT, MISS ANN, Casper, Wyoming: 1 uranophane specimen—Lusk, Wyoming (gift).

VON DRASEK, FRANK, Cicero, Illinois: 20 mineral specimens—New Mexico and Arkansas (gift); 38 pebbles of gem peridot, 9 moonstone specimens, New Mexico (exchange).

WALTER, CLARK W., Chicago: 12 minerals, 3 fossils—various localities (gift).

WEISS, PAUL, Denver, Colorado: 1 polished specimen fossil wood, 1 polished specimen red chalcedony—Colorado (gift).

WHARTON, J. R., Roseburg, Oregon: 1 specimen chalcedony—near Roseburg, Oregon (gift).

WHEATON COLLEGE, Wheaton, Illinois: 1 specimen calico rock—Buffalo Gap, South Dakota (exchange).

YAEGER, R. A., Kankakee, Illinois: 2 specimens Carboniferous fossils—Fort Dodge, Iowa (gift).

YOUNG, F. S., Portland, Oregon: 11 specimens of agate and chalcedony—Oregon (gift).

DEPARTMENT OF ZOOLOGY—ACCESSIONS

AMERICAN CONSUL, Warsaw, Poland: 70 marine bivalves—Baltic Sea (gift).

AMSCHLER, DR. WOLFGANG, Zeiryarn bei Cronach, Germany: 543 beetles—Tyrol, Austria (gift).

ANDERSON, CHRIS M., Miami, Florida: 1 scorpion—Miami, Florida (gift).

BALEY, JAMES, Chicago: 1 rattlesnake—Beverly Shores, Indiana (gift).

BARBER, C. M., Hot Springs, Arkansas: 1 shrew, 10 salamanders, 4 frogs, 9 snakes, 3 lizards, 4 turtles—Arkansas (gift).

BARNES, DR. VENTURA, Caracas, Venezuela: 10 frogs and toads, 3 lizards, 6 snakes—Yaracuy, Venezuela (exchange).

BARRY, RICHARD E., Chicago: 2 beetles—Mill Brook, Illinois (gift).

BARTON, WILLIAM, Chicago: 1 white-throated sparrow—Chicago (gift).

BASS BIOLOGICAL LABORATORY, Englewood, Florida: 2 shark jaws and 8 teeth—Englewood, Florida (gift).

BECKER, ROBERT H., Lake Bluff, Illinois: 4 fishes—Waukegan, Illinois (gift).

BEECHER, WILLIAM J., Chicago: 1 ground squirrel, 1 red-headed woodpecker—Illinois (gift).

BENAK, MRS. FRANK, Chicago: 1 spider with young—Chicago (gift).

BIRKS, THOMAS K., Chicago: 1 milk snake—Okee, Wisconsin (gift).

BLAIR, W. FRANK, Ann Arbor, Michigan: 3 white mice—White Sands Region, New Mexico (gift).

BLANCHARD, DR. FRIEDA COBB, Ann Arbor, Michigan: 896 snakes—various localities (exchange).

BOISMENUE, P., Columbia, Illinois: 33 carp bones—Columbia, Illinois (gift).

BONK, KENNETH, Homewood, Illinois: 1 milk snake—Homewood, Illinois (gift).

BORELL, A. E., Santa Fe, New Mexico: 1 free-tailed bat, 1 toad, 4 lizards, 5 snakes, 2 turtles—Texas (gift).

BOULTON, RUDYERD, Chicago: 1 immature woodcock—Indiana; 1 downy killdeer—Illinois; 18 bird skins—Mississippi; 11 portraits of ornithologists (gift).

BOYD, MISS LOIS, Muskegon, Michigan: 1 pharyngeal bone of drumfish—shore of Lake Michigan (gift).

BROMUND, E. FRED, Ann Arbor, Michigan: 24 salamanders, 14 frogs, 12 insects—Michigan (gift).

BURT, DR. CHARLES E., Winfield, Kansas: 1 brown bat, 2 salamanders, 2 frogs, 19 lizards, 2 snakes—various localities (exchange).

BURTON, ROBERT, Evanston, Illinois: 1 beetle necklace—Brazil (gift).

BUXTON, R. W., Evanston, Illinois: 5 frogs, 5 lizards, 5 snakes—McGill County, New Mexico (gift).

CAMRAS, SIDNEY, Chicago: 4 birds—Cook County, Illinois (gift).

CARNEGIE MUSEUM, Pittsburgh, Pennsylvania: 1 *Anolis*—British Honduras (exchange).

CAZIER, MONT A., Berkeley, California: 4 beetles—California (gift).

CEFALIE, MRS. PHILLIS, Chicago: 2 turtles, 1 fresh-water leach—Cook County, Illinois; 6 salamanders, 1 geographic turtle—Cass County, Michigan (gift).

CHADWICK, R. W., Chicago: 1 red-winged blackbird, 2 savanna sparrows—Chicago (gift).

CHICAGO POLICE DEPARTMENT, Chicago: 1 badger—Chicago (gift).

CHICAGO ZOOLOGICAL SOCIETY, Brookfield, Illinois: 35 mammals, 143 birds, 12 birds' eggs, 16 snakes, 3 lizards, 1 turtle—various localities (gift).

CLARK, PHILIP, Chicago: 4 snakes—Port Dickson, Federated Malay States: 2 box tortoises—United States (gift).

CLARKE-MACINTYRE, WILLIAM, Baños, Ecuador: 26 insects—Ecuador (gift).

CLAWSON, MRS. M. DON, Beirut, Syria: 24 bird skins—Iraq and Syria (gift).

COLORADO MUSEUM OF NATURAL HISTORY, Denver, Colorado: 2 mounted downy golden eagles—Colorado (gift).

CONOVER, BOARDMAN, Chicago: 67 bird skins—various localities (gift); 2 bird skins—Korea and Ecuador (exchange).

COOPER, B., Moshi, Tanganyika: 24 bird skins—Tanganyika (gift).

CORWIN, CHARLES A., Chicago: 15 sets of eggs—Laysan Island (gift).

COX, MRS. THOMAS J., Chicago: 5 corals—Borneo (gift).

CROSS, DR. J. C., Kingsville, Texas: 2 lizards, 2 snakes, 1 turtle—Kingsville, Texas (gift).

CURTIS, E. B., Phantom Grove, Florida: 1 wormlizard—Phantom Grove, Florida (gift).

DAHLGREN, DR. B. E., Chicago: 4 turtle eggs—Santarem, Brazil (gift).

DAVIS, D. DWIGHT, Naperville, Illinois: 2 mammals—Illinois (gift).

DEMING, G. S., Chicago: 25 snakes—Chicago (gift).

DIAL, MISS ROSE, Chicago: 1 brown creeper—Chicago (gift).

DICKEY COLLECTION, DONALD R., Pasadena, California: 994 bird skins—El Salvador (gift).

DOMINION MUSEUM, New Zealand: 5 boxes of accessories for kiwi group—New Zealand (gift).

DREUTZER, CARL, Chicago: 6 seal skins with skulls, 1 semi-fossilized musk-ox skull—Alaska (gift).

ENNIS, MISS MARGARET, Chicago: 9 bats, 4 toads, 32 lizards, 1 snake—Copan, Honduras (gift).

ENZENBACHER, ALBERT A., Chicago: 43 snakes, 6 turtles—McHenry, Illinois (gift).

EXLINE, A. W., San Jose, Mindoro, Philippine Islands: 6 crocodile skulls—Philippine Islands (gift).

FALCK, EUGENE G. F., Chicago: 2 shells—La Porte County, Indiana (gift).

FELLOWS, WILLIAM K., Chicago: 1 yellow-billed cuckoo—Chicago (gift).

FERRIS, WILLIAM K., Stanford University, California: 4 beetles—Lake Tahoe, California (exchange).

FIELD, DR. HENRY, Chicago: 9 mammals, 1 owl, 5 toads, 2 newts, 12 water snakes—Leicestershire, England; 1 toad, 158 fishes, 37 insects, 57 marine invertebrates—Morayshire, Scotland; 13 mammals, 4 bird skins, 2 lizards, 8 snakes—Iraq; 1 glass snake—Georgia; 162 fishes, 10 crustaceans—Boca Grande, Florida (gift).

FIELD MUSEUM OF NATURAL HISTORY: Collected by Emmet R. Blake (Stanley Field Expedition to British Guiana and Brazil): 68 mammals, 800 bird skins, 34 amphibians and reptiles, 125 fishes—Brazil.

Collected by John R. Millar (Sewell Avery Botanical Expedition to Nova

Scotia): 3 frogs, 2 toads, 1 garter snake—Handy Cove, Nova Scotia.

Collected by Dr. Wilfred H. Osgood, F. W. Gorham, and W. F. Nichols (Field Museum Expedition to New Mexico): 242 mammal skins with 244 skulls and 17 skeletons, 61 bird skins, 38 amphibians and reptiles—New Mexico; 3 bird skins—Montezuma County, Colorado.

Collected by Colin C. Sanborn (Field Museum Expedition to Scotland): 11 mammal skins and skulls, 10 red grouse skins, 1 black cock skin, 2 bird skeletons, 4 boxes of accessories—Scotland.

Collected by Karl P. Schmidt, C. M. Barber and John M. Schmidt (Field Museum Expedition to Arkansas): 258 amphibians and reptiles—Arkansas.

Purchases: 6,640 bird skins—East Africa; 5 codfish—Atlantic Ocean; 146 frogs, 176 lizards, 26 snakes—Australia and Tasmania; 4 free-tailed bats—San Diego, California; 19 frogs, 8 lizards, 3 snakes—Colombia; 150 frogs, 41 lizards, 24 snakes, 26 bird skins—Ecuador; 19 mammal skins—Ecuador; 8 worm lizards—Florida; 103 amphibians and reptiles, 4 fishes—Laurel, Maryland; 154 mammal skins with 152 skulls—Guerrero, Mexico; 89 mammal skins with 74 skulls, 28 bird skins, 502 amphibians and reptiles—Nuevo Leon, Mexico; 1 white-tailed deer—Minnesota; 10 pocket gophers with skins and skulls—Texas City, Texas; 32 bats—Venezuela and Ecuador; 42 bats—West Indies; 160 hawks and owls, 28 other bird skins, 7 rhea eggs—various localities (Leslie Wheeler Fund).

FIELD, STANLEY, Lake Forest, Illinois: 1 ruby-throated hummingbird—Lake Bluff, Illinois (gift).

FLEMING, ROBERT L., Mussoorie, India: 17 mammal skins and skulls, 7 bird skins—India (gift).

FOSTER, W. H., McAllen, Texas: 20 wasps—McAllen, Texas (gift).

FRANZEN, ALBERT J., Chicago: 1 meadow lark—Elgin, Illinois; 1 green snake—Chicago (gift).

GALBREATH, EDWIN C., San Diego, California: 4 lizards—San Diego, California (gift).

GENERAL BIOLOGICAL SUPPLY HOUSE, Chicago: 1 salamander—New Hartford, Missouri; 2 burrowing eels—Florida; 5 sea anemones—Atlantic and Pacific Oceans (gift).

GORE, CHARLES, Makenda, Illinois: 1 copperhead snake—Makenda, Illinois (gift).

GRANT, GORDON, Los Angeles, California: 25 amphibians and reptiles, 9 killifish, 161 insects and allies, 26 lower invertebrates—California; 1 centipede—Hawaiian Islands (gift).

GREEN, N. BAYARD, Elkins, West Virginia: 18 salamanders, 11 frogs, 2 snakes—West Virginia (exchange).

GREGG, CLIFFORD C., Chicago: 2 mounted ruffs (gift).

GURET, EDMOND N., Chicago: 5 bird skeletons—France (gift).

GUERNSEY, GUY, South Haven, Michigan: 1 Baltimore oriole—South Haven, Michigan (gift).

GUILLAUDEU, ROBERT, Chicago: 2 water snakes—Chicago (gift).

HAAS, DR. FRITZ, Chicago: 42 molusks—Chicago (gift).

HAAS, DR. FRITZ and MISS EDITH, Chicago: 2 garter snakes—Pell Lake, Wisconsin (gift).

HARDEN, L. E., Chicago: 1 albino opossum skin and skull—Glencoe, Illinois (gift).

HARTELIUS, BERTIL, Homewood, Illinois: 1 armadillo skull—Del Rio, Texas; 1 garter snake—Lansing, Michigan (gift).

HAWKINS, DR. BEN H., Mena, Arkansas: 2 diamond-backed rattlesnakes—Minna, Arkansas (gift).

HAWKINS, RAY, Chicago Heights, Illinois: 1 black chicken snake—Hartford, Michigan (gift).

HEDGE, J. W., La Grange, Illinois: 4 beetles—La Grange, Illinois (gift).

HORBACK, HENRY, Chicago: 1 red bat skin—Chicago (gift).

KANNAPEL, W., Chicago: 1 yellow-billed cuckoo—Cook County, Illinois (gift).

KELLOGG BIRD SANCTUARY, Battle Creek, Michigan: 1 goose (gift).

KENNEDY, DR. W. P., Baghdad, Iraq: 4 lizards, 2 snakes, 2 turtle eggs, 2 fishes—Iraq (gift).

KING, J. ANDREWS, Lake Forest, Illinois: 27 bird skins—Guatemala (gift).

KRAUTH, EMIL, Hebron, North Dakota: 6 butterflies—Mt. Adams, Washington (gift).

KORODA, DR. NAGAMICHI, Tokyo, Japan: 1 bat skin and skull—Japan (exchange).

LAKE, WILLIAM E., Chicago: 1 red bat—Chicago (gift).

LAUCK, ALBERT G., Alton, Illinois: 18 butterflies—Colorado and Wyoming (gift).

LAURENT, DR. PAUL, Trolard Taza, Algeria: 12 mammals in alcohol—France and North Africa (exchange).

LEES, ARTHUR S., Oak Lawn, Illinois: 5 beetles—Oak Lawn, Illinois (gift).

LERNER, MICHAEL, New York: 1 broadbill swordfish (gift).

LETL, FRANK, Homewood, Illinois: 1 cicada—Harvey, Illinois (gift).

LINCOLN PARK ZOO, Chicago: 1 monkey, 3 lizards, 15 snakes, 1 turtle—various localities (gift).

LINDAHL, J. C., Hot Springs, Arkansas: 1 chicken snake—Arkansas (gift).

LITTLE, MRS. JOHN B., Chicago: 1 nighthawk—Chicago (gift).

MCALPINE, WILBUR S., Birmingham, Michigan: 4 butterflies—Michigan (gift).

MCCUTCHEON, JOHN T., Chicago: 1 porcupine fish—Salt Cay, Bahama Islands (gift).

MCGREW, PAUL O., Chicago: 84 bats and 2 rats in alcohol, 2 mammal skeletons, 33 lizards, 3 snakes, 1 spider—Honduras (gift).

MANDEL, LEON, Chicago: 1 shark—La Mulata, Cuba (gift).

MARIA, BROTHER NICEFORO, Bogotá, Colombia: 2 toads, 10 frogs, 5 lizards, 15 snakes—Colombia (gift).

MARSHALL, ERNEST B., Laurel, Maryland: 1 fresh-water leech—Laurel, Maryland (gift).

MARSHALL, WALTER, Chicago: 1 starling—Chicago (gift).

MAZUR, ANTON, Chicago: 2 bats—Chicago (gift).

MOORE, G. E., Lebanon, Missouri: 1 wood rat in alcohol—Webster County, Missouri (gift).

MORRISON, A. R. G., Farnham, Surrey, England: 8 mammal skins and skulls—Peru (gift).

MOYER, JOHN W., Chicago: 4 woodcock eggs and nests—Indiana (gift).

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Massachusetts: 219 snake heads—Panama (exchange).

MUSSELMAN, T. E., Quincy, Illinois: 1 albino English sparrow—Quincy, Illinois (gift).

NELSON, DR. HAROLD, Chicago: 21 bats in alcohol, 2 lizards, 5 scorpions—Egypt (gift).

NEMEC, MISS CLAIRE, Chicago: 1 crayfish—Waukegan, Illinois (gift).

NICHOLS, WALTER F., Pasadena, California: 1 bat skin and skull—Mendocino County, California (gift).

NISBETT, LIEUTENANT JAMES M., Eagleton, Arkansas: 1 canebrake rattlesnake—Rich Mountain, Arkansas; 3 salamanders, 1 lizard, 9 snakes—Eagleton, Arkansas (gift).

NORBY, D. G., Dwight, Illinois: 1 scarlet tanager—Dwight, Illinois (gift).

OLSON, ANDREW, Elburn, Illinois: 1 snake—Elburn, Illinois (gift).

OROZCO, J. M., San Pedro Montes de Oca, Costa Rica: 5 fly larvae—Costa Rica (gift).

ORR, PHIL C., Santa Barbara, California: 1 chicken skeleton (gift).

PARK, DR. ORLANDO, Evanston, Illinois: 1 salamander, 1 lizard, 4 snakes—Oaxaca, Mexico; 45 moths—New Zealand (gift).

PATTERSON, BRYAN, Chicago: 1 bird skeleton, 65 sets of birds' eggs—Iver Village, England; 1 starling, 2 frogs—various localities; 54 marine mollusks—Matatlan, Mexico (gift).

PEARSON, DR. J. F. W., Coral Gables, Florida: 5 snakes—Bahama Islands (gift).

PFLUEGER, AL, Miami, Florida: 2 duck skins, 7 turtles, 1 tuna fish—Florida (gift).

PITELKA, FRANK, Urbana, Illinois: 1 red phalarope—Waukegan, Illinois (gift).

RIBNIKER, M., Chicago: 1 golden-crowned kinglet—Chicago (gift).

ROBERTS, COLONEL WARREN R., Chicago: 1 mounted swordfish—Florida (gift).

ROY, SHARAT K., Chicago, and JOHN T. CROWELL, Isle au Haut, Maine: 113 marine invertebrates—Maine (gift).

RUDNICK, DR. and MRS. PAUL, Fort Davis, Texas: 2 pink rattlesnakes—Mount Locke, Texas (gift).

RUHE, LOUIS, New York: 3 Barbary apes (gift).

SABROSKY, PROFESSOR CURTIS W., East Lansing, Michigan: 1 butterfly—Mexico (exchange).

SANBORN, COLIN C., Highland Park, Illinois: 4 small mammal skins, 1 mouse skeleton—Abbey Wood, England (gift).

SANDERSON, DR. MILTON, Fayetteville, Arkansas: 2 beetles—Alabama (gift).

SCHMIDT, JOHN M., Homewood, Illinois: 2 lizards—Tremont, Indiana (gift).

SCHMIDT, KARL P., Homewood, Illinois: 21 salamanders, 5 lizards, 16 snakes, 2 turtles—Illinois and Arkansas (gift).

SCHNEIDER, R. A., Kankakee, Illinois: 1 snake, 1 turtle—Kankakee, Illinois (gift).

SCHREIBER, JACK, Chicago: 1 American redstart, 2 turtle eggs, 1 mountain bullhead—various localities (gift).

SHEDD AQUARIUM, JOHN G., Chicago: 2 albino axolotl, 13 fishes—various localities (gift).

SHOCKLEY, CLARENCE, Terre Haute, Indiana: 2 wood frogs—Indiana (gift).

SHOEMAKER, DR. HURST, Stanford University, California: 248 fishes—various localities; 14 lower invertebrates—Illinois and Indiana (gift).

SMILEY, DAVID CHARLES, Neches, Texas: 6 beetles—Mussoorie, India (gift).

SMITH, MRS. HERMON DUNLAP, Lake Forest, Illinois: 50 bird skins—Mt. Meru and Mt. Kilimanjaro, Africa (gift).

SMITH, DR. H. N., Chicago: 2 bats in alcohol—Campeche, Mexico (gift).

SNYDER, DR. L. H., Seoul, Korea: 4 chipmunks, 5 salamanders—Songdo, Korea (exchange).

STEYERMARK, DR. JULIAN A., Chicago: 3 lizards, 5 snakes, 1 turtle, 11 fishes, 1 centipede—Missouri (gift).

STURGIS, R. S., Winnetka, Illinois: 31 mammal skins and skulls—Fremont County, Wyoming (gift).

TANNER, DR. VASCO M., Provo, Utah: 1 gila monster, 6 snakes—Utah (exchange).

TAYLOR, DR. WALTER P., College Station, Texas: 4 frogs, 13 lizards, 3 snakes, 1 turtle—Texas (exchange).

THORP, MRS. B. J., Chicago: 1 ruby-crowned kinglet—Chicago (gift).

TONER, G. C., Gananoque, Ontario: 6 fishes, 2 fresh-water mollusks—Leeds County, Ontario (exchange).

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 1 elephant shrew in alcohol—Kenya Colony, Africa; 1 toadfish—Gulfport, Florida; 414 fishes—Panama and Canal Zone (exchange).

UNIVERSITY OF CHICAGO, Chicago: 1 ground squirrel and 4 bats in alcohol, 8,424 fishes, 11 lower invertebrates—various localities (gift).

UNIVERSITY OF MIAMI, Coral Gables, Florida: 3 turtles—Bahama Islands (gift).

UNIVERSITY OF OKLAHOMA, Norman, Oklahoma: 1 salamander, 4 turtles—Oklahoma (exchange).

VAN BLAIR, D. I., Chicago Heights, Illinois: 1 fox squirrel (gift).

WALTER, CLARK W., Chicago: 1,200 mollusks, 1 Baltimore oriole's nest (gift).

WALTON, MRS. CLARA K., Highland Park, Illinois: 6 birds—Highland Park, Illinois (gift).

WEED, A. C., Chicago: 1 mollusk—Fontana, Wisconsin (gift).

WHITE, MRS. ROBB, Thomasville, Georgia: 22 insects—Thomasville, Georgia (gift).

WOLFE, CAPTAIN L. R., Chicago: 1 golden eagle skin—Kwangju, Korea (gift).

WONDER, FRANK C., Chicago: 3 leopard frogs, 1 water snake—Reelfoot Lake, Tennessee (gift).

WOODCOCK, H. E., Chicago: 1 beetle—Brazil; 28 butterflies and 1 moth—France (gift).

WOODS, LOREN P., Evanston, Illinois: 2 bats—Kentucky (gift).

RAYMOND FOUNDATION—ACCESSIONS

FIELD MUSEUM OF NATURAL HISTORY: From Division of Photography: 590 lantern slides (miscellaneous subjects).

AMERICAN MUSEUM OF NATURAL HISTORY, New York: 1 reel 35-mm. film

entitled *Man Versus Beast*, to complete the *Simba* series (gift).

HIGLEY, PROFESSOR L. A., Wheaton, Illinois: 9 35-mm. natural color slides of calico rock, South Dakota (gift).

DIVISION OF PHOTOGRAPHY—ACCESSIONS

FIELD, DR. HENRY, Chicago: 2 negatives of general views in Rome, Italy. lantern slides, 132 enlargements, 16 transparencies, and 74 transparent labels.

FIELD MUSEUM OF NATURAL HISTORY: Made by Division of Photography: 6,340 prints, 1,611 negatives, 1,053 Developed for expeditions: 255 negatives.

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- American Society for Testing Materials, Philadelphia, Pennsylvania.
- Arizona Archaeological and Historical Society, Tucson, Arizona.
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- Atchison, Topeka and Santa Fé Railway Company, Chicago.
- Atlantic Monthly*, Boston, Massachusetts.
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- Imperial Bureau of Pastures and Forage Crops, Aberystwyth, Wales, Great Britain.
- Institute of Plant Systematics and Genetics, Upsala, Sweden.
- Instituto Cubano de Estabilización del Café, Havana, Cuba.
- Iowa State College of Agriculture and Mechanic Arts, Ames, Iowa.
- Japan Institute, New York.
- Knox College, Galesburg, Illinois.
- Massachusetts Institute of Technology, Cambridge, Massachusetts.
- Mundelein College for Women, Chicago.
- Musée des Beaux Arts, Strasbourg, France.
- National Almanac and Year Book, Chicago.
- Nationalmuseet Etnografiske Samling, Copenhagen, Denmark.
- New Sweden Tercentenary, Wilmington, Delaware.
- Oglethorpe University, Georgia.
- Oriental Institute, Warsaw, Poland.
- Pan-American Society of Tropical Research, New Orleans, Louisiana.
- Quarrie Corporation, Chicago.
- Revista di Biologia Coloniale*, Rome, Italy.
- Revista da Flora Medicinal*, Rio de Janeiro, Brazil.
- Rolph, W. R. and Sons, Hobart, Australia.
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- Ryerson, Carrie, Estate of, Chicago.
- School of African Studies, Capetown, Africa.
- Snowy Egret*, Battle Creek, Michigan.

- Società Anonima d'Arti Grafiche San Bernardino, Siena, Italy. Ward's Natural Science Establishment, Rochester, New York.
- Societas Republicana Geographicae Kiachtuensis, Moscow, U.S.S.R. Wheat Flour Institute, Chicago.
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- University Library, Leiden, Holland. You and Industry Library, New York.
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- Wilbur, C. Martin, Chicago.
- Williams, Llewelyn, Caracas, Venezuela.
- Woods, Loren P., Chicago.
- Woolcock, Violet.
- Yeager, Don G., Berkeley, California.
- Yepes, José, Buenos Aires, Argentina.
- Young, W. A., Bromley, Kent, England.

ARTICLES OF INCORPORATION

STATE OF ILLINOIS

DEPARTMENT OF STATE

WILLIAM H. HINRICHSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A.D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSEN,
Secretary of State.

[SEAL]

TO HON. WILLIAM H. HINRICHSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archaeology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Edward E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed)

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McCurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaet, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers,

Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, Geo. F. Bissell, John R. Walsh, Chas. Fitzsimmons, John A. Roche, E. B. McCagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Sooy Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Eliphalet W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS }
 COOK COUNTY } ss.

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,

[SEAL]

NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE OF NAME

Pursuant to a resolution passed at a meeting of the corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 3

Pursuant to a resolution passed at a meeting of the corporate members held the 10th day of May, 1920, the management of FIELD MUSEUM OF NATURAL HISTORY shall be invested in a Board of TWENTY-ONE (21) TRUSTEES, who shall be elected in such manner and for such time and term of office as may be provided for by the By-Laws. A certificate to this effect was filed May 21, 1920, in the office of the Secretary of State for Illinois.

AMENDED BY-LAWS

DECEMBER, 1937

ARTICLE I

MEMBERS

SECTION 1. Members shall be of twelve classes, Corporate Members, Honorary Members, Patrons, Corresponding Members, Benefactors, Contributors, Life Members, Non-Resident Life Members, Associate Members, Non-Resident Associate Members, Sustaining Members, and Annual Members.

SECTION 2. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such person named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of Twenty Dollars (\$20.00) or more. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SECTION 3. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

SECTION 4. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SECTION 5. Any person contributing or devising the sum of One Hundred Thousand Dollars (\$100,000.00) in cash, or securities, or property to the funds of the Museum, may be elected a Benefactor of the Museum.

SECTION 6. Corresponding Members shall be chosen by the Board from among scientists or patrons of science residing in foreign countries, who render important service to the Museum. They shall be elected by the Board of Trustees at any of its meetings. They shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 7. Any person contributing to the Museum One Thousand Dollars (\$1,000.00) or more in cash, securities, or material, may be elected a Contributor of the Museum. Contributors shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 8. Any person paying into the treasury the sum of Five Hundred Dollars (\$500.00), at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Life Member. Non-Resident Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees.

SECTION 9. Any person paying into the treasury of the Museum the sum of One Hundred Dollars (\$100.00), at any one time, shall, upon the vote of the Board, become an Associate Member. Associate Members shall be exempt from all dues, and shall be entitled to tickets admitting Member and members of family, including non-resident home guests; all publications of the Museum issued during the period of their membership, if so desired; reserved seats for all lectures and enter-

tainments under the auspices of the Museum, provided reservation is requested in advance; and admission of holder of membership and accompanying party to all special exhibits and Museum functions day or evening. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of Fifty Dollars (\$50.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Associate Member. Non-Resident Associate Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to Associate Members.

SECTION 10. Sustaining Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Twenty-five Dollars (\$25.00), payable within thirty days after notice of election and within thirty days after each recurring annual date. This Sustaining Membership entitles the member to free admission for the Member and family to the Museum on any day, the Annual Report and such other Museum documents or publications issued during the period of their membership as may be requested in writing. When a Sustaining Member has paid the annual fee of \$25.00 for six years, such Member shall be entitled to become an Associate Member.

SECTION 11. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Ten Dollars (\$10.00), payable within thirty days after each recurring annual date. An Annual Membership shall entitle the Member to a card of admission for the Member and family during all hours when the Museum is open to the public, and free admission for the Member and family to all Museum lectures or entertainments. This membership will also entitle the holder to the courtesies of the membership privileges of every Museum of note in the United States and Canada, so long as the existing system of co-operative interchange of membership tickets shall be maintained, including tickets for any lectures given under the auspices of any of the Museums during a visit to the cities in which the co-operative museums are located.

SECTION 12. All membership fees, excepting Sustaining and Annual, shall hereafter be applied to a permanent Membership Endowment Fund, the interest only of which shall be applied for the use of the Museum as the Board of Trustees may order.

ARTICLE II

BOARD OF TRUSTEES

SECTION 1. The Board of Trustees shall consist of twenty-one members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting of the Board, by a majority vote of the members of the Board present.

SECTION 2. Regular meetings of the Board shall be held on the third Monday of the month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SECTION 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III

HONORARY TRUSTEES

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, any Trustee who by reason of inability, on account of change of residence, or for other cause or from indisposition to serve longer in such capacity shall resign his place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees,

whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV

OFFICERS

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, the Second Vice-President, and the Third Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the third Monday of January of each year, and shall be called the Annual Meeting.

SECTION 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SECTION 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V

THE TREASURER

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation except as hereinafter provided. He shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

SECTION 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: the President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum.

SECTION 3. The Treasurer shall give bond in such amount, and with such sureties as shall be approved by the Board of Trustees.

SECTION 4. The Harris Trust & Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of Field Museum" fund. The bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

ARTICLE VI

THE DIRECTOR

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the Institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SECTION 2. There shall be four scientific Departments of the Museum—Anthropology, Botany, Geology, and Zoology; each under the charge of a Chief

Curator, subject to the authority of the Director. The Chief Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific Departments shall be appointed and removed by the Director upon the recommendation of the Chief Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SECTION 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the Board may direct.

ARTICLE VII

THE AUDITOR

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all bills rendered for the expenditure of the money of the Corporation.

ARTICLE VIII

COMMITTEES

SECTION 1. There shall be five Committees, as follows: Finance, Building, Auditing, Pension, and Executive.

SECTION 2. The Finance Committee shall consist of six members, the Auditing and Pension Committees shall each consist of three members, and the Building Committee shall consist of five members. All members of these four Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SECTION 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee, the Chairman of the Auditing Committee, the Chairman of the Pension Committee, and three other members of the Board to be elected by ballot at the Annual Meeting.

SECTION 4. Four members shall constitute a quorum of the Executive Committee, and in all standing Committees two members shall constitute a quorum. In the event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any members of the Board of Trustees to act in place of the absentee.

SECTION 5. The Finance Committee shall have supervision of investing the endowment and other permanent funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to invest, sell, and reinvest funds, subject to the approval of the Board.

SECTION 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SECTION 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of

each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the expenditures stated are authorized.

SECTION 8. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SECTION 9. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SECTION 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SECTION 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX

NOMINATING COMMITTEE

SECTION 1. At the November meeting of the Board each year, a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Auditing Committee, and the Pension Committee, and for three members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

ARTICLE X

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SECTION 2. These By-Laws may be amended at any regular meeting of the Board of Trustees by a two-thirds vote of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.

FOUNDER

Marshall Field*

BENEFACTORS

Those who have contributed \$100,000 or more to the Museum

Ayer, Edward E.*	Harris, Albert W.	Raymond, James Nelson*
Buckingham, Miss Kate S.*	Harris, Norman W.*	Ryerson, Martin A.*
Crane, Cornelius	Higinbotham, Harlow N.*	Ryerson, Mrs. Martin A.*
Crane, R. T., Jr.*	Kelley, William V.*	Simpson, James
Field, Joseph N.*	Pullman, George M.*	Smith, Mrs. Frances Gaylord*
Field, Marshall	Rawson, Frederick H.*	Smith, George T.*
Field, Stanley	Raymond, Mrs. Anna Louise	Sturges, Mrs. Mary D.*
Graham, Ernest R.*		Suarez, Mrs. Diego

* DECEASED

HONORARY MEMBERS

Those who have rendered eminent service to Science

Crane, Charles R.	Ludwig, H. R. H. Gustaf Adolf, Crown Prince of Sweden	Roosevelt, Theodore
Cutting, C. Suydam		Sargent, Homer E.
Field, Marshall	McCormick, Stanley	Simpson, James
Field, Stanley		Sprague, Albert A.
Harris, Albert W.	Roosevelt, Kermit	Suarez, Mrs. Diego
	DECEASED, 1938	Vernay, Arthur S.
	Chalmers, William J.	

PATRONS

Those who have rendered eminent service to the Museum

Armour, Allison V.	Ellsworth, Duncan S.	Roosevelt, Kermit
Chadbourne, Mrs. Emily Crane	Field, Mrs. Stanley	Roosevelt, Theodore
Chancellor, Philip M.	Hancock, G. Allan	Sargent, Homer E.
Cherrie, George K.	Kennedy, Vernon Shaw	Straus, Mrs. Oscar
Collins, Alfred M.	Knight, Charles R.	Strawn, Silas H.
Conover, Boardman	Moore, Mrs. William H.	Suarez, Mrs. Diego
Cummings, Mrs. Robert F.	Probst, Edward	Vernay, Arthur S.
Cutting, C. Suydam		Wegeforth, Dr. Harry M.
Day, Lee Garnett		White, Harold A.
	DECEASED, 1938	
	Insull, Samuel	

CORRESPONDING MEMBERS

Scientists or patrons of science, residing in foreign countries, who have rendered eminent service to the Museum

Breuil, Abbé Henri	Diels, Dr. Ludwig	Keissler, Dr. Karl
Christensen, Dr. Carl	Hochreutiner, Dr. B. P. Georges	Keith, Professor Sir Arthur

CONTRIBUTORS

Those who have contributed \$1,000 to \$100,000 to the Museum in money or materials

<i>\$75,000 to \$100,000</i>	Gunsaulus, Dr. F. W.*	Harris, Mrs. Norman W.*
Chancellor, Philip M.	Insull, Samuel*	Hutchinson, C. L.*
<i>\$50,000 to \$75,000</i>	Laufer, Dr. Berthold*	Keith, Edson*
Keep, Chauncey*	McCormick, Cyrus (Estate)	Langtry, J. C.
Rosenwald, Mrs. Augusta N.*	McCormick, Stanley	Lufkin, Wallace W.
<i>\$25,000 to \$50,000</i>	Mitchell, John J.*	MacLean, Mrs. M. Haddon
Adams, Mrs. Edith Almy*	Reese, Lewis*	Mandel, Leon
Blackstone, Mrs. Timothy B.*	Robb, Mrs. George W.	Moore, Mrs. William H.
Coats, John*	Rockefeller Foundation, The	Payne, John Barton*
Crane, Charles R.	Sargent, Homer E.	Pearsons, D. K.*
Field, Mrs. Stanley	Schweppe, Mrs. Charles H.*	Porter, H. H.*
Jones, Arthur B.*	Straus, Mrs. Oscar	Ream, Norman B.*
Porter, George F.*	Strong, Walter A.*	Revell, Alexander H.*
Rosenwald, Julius*	Wrigley, William, Jr.*	Salie, Prince M. U. M.
Vernay, Arthur S.	<i>\$5,000 to \$10,000</i>	Sprague, A. A.*
White, Harold A.	Adams, George E.*	Strawn, Silas H.
<i>\$10,000 to \$25,000</i>	Adams, Milward*	Thorne, Bruce
Armour, Allison V.	American Friends of China	Tree, Lambert*
Armour, P. D.*	Avery, Sewell L.	<i>\$1,000 to \$5,000</i>
Chadbourne, Mrs. Emily Crane	Bartlett, A. C.*	Avery, Miss Clara A.*
Chalmers, William J.*	Bishop, Heber (Estate)	Ayer, Mrs. Edward E.*
Conover, Boardman	Borland, Mrs. John Jay*	Barrett, Samuel E.*
Cummings, R. F.*	Crane, R. T.*	Bensabott, R., Inc.
Cutting, C. Suydam	Doane, J. W.*	Blair, Watson F.*
Everard, R. T.*	Field, Dr. Henry	Blaschke, Stanley Field
	Fuller, William A.*	Block, Mrs. Helen M.*
	Graves, George Coe, II*	Borden, John
	Harris, Hayden B.	Chalmers, Mrs. William J.
	Harris, Norman Dwight	Chicago Zoological Society, The
		Crane, Mrs. R. T., Jr.
		Crocker, Templeton

*DECEASED

Cummings, Mrs. Robert F.	Lee Ling Yün Look, Alfred A.	Reynolds, Earle H. Rumely, William N.*
Doering, O. C.	Mandel, Fred L., Jr. Manierre, George*	Schwab, Martin C. Shaw, William W. Sherff, Dr. Earl E.
Graves, Henry, Jr. Gunsaulus, Miss Helen	Martin, Alfred T.* McCormick, Cyrus H.* McCormick, Mrs. Cyrus*	Smith, Byron L.* Sprague, Albert A.
Hibbard, W. G.* Higginson, Mrs. Charles M.*	Ogden, Mrs. Frances E.* Osgood, Dr. Wilfred H.	Thompson, E. H.* Thorne, Mrs. Louise E.
Hill, James J.* Hixon, Frank P.* Hoffman, Miss Malvina Hughes, Thomas S.	Palmer, Potter Patten, Henry J.	VanValzah, Dr. Robert VonFrantzius, Fritz*
Jackson, Huntington W.* James, S. L.	Rauchfuss, Charles F. Raymond, Charles E.*	Wheeler, Leslie* Wheeler, Mrs. Leslie Willis, L. M.

* DECEASED

CORPORATE MEMBERS

Armour, Allison V. Avery, Sewell L.	Ellsworth, Duncan S.	Probst, Edward
Block, Leopold E. Borden, John Byram, Harry E.	Field, Joseph N. Field, Marshall Field, Stanley Field, Mrs. Stanley	Richardson, George A. Roosevelt, Kermit Roosevelt, Theodore
Chadbourne, Mrs. Emily Crane Chancellor, Philip M. Chatfield-Taylor, H. C. Cherrie, George K. Collins, Alfred M. Conover, Boardman Cummings, Mrs. Robert F. Cutting, C. Suydam	Hancock, G. Allan Harris, Albert W. Insull, Samuel, Jr. Kennedy, Vernon Shaw Knight, Charles R.	Sargent, Fred W. Sargent, Homer E. Simpson, James Smith, Solomon A. Sprague, Albert A. Straus, Mrs. Oscar Strawn, Silas H. Suarez, Mrs. Diego Vernay, Arthur S.
Day, Lee Garnett Dick, Albert B., Jr.	McCulloch, Charles A. Mitchell, William H. Moore, Mrs. William H.	Wegeforth, Dr. Harry M. White, Harold A. Wilson, John P.

DECEASED, 1938

Chalmers, William J. Insull, Samuel

LIFE MEMBERS

Those who have contributed \$500 to the Museum

Abbott, John Jay Abbott, Robert S. Adler, Max Alexander, William A. Allerton, Robert H. Ames, James C. Armour, Allison V. Armour, A. Watson Armour, Lester Armour, Mrs. Ogden	Asher, Louis E. Avery, Sewell L. Babson, Henry B. Bacon, Edward Richardson, Jr. Banks, Alexander F. Barnhart, Miss Gracia M. F. Barrett, Mrs. A. D.	Barrett, Robert L. Bartlett, Miss Florence Dibell Baur, Mrs. Jacob Bendix, Vincent Bensabott, R. Bermingham, Edward J. Blaine, Mrs. Emmons Blair, Chauncey B. Block, Emanuel J.
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- Block, Leopold E.
Block, Philip D.
Booth, W. Vernon
Borden, John
Borland, Chauncey B.
Brassert, Herman A.
Brewster, Walter S.
Brown, Charles
Edward
Browne, Aldis J.
Buchanan, D. W.
Budd, Britton I.
Burnham, John
Burt, William G.
Butler, Julius W.
Butler, Rush C.
Byram, Harry E.
- Carpenter, Augustus A.
Carpenter, Mrs. Hubbard
Carpenter, Mrs. John
Alden
Carr, George R.
Carr, Robert F.
Carr, Walter S.
Casalis, Mrs. Maurice
Chalmers, Mrs. William J.
Chatfield-Taylor, Wayne
Clark, Eugene B.
Clegg, William G.
Clegg, Mrs. William G.
Clow, William E.
Collins, William M.
Conover, Boardman
Corley, F. D.
Cowles, Alfred
Cramer, Corwith
Crane, Charles R.
Crossett, Edward C.
Crossley, Lady Josephine
Crossley, Sir Kenneth
Crowell, H. P.
Cudahy, Edward A.
Cudahy, Edward A., Jr.
Cudahy, Joseph M.
Cummings, Walter J.
Cunningham, Frank S.
Cunningham, James D.
Cushing, Charles G.
- Davies, Mrs. D. C.
Dawes, Charles G.
Dawes, Henry M.
Dawes, Rufus C.
Decker, Alfred
Delano, Frederic A.
Dick, Albert B., Jr.
Dierssen, Ferdinand W.
Dixon, Homer L.
Donnelley, Thomas E.
Doyle, Edward J.
- Drake, John B.
Drake, Tracy C.
Durand, Scott S.
- Edmunds, Philip S.
Ely, Mrs. C. Morse
Epstein, Max
Everitt, George B.
Ewing, Charles Hull
- Farnum, Henry W.
Farr, Newton Camp
Farr, Miss Shirley
Farwell, Arthur L.
Farwell, John V.
Farwell, Walter
Fay, C. N.
Fenton, Howard W.
Fentress, Calvin
Ferguson, Louis A.
Fernald, Charles
Field, Joseph N.
Field, Marshall
Field, Norman
Field, Mrs. Norman
Field, Stanley
Field, Mrs. Stanley
- Gardner, Robert A.
Gartz, A. F., Jr.
Gary, Mrs. John W.
Gilbert, Huntly H.
Glore, Charles F.
Goodspeed, Charles B.
Gowing, J. Parker
- Hack, Frederick C.
Hamill, Alfred E.
Hamill, Mrs. Ernest A.
Harris, Albert W.
Harris, Norman W.
Hastings, Samuel M.
Hayes, William F.
Hecht, Frank A., Jr.
Heineman, Oscar
Hemmens, Mrs.
Walter P.
Hibbard, Frank
Hickox, Mrs. Charles V.
Hill, Louis W.
Hinde, Thomas W.
Hixon, Robert
Hopkins, J. M.
Hopkins, L. J.
Horowitz, L. J.
Hoyt, N. Landon
Hughes, Thomas S.
Hutchins, James C.
- Insull, Martin J.
Insull, Samuel, Jr.
- Jarnagin, William N.
Jelke, John F., Jr.
Johnson, Mrs. Elizabeth
Ayer
Joiner, Theodore E.
Jones, Miss Gwethalyn
- Kelley, Mrs. Daphne
Field
Kelley, Russell P.
Kidston, William H.
King, Charles Garfield
King, James G.
Kirk, Walter Radcliffe
Knickerbocker,
Charles K.
- Ladd, John
Lamont, Robert P.
Lehmann, E. J.
Leonard, Clifford M.
Leopold, Mrs. Harold E.
Lever, Mrs. David M.
Linn, Mrs. Dorothy C.
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 Graves, Howard B.
- Grawoig, Allen
 Green, Miss Mary
 Pomeroiy
 Green, Robert D.
 Green, Zola C.
 Greenberg, Andrew H.
 Greenburg, Dr. Ira E.
 Greene, Henry E.
 Greenebaum, James E.
 Greenebaum, M. E., Jr.
 Greenlee, James A.
 Greenlee, Mrs. William
 Brooks
 Greenman, Mrs. Earl C.
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 Gregory, Stephen
 S., Jr.
 Gregory, Tappan
 Grey, Charles F.
 Grey, Dr. Dorothy
 Griest, Mrs. Marianna L.
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 Griffith, E. L.
 Griffith, Mrs. William
 Griffiths, George W.
 Grimm, Walter H.
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 Gronkowski, Rev. C. I.
 Groot, Cornelius J.
 Groot, Lawrence A.
 Gross, Henry R.
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 Grotowski, Dr. Leon
 Gruhn, Alvah V.
 Grulee, Lowry K.
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 Gurley, Miss Helen K.
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- Haas, Adolph R.
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 Hansen, Jacob W.
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 Hardie, George F.
 Hardin, John H.
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 Harding, John Cowden
 Harding, Richard T.
 Hardinge, Franklin
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 Harris, Gordon L.
 Harris, Hayden B.
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 Hedberg, Henry E.
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 Heinzelman, Karl
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 Hempstead
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 Howse, Richard

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 Lebold, Samuel N.
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 Lefens, Walter C.
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 Augusta E.
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 Leland, Mrs. Roscoe G.
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 Leonard, Arthur T.
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 Levitetz, Nathan
 Levy, Alexander M.
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 Libby, Mrs. C. P.
 Liebman, A. J.
 Ligman, Rev. Thaddeus
 Lillie, Frank R.
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 Linden, John A.
 Lindheimer, B. F.
 Lindholm, Charles V.
 Lindquist, J. E.
 Lingle, Bowman C.
 Linton, Ben B.

 Lipman, Robert R.
 Liss, Samuel
 Little, Mrs. E. H.
 Littler, Harry E., Jr.
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 Livingston, Mrs.
 Milton L.
 Llewellyn, Paul
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 Lockwood, W. S.
 Loeb, Mrs. A. H.
 Loeb, Hamilton M.
 Loeb, Jacob M.
 Loeb, Leo A.
 Loesch, Frank J.
 Loewenberg, Israel S.
 Loewenberg, M. L.
 Loewenstein, Sidney
 Loewenthal, Richard J.
 Logan, L. B.
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 Long, William E.
 Lord, Arthur R.
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 Loucks, Charles O.
 Louer, Albert S.
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 Lovell, William H.
 Lovgren, Carl
 Lownik, Dr. Felix J.
 Lucey, Patrick J.
 Ludington, Nelson J.
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 Lufkin, Wallace W.
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 Lurie, H. J.
 Lustgarten, Samuel
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 Lynch, William Joseph
 Lyon, Charles H.

 Maass, J. Edward
 MacDonald, E. K.
 MacDougal, Mrs. T. W.
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 Mackinson, Dr. John C.
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 Magan, Miss Jane A.
 Magill, Henry P.
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 Main, Walter D.
 Malone, William H.
 Manaster, Harry
 Mandel, Mrs. Aaron W.

- Mandel, Edwin F.
 Mandel, Mrs. Emanuel
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 Mandel, Mrs. Robert
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 Mann, Albert C.
 Mann, John P.
 Manning, Miss
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 McWilliams, II
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 Martin, Mrs. Franklin H.
 Martin, George F.
 Martin, Samuel H.
 Martin, W. B.
 Martin, Wells
 Marx, Frederick Z.
 Marzluff, Frank W.
 Marzola, Leo A.
 Mason, Willard J.
 Masee, B. A.
 Massena, Roy
 Massey, Peter J.
 Masterson, Peter
 Mathesius, Mrs. Walther
 Matson, J. Edward
 Matter, Mrs. John
 Matthiessen, Frank
 Maurer, Dr. Siegfried
 Maxwell, Lloyd R.
 Mayer, Frank D.
 Mayer, Mrs. Herbert G.
 Mayer, Isaac H.
 Mayer, Oscar F.
 Mayer, Theodore S.
 McAllister, Sydney G.
 McArthur, Billings M.
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 McBirney, Mrs. Hugh J.
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 McCord, Downer
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 Chauncey
 McCormick, Fowler
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 Alizabath
 McCreight, Louis Ralph
 McDonald, Lewis
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 McDougal, Mrs. Robert
 McDougall, Mrs.
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 McErlean, Charles V.
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 McGraw, Max
 McGuinn, Edward B.
 McGurn, Mathew S.
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 McIntosh, Arthur T.
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 McKinney, Mrs. Hayes
 McLaury, Mrs. C. W.
 McLaury, Walker G.
 McMenemy, L. T.
 McMillan, James G.
 McMillan, John
 McMillan, W. B.
 McMillan, William M.
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 Melendy, Dr. R. A.
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 Merrell, John H.
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 Meyer, Abraham W.
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 Meyer, Charles Z.
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 Beaupre
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 Mills, Allen G.
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 Miner, H. J.
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 Otis, Stuart Huntington
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 Petersen, Jurgen
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 Arthur
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Williams, Kenneth
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