

Field Museum News

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EXHIBIT OF HOMALODOTHERIUM, ONE OF RAREST OF ALL PREHISTORIC MAMMALS

By ELMER S. RIGGS
Associate Curator of Paleontology

One of the strangest of all the fossil mammals of South America is that known as Flower's *Homalodotherium*. This animal lived during the Miocene period, estimated at about fifteen million years ago. Its fossil remains were first discovered in Patagonia only a little more than sixty years ago. For many years thereafter the animal was known only from specimens of the skull, odd bones of legs, and one entire foot.

A fortunate find in 1923, by the Marshall Field Paleontological Expedition to Argentina and Bolivia, of most of the bones of one of these animals, has made possible reconstruction of a practically complete skeleton. This mounted skeleton, the only one in the world of this species, was placed on exhibition last month in Ernest R. Graham Hall (Hall 38). It was assembled by Preparator J. H. Quinn.

From a study of the bones, the general size and proportions of the animal and the peculiarities of leg and foot have been ascertained. Some of its habits also have been determined with certainty. These studies were made by an eminent authority, Dr. William Berryman Scott, of Princeton University, and published in an elaborate memoir by Field

Museum in 1929. Additional facts have been gathered, and additional small bones recovered while the skeleton was being reconstructed. A model, one-fourth natural size, showing the animal as it is believed to have appeared in life, has been made by Preparator Phil. C. Orr, and has been placed on exhibition in the same case as the skeleton.

Homalodotherium is known to have been a sturdy, heavy-bodied and strong limbed

the rhinoceros family; its grinding teeth were fitted for feeding on vegetation. It was entirely without tusks or horns as a means of defense. Its forelegs were relatively long, and the bones have the peculiar structure observed in animals that dig. The forefoot was broad and armed with stout claws, clearly used for digging. The hind legs were shorter, more massive, and armed with bear-like plantigrade feet. They were well adapted for supporting the

animal in the act of digging, and may have enabled it to rear upright while feeding from trees. Like the ground sloth it may have fed upon roots and tubers as well as upon fruit or foliage.

The homalodotheres were a rare line of animals which are known from no later period than the Miocene. Even from that and from earlier periods only a very few fossil remains of nearly related animals are known.

The specimen was found by this writer in blocks of sandstone which had fallen from the face of a cliff and were being rapidly worn away by waves on the beach, along the eastern shore of Patagonia. This locality is a well-

known collecting ground from which the remains of many other kinds of fossil animals have been recovered.



The World's Only Mounted Skeleton of Homalodotherium

One of the strangest and rarest of South American fossil mammals, recently placed on exhibition in Ernest R. Graham Hall. The animal in life was nearly as large as an ox.

animal, as tall as an ox, but shorter in neck and body. Its head was similar in proportions to that of certain extinct members of

work shows us the development of the human race and all the different types to be found throughout the world.

I wanted to spend hours there instead of a few minutes. I came away with the feeling that I had seen art used in combination with science to the advantage of both. My admiration, already great for the skill of the artist who did this work, is augmented a hundredfold.

We really went, however, to see what the WPA people were doing, and I came away tremendously proud of the contribution which these workers have made, not just to the Museum, but to the tax-payers of the state of Illinois. Here is a group of people—able, industrious, intelligent, with skills of their own—not able to find work. In the Museum they have adapted these skills, under the patient direction of the Museum Director, Mr. Simms, and developed new skills in a number of extremely technical occupations.

A beautiful doorway is being reconstructed from tiny fragments, foliage is being made for Museum groups, the mending of vases

and the practical reconstruction of fragments of old pieces of pottery are under way. Miss Warren is using remarkable skill to mend old mummy cloths, Persian mattresses, and other beautiful pieces of material.

There is an increased force in the print shop and the binding of pamphlets is going on. Men and women are cleaning and preserving the skeletons of all kinds of animals. As I looked at the fine work one woman was doing, it occurred to me that it would not take more patience and skill to put together the parts of a watch.

DR. OSGOOD TO COLLECT IN ASIA

Dr. Wilfred H. Osgood, Curator of the Department of Zoology, is sailing for French Indo-China on January 9. He will spend several months in that country and neighboring territory making zoological collections. He expects to obtain specimens for a new mammal habitat group planned for William V. Kelley Hall, a bird habitat group for Hall 20, and a variety of small mammals, birds, and other kinds of animals.

MRS. F. D. ROOSEVELT WRITES OF FIELD MUSEUM VISIT

As reported in the December issue of FIELD MUSEUM NEWS, Mrs. Franklin Delano Roosevelt, wife of the President of the United States, recently visited Field Museum, and inspected the activities of the Works Progress Administration project in which 176 men and women have been given employment at this institution. She later wrote her impressions, in her column "My Day," published in newspapers all over the country through United Feature Syndicate, which has kindly given permission for reprinting here the following interesting excerpts from this copyrighted article.

By ELEANOR ROOSEVELT

I thought I had seen every type of Works Progress activity that we had in this country, but I had reckoned without Chicago. I have just come back from Field Museum. Since I had never been there before, the Museum itself would have been an exciting experience for me, particularly as I entered through the rooms where Malvina Hoffman's

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

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Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

Nov., Dec., Jan., Feb., Mar.	9 A.M. to 4:30 P.M.
April, September, October	9 A.M. to 5:00 P.M.
May, June, July, August	9 A.M. to 6:00 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

ERNEST R. GRAHAM

1868-1936

In tribute to Mr. Ernest R. Graham, Trustee of the Museum, whose death was reported in the last issue of FIELD MUSEUM NEWS, the Board of Trustees, at a meeting held December 21, adopted the following resolution:

"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 monument 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.



Ernest R. Graham

"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 problems 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."

\$6,000 CONTRIBUTION RECEIVED FROM MRS. RAYMOND

A further gift of \$6,000 for the provision of free motion pictures on natural history subjects, lectures with lantern slides in the schools, and other supplementary educational work for Chicago's school children, has been received by the Museum from Mrs. James Nelson Raymond.

Mrs. Raymond is the founder of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, which she established in 1925 with an endowment of \$500,000. She has made other contributions totaling many thousands of dollars since.

ADVENTURES UNDER THE SEA MAKE THRILLING BOOK

Mr. J. E. Williamson, noted submarine explorer and photographer who recently lectured at Field Museum, tells the story of his many adventures in an exciting book, *Twenty Years Under the Sea*. Part of the book is concerned with the Field Museum-Williamson Undersea Expedition to the Bahamas which in 1929 collected material for a number of submarine habitat groups which are to form part of the exhibits in a projected new hall of marine life.

Mr. Williamson descends far into the depths of the sea through his specially constructed flexible metal tube with a "photosphere" chamber at its lower end. This apparatus is suspended from a ship. By means of it Mr. Williamson has been able to record in pictures and data many hitherto unrevealed secrets of the sea, and he has experienced many unusual adventures. He tells a vivid story of his strange profession in this book, published by Hale, Cushman and Flint, of Boston. Copies are now on sale at Field Museum. Price, \$2.50, plus postage on mail orders.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from November 16 to December 15:

Benefactors

Frederick H. Rawson

Life Members

Miss Gracia M. F. Barnhart

Associate Members

Arnold Bridges, Miss Bertha F. Gordon, Mrs. C. E. Jarchow, Miss Gladys Elizabeth McCreight, Moray Munroe, Henry A. Webster, Benton Jack Willner, Jr.

Sustaining Members

Mrs. John J. Louis

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K. A. Auty, Mrs. H. J. Berghoff, Mrs. Joseph L. Block, Mrs. R. B. Carter, Mrs. Elizabeth M. Chapin, J. Sidney Condit, Mrs. Thomas A. Connors, Mrs. Clay C. Cooper, Harry G. Dalzell, W. H. Dangel, Mrs. Charles S. Dewey, Dr. Arthur E. Diggs, Ernest A. Faulhaber, Oscar Fineman, George W. French, Leonard W. Hathaway, R. B. Hayward, Dr. Willis S. Hilpert, Mrs. Douglas Horton, Mrs. E. R. Hurlbut, Mrs. Pleda H. Jackson, Charles Scott Kelly, Dr. Chester Henry Keogh, T. Weller Kimball, Dr. Henry F. Langhorst, Ralph L. Lapham, Mrs. James W. Linn, David Smith Mackie, Mrs. John Marsch, Loy N. McIntosh, Mrs. Maurice H. Needham, Mrs. Monroe Paelzer, James Donald Richards, Mrs. Joseph S. Royal, C. Galen Sedgwick, George Sollitt, Miss Ruth G. Todd, Floyd C. Treat, Stephen P. Walker, H. A. Watson, Joseph Weidenhoff, Nelson W. Willard.

A model illustrating the relation of soil to rock in the Chicago region is on exhibition in Hall 36 (Case 34).

AN EXPEDITION TO GREENLAND WITH CAPTAIN BARTLETT

BY HAROLD C. HANSON

Last summer it was my privilege to sail to northeast Greenland with Captain Robert A. Bartlett. He is one of the most famous of present-day Arctic explorers, with a stirring record that began in 1909 when he commanded Rear-Admiral Robert E. Peary's North Pole ship. The main purpose of last summer's expedition was to obtain live musk-ox calves for the Chicago Zoological Society, but through a special arrangement I was sent to collect birds for Field Museum.

The schooner *Effie M. Morrisey* left her winter quarters at Staten Island, New York

of Greenland, seldom seen because it is usually surrounded by a heavy belt of ice and fog. Of frequent occurrence in these waters were greater shearwaters, birds of the petrel family. Although they visit the north during part of the year, they nest only on the Tristan da Cunha Islands in the sub-Antarctic.

This year the coast was more free of ice probably than at any time in the last century, thus enabling us to skirt the Blossville and Liverpool coasts. At 74° N. Lat. we sailed west into Franz Joseph Fjord and then into Musk-ox Fjord. Here, surrounded by high mountains beautifully colored by

the midnight sun, the search for the musk-ox calves began. Contrary to popular belief, the climate in this region is not unpleasant and the temperature often goes above 70°. In order to capture the calves, which were finally found on top of a high mountain, all the endurance of the crew was required. Among the valuable birds collected here was a pink-footed goose that breeds only on a few northern islands and winters on the Arctic coast of Europe.

To avoid being detained for the winter by the downcoming ice, anchor was weighed immediately after the musk-oxen were brought aboard. At Ymer's Island we saw one of the natural wonders of the Arctic, a large jet of water gushing out from what appeared to be the side of a mountain, but was in reality a dirt-covered glacier. With water kegs filled from this spot we headed south for the Eskimo village of Angmagsalik. After one more day's sail we experienced the most intense thrills of the trip. In waters dotted with numerous icebergs a terrific storm overtook the ship. Waves broke continually over the bow as we hurled past the fog-obscured icebergs. Below deck, at messtime, all was confusion. The water pitcher often had the uncanny ability of landing in the lap of some unlucky member of the crew. Later we learned of a tragic side to this storm, for on the same day a herring boat had gone down off the coast of Iceland with thirty hands.

A day and a half was spent collecting at the charming Eskimo village of Angmagsalik. These Eskimos have the most fascinating history and culture of any alive today. They originated on the west coast, but migrated eastward several centuries ago after harassing the early Norse settlements.

THREE NEW TRUSTEES ELECTED

Three new Trustees were elected at the regular meeting of the Board of Trustees of Field Museum held on December 21. The new members of the Board, who were elected also as Corporate Members, are Mr. Charles A. McCulloch, Mr. Leopold E. Block, and Mr. Albert B. Dick, Jr. They will fill vacancies caused by the resignation of Mr. Frederick H. Rawson, and the deaths of Mr. Cyrus H. McCormick and Mr. Ernest R. Graham.

PYGMIES OF ITURI FOREST

Among the more primitive peoples represented among the Races of Mankind sculptures in Chauncey Keep Memorial Hall (Hall 3) are pygmies of the Ituri Forest in the Belgian Congo. A bronze group by Malvina Hoffman shows a drummer in action, while his wife, holding a small child, stands near-by watching.

These pygmies represent what is probably the oldest racial stock in Africa. It is a common delusion that pygmies are dwarfs. On the contrary, they are not freaks of nature, but symmetrically formed beings who are intelligent, alert, and usually are possessed of notable musical ability.

The stature of the men averages about four feet ten inches, and that of the women four feet six inches. The head is wide in relation to its length; the nose is likewise broad, and deeply sunken at the root. The body and face are hairy among the males.

These African pygmies are hunters and do not practice agriculture. They possess no domestic animals except dogs. Meat from animals secured in the chase is exchanged for the agricultural produce of neighboring Negro tribes. Houses are temporary structures hastily built during the chase.

Clothing of the pygmies is scanty, not more than a girdle being worn. For men the girdle may consist of a strip of hide from that rare animal, the okapi.



North Fjord, Andree's Land

Near this point the Bartlett Expedition collected musk-ox calves for the Chicago Zoological Society, and birds for Field Museum.

on June 19. She is a former Gloucester fishing boat especially outfitted for sailing in the far north, and is almost as well known as her captain. Accompanying us were eleven students, making the total crew twenty-five. Also on board were a cow and calf for the captain's mother in Newfoundland, and inasmuch as it was my duty to do the milking, even in the roughest of weather, I can truly recommend that task as a novel experience.

After eight days of fair sailing we reached Brigus, Newfoundland, Captain Bartlett's home town. Here ice gear was stowed and final preparations made for the cruise. On a lovely July evening we sailed again, with Labrador our destination. When off the Funk Islands we saw the first signs of the north—icebergs and fulmar petrels. The petrels are among the most abundant of living birds. They feed mainly on small shrimp-like crustaceans that abound in northern waters.

One morning, along the bleak coast of Labrador, a heavy gale struck, forcing us into shelter at Indian Harbor, location of a Grenfell mission. Here we lay for three days waiting for the storm to subside, and thus had an opportunity to collect birds and observe the local fishermen. A life of more hardship and danger than theirs I cannot imagine. In late years the codfish, for some unexplained reason, have been decreasing on the Labrador coast, thereby making it increasingly hard for the fishermen to earn a living.

As the season was becoming short, we felt directly for northeast Greenland, some 2,000 miles away. Five days later we sighted Cape Farewell, the southernmost tip



Photograph copyright Field Museum of Natural History

African Pygmies

Small people of the Belgian Congo, as represented in bronze group by Malvina Hoffman.

Photographs of the pygmy group, as of nearly all the racial sculptures in Chauncey Keep Hall, are on sale at the Museum, as are also post cards and post card sets.

Frederick H. Rawson Elected a Museum Benefactor

Mr. Frederick H. Rawson, former member of the Board of Trustees, has been elected a Benefactor of the Museum. This honor, conferred at a recent meeting of the Board, is in recognition of Mr. Rawson's generous contributions to the institution, in financing several expeditions, in underwriting the cost of certain valuable exhibits, and in giving funds for other purposes.

Benefactors constitute the membership classification to which are eligible all persons whose gifts total \$100,000 or more.

COPIES OF ANCIENT TREASURES OFFERED FOR SALE

In 1900, Field Museum acquired 97 electrotypes of artistic metal objects, comprising the Hildesheim Treasure (30 pieces), the Bernay Treasure (10 pieces), and the Elkington Treasure (57 pieces).

The Hildesheim Treasure is a unique collection of ancient Augustan silver plate, discovered in 1868 on the Galgenberg near Hildesheim, Germany, and is thought by some authorities to have belonged to Drusus. The most noteworthy piece is a crater richly ornamented with arabesques and figures of children. Also outstanding are three platters, one decorated with a representation of

Hercules, another with a representation of Minerva, and the third with a representation of Cybele. The Bernay and Elkington collections are similar in nature.

Because, since the acquisition of this material, the scope of Field Museum has been modified so that these collections are no longer appropriate for exhibition in this institution, the Museum is now anxious to dispose of them. It is believed that many art museums, historical museums, or private collectors might find them desirable acquisitions. Any institution or individual who might be interested in possible purchase of one or all of these collections is invited to communicate with the Director of Field Museum for further information.

LARGE GROUPS OF FARM BOYS AND GIRLS VISIT MUSEUM

BY MARGARET M. CORNELL

Chief, James Nelson and Anna Louise Raymond
Foundation for Public School and Children's Lectures

For many years Field Museum has acted as host to the boys and girls who are sent to Chicago in late autumn as delegates to the National Four-H Club Congress, held in connection with the annual International Live Stock Exposition.

Formerly it was possible for one guide-lecturer to handle the entire group of these children and youths from farms, taking them on a general tour of the exhibition halls. But now, because of the larger numbers coming, and the plans adopted to improve the services rendered to them, the group is divided, and the entire staff of the Raymond Foundation is required. Instead of the general tour of previous years, the delegates are now given lectures on definite subjects in a few halls. In this way they secure information of more value in their school work, and obtain a more detailed idea of a few of the subjects illustrated by the Museum exhibits.

The 1936 delegations of Four-H members consisted of 706 girls, who came to the Museum on December 1, and 700 boys who came on December 3.

The Four-H Club movement began in 1899, when Will B. Otwell, of Macoupin County, Illinois, offered to supply one ounce of seed corn to every boy and girl who would promise to plant it and make an exhibit from the crop at the Farmers' Institute. The result was truly astounding in its far reaches.

Since then, the movement has spread to every state in the United States, and to Canada as well. This year forty-four states and Canada sent delegates. These boys and girls—who impress an observer by their alertness, keenness, and apparent happiness—stand for the best in agricultural methods, stock and poultry raising, and home-economics. Through their work in the Four-H Clubs they have gained a pride in their occupations, and a belief in the unlimited possibilities of rural life for ambitious young men and women.

The Four-H Club symbol is the four-leaf clover with an H on each section, signifying "Head, Heart, Health and Hands." Thus their creed is that the head must be trained to reason and plan; the heart must be kindly; health must be good to insure efficiency, and hands must be trained to be skillful.

JANUARY GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for January:

Friday, January 1—New Year's holiday, no tour.

Week beginning January 4: Monday—China and Tibet; Tuesday—Uses of Fibers, Barks and Resins; Wednesday—Jades and Gems; Thursday—General Tour; Friday—Animals of Economic Importance.

Week beginning January 11: Monday—Primitive Musical Instruments; Tuesday—Ancient and Modern Man; Wednesday—Moon, Meteorites, Minerals; Thursday—General Tour; Friday—The Plant Family.

Week beginning January 18: Monday—Primitive Life in Africa; Tuesday—Geology Exhibits; Wednesday—Textiles and Looms; Thursday—General Tour; Friday—Birds of Brilliant Plumage.

Week beginning January 25: Monday—American Archaeology; Tuesday—Plants Native to America; Wednesday—Hall of Fossil Animals and Plants; Thursday—General Tour; Friday—Animal Families.

Persons wishing to participate should apply at north entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturers' service for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Mrs. Frances Gaylord Smith (estate of)—718 specimens including jade, beaded belts, porcelains, textiles, sereena, glass, and minor gems, China; from Mrs. Samuel R. Rosenthal—a spindle whorl, a pottery bowl, and heads of 2 figurines, Mexico; from Harold S. Gladwin—50 pieces of Basket Maker pottery, dated about 600 A.D., Colorado; from School of Forestry, Yale University—61 herbarium specimens, Ecuador; from Dartmouth College—91 herbarium specimens and 8 photographs, Guatemala; from Museo Nacional—464 herbarium specimens, Costa Rica; from United States Department of Agriculture—271 herbarium specimens, Arizona; from University of Texas—989 herbarium specimens, Mexico; from Ray Lundy—trunk and branch of choke cherry, Illinois; from Utica Hydraulic Cement Company—4 specimens cement rock and products and 2 specimens vermiculite, Illinois and North Carolina; from R. M. Barnes—an unidentified fossil vertebra, Illinois; from L. E. Hildebrand—2 specimens calcareous tufa, Michigan; from Mr. Roche—2 minerals, Illinois; from Western Shale Products Company—6 specimens brick shales and briquettes, and 5 photographs of brick yard, Kansas; from Chicago Zoological Society—2 kangaroos, a gibbon, a red fox, a peacock-pheasant, a lizard, and 3 snakes; from Lincoln Park Zoo—a green tree boa, a lizard, and 4 snakes; from H. B. Conover—2 willow ptarmigans, Alaska; from Fred Ladd—7 specimens of black sea bass, Florida; from Bass Biological Laboratory—2 fish specimens, Florida; from John G. Shedd Aquarium—45 specimens of fishes; from Prof. H. W. Norris—jaws and samples of skin of five sharks; from E. G. Marsh, Jr.—6 lizards, 5 snakes, and a frog, Mexico; from Gordon S. Pearsall—11 snakes, Illinois; from University of Chicago—a frog, 3 lizards, and 10 snakes; from General Biological Supply House—7 tiger salamanders, Illinois; from Henry Field—945 insects and allies, 134 mollusks, 10 worms, 88 salamanders, 3 frogs, 16 snakes, and a toad, England, Scotland, and Wales; from J. E. Williamson—4 reels motion picture film (a record of the Field Museum—Williamson Undersea Expedition to the Bahamas, 1929); from Mrs. James Ward Thorne, from Dr. E. E. Sherff, and from Louis Babcock—valuable books for the Library.

EXPEDITION TO MEXICO

Mr. Llewelyn Williams, Assistant Curator of Economic Botany, will leave Chicago early in January on an expedition of several months in southern Mexico to obtain general botanical collections for Field Museum. The expedition has been made possible through cooperation extended by Mr. F. J. Riker, president of Maderas Tropicales, S. A., a division of the Ozark Corporation, Detroit.

Work will be concentrated on the Isthmus of Tehuantepec, especially in the region of Minatitlan in the state of Veracruz. The principal objectives are study specimens for the Herbarium and the wood collections.



Photograph courtesy of Chicago Tribune

Typical Group of Four-H Club Girls

More than 700 of these girls, of whom a group is seen in one of the Museum balconies, and about an equal number of farm boys, visited this institution during the International Live Stock Exposition last month.

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No. 2

HABITAT GROUP OF WHITE-TAILED GNU ADDED TO AFRICAN MAMMAL EXHIBITS

BY COLIN C. SANBORN
Curator of Mammals

A habitat group of white-tailed gnu, just opened in Carl E. Akeley Memorial Hall (Hall 22), shows an animal that was once extremely abundant in South Africa. Today it is practically extinct in the wild state so far as increasing its number is concerned. However, there are many still living in Kruger National Park, and in small private herds, so that the species is safe from total extermination.

Because it is extremely difficult to secure specimens, Field Museum is very fortunate in being able to exhibit this gnu. The specimens were collected in the Orange Free State by an expedition organized and led by Mr. Arthur S. Vernay, of New York and London, who presented them to the Museum.

The white-tailed gnu formerly ranged over a large part of Cape Colony, the higher parts of the Orange Free State, and the southern half of the Transvaal. Among all the many African antelopes it is perhaps the most grotesque in appearance. In early books it was called "horned-horse" because of the shape of its body. Its present name, gnu, comes from the Hottentot, *l'gnu*, which is derived from an imitation of the animal's bellowing snort. The Boers called it the *zwart* (black) wildebeest.

Gnus have disproportionately large heads, maned necks, and distinctive tufts of hair on their faces. The bulls stand about four

feet tall at the shoulders. The general color of the white-tailed species is a deep brown. Their horns are formidable weapons, and under certain conditions the animals are dangerous.

The white-tailed gnu lived on the open plains in herds of from five to fifty or more. Bulls were often found alone, but four or five old ones would frequently travel together. It is said that the cows often drove the bulls from the herd when they began to age, and younger ones took their places. The herds were often found in company

surprising antics. Bulls, or even cows, would drop to their knees and spar with their horns, then charge off at a gallop, wheel, caper about, paw the ground, and butt each other, all the time whisking their tails. Very often, all of this took place within extremely close range to the intruding hunter.

After gnus learned from bitter experience that man was their enemy, they were careful not to remain too close to him. They are very swift runners, and while never going far away, they always kept out of rifle shot.

Gnus breed at an early age, cows having calves when a little over two years old, and continuing to calve regularly about every fifteen months. In the wild state the young are born about December. Gnus often kneel when feeding, a position seldom taken by other ruminants after they reach maturity.

Another species of gnu is the brindled gnu or blue wildebeest. It is found in south and east Africa. There is a specimen on exhibition in George M. Pullman Hall (Hall 13).

Gnus have long been kept in captivity, a white-tailed gnu having been sent

to Amsterdam as early as 1776. The males are always very pugnacious as zoo residents, and there are instances of their having gored keepers to death.

The group, which shows two old bulls, an old cow, a younger cow, and a calf, was mounted by Staff Taxidermist C. J. Albrecht.



White-tailed Gnus

New habitat group of an animal which has become practically extinct in the wild state. The specimens for the exhibit were presented to the Museum by the collector, Mr. Arthur S. Vernay.

with ostriches or zebras.

The animal's trait of great curiosity may have been one cause of its extermination. When a herd was approached, its members rose and showed their nervousness by walking about and vigorously swishing their tails. Then, sometimes led by an old cow, the herd moved off with all manner of

A part of this collection will be utilized for the botanical exhibits. The remainder will be cut up into specimens of suitable size for the Museum's Herbarium, and for exchanges with other institutions.

Chicago Mineral Specimens

Two specimens of unusual merit for minerals found in Chicago, which is not noted as a source of such material, have been presented to the Museum by Mr. Roche, a tunnel engineer of this city. As Mr. Roche failed to leave his full name and address, the Museum has been unable to thank him. The minerals were found in openings in the limestone during the excavation of a tunnel. One is a group of calcide crystals on pyrite, the other a coating of botryoidal pyrite on limestone. Both of these minerals are common in the Chicago District, but are rarely found here in such perfection and beauty.

AMAZONIAN PALM COLLECTION FROM H. F. JOHNSON, JR.

An important collection of botanical material has been received at Field Museum through the interest of Mr. H. F. Johnson, Jr., of Racine, Wisconsin. The specimens consist of leaves, flowers and fruits of palms of the Amazon region, obtained by Mr. B. A. Krukoff, botanical explorer, in an effort to provide further palm collections similar to those already existing in Field Museum.

Owing to the huge size of their leaves, flowers, and fruit clusters, many palms present unusual difficulties in collecting. Professor L. H. Bailey, well-known botanist, compares gathering this sort of material to "collecting windmills." Some of the leaves in the present collection are thirty-five feet long. Cut in three parts, they were packed in cases thirteen feet in length. Clusters of fruit weigh as much as a hundred pounds or more.

RAYMOND FOUNDATION PRESENTS LINCOLN, WASHINGTON FILMS

During February there will be two special free motion picture entertainments for children, provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, to commemorate the birthdays of Abraham Lincoln and George Washington.

The Lincoln program, on Friday, February 12, will consist of the films "Native State" and "A President's Answer."

"Gateway to the West," "Yorktown," and "Washington Becomes President," are the pictures to be shown on the Washington program, which will be given Monday, February 22.

Both programs will be presented in the James Simpson Theatre of the Museum. There will be two showings of the films on each, at 10 A.M. and at 11. Children from all parts of Chicago and suburbs are invited.

Field Museum of Natural History

Founded by Marshall Field, 1893
Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

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Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

Nov., Dec., Jan., Feb., Mar.	9 A.M. to 4:30 P.M.
April, September, October	9 A.M. to 5:00 P.M.
May, June, July, August	9 A.M. to 6:00 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunchees.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

CURIOUS TIBETAN PRACTICES WITH HUMAN BONES

The curious and gruesome practices of the Tibetans of using human skulls and other bones for various practical purposes, and as symbols in their weird religious ceremonies, are illustrated by a collection of bone objects brought from Tibet, on exhibition in Hall 32.

Included in the Museum exhibit are bowls made of human craniums, used for libations in honor of the Lama gods; tambourines made of human skullcaps, and trumpets made of human thigh bones; and a bone apron composed of forty-one large plaques exquisitely carved from bones and connected by double chains of round and square bone beads. The apron, a gift of the late Arthur B. Jones, was described in the November, 1935 issue of FIELD MUSEUM NEWS. The other objects were collected by Museum expeditions.

Some of the skull bowls are elaborately mounted and decorated, lined with brass or gilded copper, and fitted with finely chased metal lids. From them Lama priests poured liquor on the altars in their temples as tribute to the gods. They were also used in a peculiar form of ancestor worship, whereby a dead man's son preserved his father's skull and drank from it to his memory on the parent's birthday anniversaries, according to observations made by the late Dr. Berthold Laufer, former Curator of the Department of Anthropology, who collected them.

The bone tambourines were shaken while reciting prayers. For the thigh bone trumpets the bones of criminals or persons who had died violent deaths were preferred. Consecrated by the priests, these trumpets were blown to summon and to disperse evil spirits. The bone apron is of the type used by magicians in Lama temples during mystic sacred ceremonies to propitiate evil spirits and exorcise devils.

ATTENDANCE ON UPGRADE AGAIN; 1,191,437 VISITORS IN 1936

The number of visitors at Field Museum during 1936 was 1,191,437. The increase over the 1935 attendance of 1,182,349 is slight, but enough, perhaps, to indicate the beginning of a renewed rising tendency. Ever since 1933, first year of A Century of Progress exposition, there has been a decline in attendance. This was ascribed to a natural reaction in public interest which was to be expected, since an all-time record for any museum in the world—3,269,390 visitors—was established in 1933. The reductions which followed, to 1,991,469 in 1934, and to 1,182,349 in 1935, were consequently considered normal. It would not have been surprising if this downward trend had continued also in 1936, and the small gain for that year is therefore an encouraging sign of reviving interest on the part of the public.

Of the visitors in 1936, only 68,375 paid the 25-cent admission fee charged on the "pay" days; all the rest, 1,123,062, either came on the free days (Thursdays, Saturdays and Sundays), or belonged to the classifications to whom free admission is extended every day—i.e., Members of the Museum, children, teachers, students, etc. Nevertheless, there is a small increase in paid admissions, as the number in 1935 was only 54,631, or less than 5 per cent of the total attendance, whereas in 1936, paid admissions amount to nearly 6 per cent of the larger total.

Probably no activities of the Museum exceed in value and effectiveness the work carried on among school children by the

Department of the N. W. Harris Public School Extension, and the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. These two units of the Museum continued in 1936 the full pressure of their influence upon the educational systems of Chicago.

The Harris Extension circulates some 1,300 traveling exhibits on natural history subjects among more than 400 schools—public, parochial, private, and special—on a schedule which brings two new cases to each one every two weeks during the school year. By this means, the Museum maintains daily contact with approximately 500,000 Chicago school children. A number of other institutions, such as Y.M.C.A.'s, community centers, libraries, etc., were also rendered similar service by the Harris Extension.

The Raymond Foundation sent lecturers to the schools who addressed 444 gatherings in classrooms and assembly halls, with a total attendance of 165,757 children. In addition to this extra-mural activity, the Raymond Foundation presented in the James Simpson Theatre nineteen free motion picture programs in its spring, autumn and special series, which were attended by 25,759 children; and conducted 810 groups comprising a total of 28,280 children on guide-lecture tours of the exhibits. For adults, 344 similar lecture-tours were participated in by 6,659 persons. The spring and autumn courses of illustrated lectures for adults presented in the Simpson Theatre attracted audiences totaling 17,557 persons. A total of 1,676 groups, aggregating 245,814 persons, were reached by the Raymond Foundation activities, the adult lectures, the tours of the exhibits, and other similar special services offered by the Museum.

The Museum's study collections of specimens maintained in each of the scientific Departments, and the Library with its more than 100,000 books and pamphlets, also served large numbers of students, teachers, scientific workers and other persons engaged in various forms of research.

MUSEUM OFFICERS RE-ELECTED

Mr. Stanley Field, President of Field Museum of Natural History, was re-elected to that office for the twenty-ninth consecutive time at a meeting of the Board of Trustees held January 18. Mr. Field has occupied the Museum presidency since 1909.

Other officers were re-elected, as follows: Colonel Albert A. Sprague, First Vice-President; Mr. James Simpson, Second Vice-President; Mr. Albert W. Harris, Third Vice-President; Mr. Stephen C. Simms, Director and Secretary; and Mr. Solomon A. Smith, Treasurer and Assistant Secretary.

Sir Grafton Elliott Smith Dead

News of the death in London, on January 1, of Sir Grafton Elliott Smith, noted anthropologist, was received with regret at Field Museum. Sir Grafton was noted for his investigations of the remains of the famous "Peking Man." He rendered valuable assistance and advice to Field Museum in connection with the creation of the Hall of the Stone Age of the Old World, and the Hall of the Races of Mankind (Chauncey Keep Memorial Hall). In recognition of these and other services he was elected a Corresponding Member of this institution several years ago.

Fossil scales of the earliest known fishes, which lived about 500,000,000 years ago, are shown in Ernest R. Graham Hall.

CARIBBEAN CRUISE COLLECTION PRESENTED BY LEON MANDEL

Mr. Leon Mandel, of Chicago, has presented to the Museum a collection including a number of valuable birds, a rare lizard, and some flying fish. These were obtained on a four weeks' cruise in December and January among many islands of the Caribbean aboard his yacht, *Buccaneer*.

Mr. Rudyerd Boulton, Curator of Birds at the Museum, was a guest on the cruise, and was in charge of collecting. Various islands of the Greater Antilles were ports of call during the voyage, and the principal hunting was done in Haiti and the Isle of Pines, Cuba.

The rare lizard obtained is the species known as rhinoceros iguana, and is ranked by herpetologists among the largest and most interesting of the iguanas. Two specimens were captured alive—one for preparation as a Museum exhibit, the other for addition to the Brookfield zoo of the Chicago Zoological Society. The head of the iguana resembles that of a rhinoceros, due to the horns by which it is characterized, and it is from this feature that the lizard gets its name.

Among the birds brought back are the glossy ibis, man-o'-war bird, royal terns, the rare West Indian coot, Jamaica pigeons, Bahama pintail, and West Indian cormorant. Included were a number of live birds which have been sent to the zoo.

WPA PAYS \$139,579 TO WORKERS ON FIELD MUSEUM PROJECT

The Works Progress Administration project being conducted at Field Museum, which is regarded by officials as an outstanding example of useful and successful operation of that federal government agency's efforts to relieve unemployment, resulted in the distribution of wages totaling \$139,579 during 1936. The number of men and women assigned to the Museum during the year has ranged from 114 to 204 at different periods, and their total working time aggregated 230,100 hours. They have performed a vast amount of valuable work which the Museum could not have attempted without such assistance.

The work has been of the most varied character, individuals being assigned to duties in accordance with their past experience 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 have been found qualified only for 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 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 employees assigned to such tasks as cataloguing, typing manuscript and records, filing, cleaning of specimens, mounting photographs, etc.

The Museum has been cooperating since the latter part of 1933 by thus providing useful employment for workers assigned by various state and federal relief agencies. Since the last quarter of 1935, workers who formerly came through the Illinois Emergency Relief Commission, and other agencies, were consolidated under the single unified

authority of the Works Progress Administration.

It should be distinctly understood that this employment of relief workers has been exclusively on the accomplishment of objectives which would not and could not have been undertaken if these people had not been available. The number of regular employes on the Museum's own payroll has not been reduced in consequence (but has been slightly increased, in fact), and all of the Museum's own staff members are fully occupied with work of a character more urgent and important than that assigned to the relief workers.

—STEPHEN C. SIMMS, *Director*

GOLDEN SHOWER

To the exhibit of legumes in the Hall of Plant Life (Hall 29) there has recently been added a branch of the senna tree, in fruit. Its flowers and leaves are reproduced in glass and celluloid. It represents one of the Asiatic species of cassia, a small tree of the



Branch of Senna Tree

A new exhibit in the Hall of Plant Life, representing the plant known to horticulturists as "golden shower."

subtropical forests of India, which has long clusters of yellow flowers as well as strikingly extended cylindrical pods. The latter, as an article of commerce, are often displayed in drug store windows labeled "senna pods" or *Cassia fistula*.

Because of its profuse flowering habit, and the ease with which its seeds may be obtained, this cassia has become one of the commonest of ornamental trees of the tropics. Its long pendant clusters of yellow flowers, which cover the tree in great mass during the period of replacement of the leaves, have made it a favorite in gardens wherever it can be grown. The horticultural name in English-speaking countries is appropriately "golden shower."

In the Hall of Plant Life this cassia makes a very handsome addition, and serves to illustrate a type of leguminous flowers different from the peas or beans. The exhibit is the work of Mr. Emil Sella, Assistant in the Plant Reproduction Laboratories.

—B.E.D.

Maya antiquities in pottery, jade and shell, are on exhibition in Hall 8.

A ZOOLOGICAL EXPEDITION TO SOUTH AMERICA

An expedition which has for its principal objective the collecting of exotic specimens for new habitat groups planned for the Hall of Birds (Hall 20), was dispatched to British Guiana and Brazil toward the end of last month. Mr. Emmet R. Blake, Assistant Curator of Birds, is the expedition leader. After arrival at Georgetown, British Guiana, Mr. Blake will organize a troop of native helpers for the first part of the expedition.

Specimens and accessory material for a group of the rare and remarkable bird called hoatzin will be first sought, along the coast and on the Berbice River. The hoatzin, found only in the inundated forests of rivers in northern South America, is of great biological interest because its fledglings definitely indicate, by the distinct claws on their wings, the evolutionary precept that birds are the descendants of reptilian ancestors which lived millions of years ago. No other birds still living so well indicate this tenet of science. So far as is known, not more than one other North American museum possesses a habitat group of hoatzin.

The hoatzin is a pheasant-like bird. Only the young have the reptilian claws, which they use with great agility in climbing in and out of their nests. When danger threatens, the precocious fledglings dive headlong into the water beneath their nests, and later climb back, unassisted. As they grow older, the birds lose the claws. This unique species occurs only in isolated colonies in the Guianas, Venezuela, the lower Amazon region, and Bolivia.

Mr. Blake will also explore the interior of British Guiana, and make a general collection of birds, small mammals, reptiles, and other kinds of animals. He will spend about five months in that country, and next summer will proceed to Brazil for several months more of general collecting. One of the principal objectives in Brazil consists of specimens for a group of rhea, the South American ostrich.

EXOTIC CATS

The exhibit of Asiatic and African cats in the systematic collection of mammals (Hall 15) has recently been reinstalled alongside its companion case of American cats. Four new specimens have been added to the exhibit. All are now displayed on a screen with map labels showing distribution.

Of the ten species shown, the rare clouded leopard is of especial interest. It is a large cat, but not a true leopard. It is found in Szechwan, China, southeast through French Indo-China, and has been reported from Borneo. There are less than ten specimens in American museums.

The Kaffir cat and cheetah specimens were collected and presented to the Museum by Mr. Arthur S. Vernay, of New York and London, who obtained them on his expedition to the Kalahari Desert. Tamed cheetahs or hunting leopards are used in India to hunt game. The caracal, collected by the Harold White-John Coats African Expedition, is the African lynx, well known for its destructiveness to small stock.

The four new specimens were mounted by Assistant Taxidermist W. E. Eigsti, who reinstalled the case. —C.C.S.

Resembling in certain respects both a giraffe and a zebra, yet nevertheless definitely distinct from either, the okapi is one of the world's rarest and most curious animals. A specimen is exhibited in Carl E. Akeley Memorial Hall (Hall 22).

FLUORESCENT MINERALS

By HENRY W. NICHOLS
Chief Curator of Geology

A recent addition to Clarence Buckingham Hall (Hall 35) promises to be one of the most attractive displays in the Department of Geology. It is an exhibit illustrating the strange phenomenon of mineral fluorescence.

Fluorescence is a property whereby some substances transform any invisible ultra-violet light of short wave length which penetrates them into visible rays of longer wave length. Ordinary bodies are invisible when illuminated by ultra-violet light alone, but fluorescent bodies glow with colors which vary according to the character of the body illuminated and have no relation to the ordinary color of the object.

Although numerous minerals fluoresce, few do so strongly enough for effective display. Hundreds of minerals were tested before thirty specimens, representing twelve mineral species, were selected for this collection. As the fluorescent glow, brilliant when seen under proper conditions, is completely masked by the ordinary color of the minerals when they are exposed to more than the weakest daylight, it was necessary to design a special case so that the fluorescence could be seen under favorable conditions and in a dim light. The specimens are mounted on a vertical panel at the back of a case three feet deep. The panel and interior of the case are black. Access of daylight is further impeded by a screen in front, so placed that there is a passage three and a half feet wide between it and the case. From this passage the exhibit can be inspected. For forty-five seconds of each minute the specimens are exposed to ultra-violet light from a nico lamp above; this is followed by an illumination lasting fifteen seconds by ordinary artificial light.

During the period of exposure to ultra-violet the minerals glow, some with brilliant blues and greens and some with less brilliant yellows and reds. These colors are not like ordinary surface colors but are more a glow of pure spectral light which seems to come from inside the mineral. When the light changes from ultra-violet to ordinary the brilliant colors abruptly disappear, and the minerals resume their ordinary appearance with colors dull and commonplace after the fluorescent glow.

LARGEST AND SMALLEST FROGS

Specimens of the world's largest and smallest kinds of frogs, both of extremely rare species, are exhibited together in Albert W. Harris Hall (Hall 18). The big one is known as the giant bullfrog or *Rana Goliath*, and in life it weighs about ten pounds. It is found in southern Cameroon and French West Africa. The little one, called pygmy frog or *Phyllobates limbatus*, comes from Cuba, and when alive weighs only about one twenty-thousandth as much as the giant frog. It would take nearly 150 of the pygmy frogs to tip a scale to the one-ounce mark.

The Museum exhibits are reproductions from actual specimens, created by the special processes, developed by Staff Taxidermist Leon L. Walters, now being generally used for reptiles and amphibians, and many other kinds of animals which if mounted in the usual way do not make lifelike representations.

It is extremely difficult to obtain specimens of either of these frogs. The giant frogs are regarded as a rare delicacy by Negro tribes, and after they have eaten one they preserve its thigh bones for use in divination and religious ceremonies. As a result of this high regard, white explorers seeking specimens find that the natives hold

these frogs as almost priceless. They are represented in few museums of the world. The largest known North American bullfrog weighs but one and one-half pounds.

PRIMITIVE VEDDA OF CEYLON IN RACES OF MAN SERIES

Among the Asiatic types in the Races of Mankind series of sculptures by Malvina Hoffman in Chauncey Keep Memorial Hall (Hall 3) is a full length figure of a Vedda, with his characteristic hunting equipment of bow and arrow.

The Veddas are a primitive hunting people living in southeastern Ceylon. They are rather small, averaging about five feet in height, and are dark brown in color. Their hair is long, black, coarse, and wavy or slightly curly. The skull is long but quite small, with retreating forehead and often prominent brow ridges. The face is fairly broad; the nose rather flat with depressed root; lips thin, and chin pointed.

The few pure blooded Veddas now remaining live in bark huts, shallow caves, or rock shelters in the deep jungle, to which they have retreated before the invading Singhalese. They were formerly much more numerous, and represent the remnants of an earlier, pre-Dravidian population, possibly the aboriginal inhabitants of this region. They have bows and arrows, and live chiefly by hunting and fishing, together with what jungle produce they can find. Honey is an important element in their food supply, and of value also in obtaining, by trade, iron for their arrows and axes, and often a little cloth and rice. The Veddas cultivate small patches of vegetation in the jungle to help out when game and honey are scarce. A hunting dog is their only domestic animal. Fish are caught by poisoning.

They speak a modified Singhalese in which are a few alien words, possibly all that remains of their original language. They are monogamous, and are divided into matrilineal exogamous clans. Their religion is essentially a cult of the dead.

Photographs of the figure of a Vedda, as of nearly all the sculptures in the racial series, may be purchased at the Museum; also, post cards and post card sets. In addition, special arrangements may be made whereby individuals or institutions so desiring may obtain reproductions in bronze, one-third the size of the original sculptures. Those interested should communicate with the Director of the Museum.



Photograph copyright Field Museum

Vedda

Sculpture by Malvina Hoffman of a primitive native of Ceylon.

FEBRUARY GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for February:

Week beginning February 1: Monday—Melanesia; Tuesday—Birds of Unusual Interest; Wednesday—Native Philippine Life; Thursday—General Tour; Friday—The Story of Coal.

Week beginning February 8: Monday—Field Museum Bronzes; Tuesday—Peoples of the Far North; Wednesday—Skeletons, Past and Present; Thursday—General Tour; Friday—The Cave Peoples.

Week beginning February 15: Monday—Masks of Many Lands; Tuesday—Our Native Trees; Wednesday—Gems and Semi-precious Stones; Thursday—General Tour; Friday—Amphibians and Reptiles.

Week beginning February 22: Monday—Animals at Home; Tuesday—Egyptian Hall; Wednesday—Prehistoric Life; Thursday—General Tour; Friday—The Hall of Plant Life.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturer's services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Howard Scott Gentry—420 herbarium specimens, Mexico; from Museo Nacional—1,102 herbarium specimens, Costa Rica; from Glidden Company—20 soy bean products; from Professor Grijalva Fernandes—10 herbarium specimens, Brazil; from Bailey Hortorum, Cornell University—328 herbarium specimens, Mexico; from Dan P. Mumbree—a specimen of talc, Montana; from Chicago Historical Society—51 specimens of fossil insects, fish, and vertebrates, and 2 of copper bottoms; from Robert L. Fleming—52 beetles, scorpions, and other insects, India; from Lincoln Park Zoo—a lizard and 4 snakes; from Leon Mandel—a tree frog and a rhinoceros iguana, Haiti and Cuba; from D. Dwight Davis—149 insects.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from December 16 to January 15:

Life Members

Walter J. Cummings

Associate Members

Mrs. Katharine W. Baldwin, John Clay, Jonathan Miller Cook, Dr. Gustav Egloff, Dr. Henry C. A. Mead, Dr. John R. Pontius, Miss Dorothy Sears, Oscar U. Zerk, Otto A. Zinke.

Annual Members

N. J. Bennett, Dwight S. Bobb, Samuel Cole Joseph F. Darlington, Walter Daspi, Mrs. William J. Davies, Louis E. Diamond, Karl Eitel, Charles W. Fry, Arthur W. Fulton, Arnold Gingrich, Emil Graf, Mrs. Itha Griesemer, Mrs. Charles C. Haffner, Jr., Frank X. Henke, Hyman I. Henner, S. C. Jennings, Mrs. J. Sylvan Kautman, Miss Hilda M. Kemper, Miss Marie Killelea, J. Andrews King, Mrs. Edward Landsberg, Mrs. E. Loewenstein, Emanuel Marks, Miss Bertie E. Miller, Joseph Callow Reynolds, Oron E. Richards, P. W. Schmidt, Elmer E. Sehmus, John I. Shaw, William A. Sizer, N. C. Webster, Linn White, Howard L. Willett, George A. Works.

Memorial to Rev. J. A. Nieuwland

At memorial services held January 10 at the University of Notre Dame for the late Rev. Julius Arthur Nieuwland, Field Museum was represented by Curator Paul C. Standley. Father Nieuwland, celebrated for his contributions toward synthesization of rubber, was widely known also for his investigations of the flora of the Great Lakes region. He was the founder of a scientific journal, *The American Midland Naturalist*. To the *Flora of the Indiana Dunes*, published by Field Museum, he contributed an account of the genus *Persicaria*.

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GROUP OF GUEREZA MONKEYS

BY COLIN CAMPBELL SANBORN
Curator of Mammals

In the densely forested regions of central and western Africa, especially in Ethiopia, is found a grotesque and interesting species of black and white monkey called the guereza or horse-tailed monkey. A habitat group of one of the most striking varieties of this animal has recently been placed on exhibition in Carl E. Akeley Memorial Hall (Hall 22). The group is composed of specimens collected by the Field Museum—*Chicago Daily News* Abyssinian Expedition, under the leadership of Dr. Wilfred H. Osgood, Chief Curator of Zoology.

Guereza monkeys, in common with American spider monkeys and some others, have only a rudimentary thumb and hence are especially adapted for inhabiting trees, as a fully developed thumb would interfere with the agility required for arboreal life. Their scientific name, *Colobus*, which comes from the Greek and means "mutilated," refers to this greatly reduced digit. On the other hand, their common name, guereza, is the one used by the natives of Ethiopia.

In spite of the brilliantly contrasting colors of their coats, guereza monkeys are not easily seen when they are sitting in the high trees of the thick forest. They are much more apt to catch the eye when moving, for in traveling they often make downward leaps spanning distances of forty to fifty feet from one tree to another. Unlike many other monkeys, they are not attracted by cultivated native gardens. Rather, they shun human settlements, preferring the secluded forests, where they often form troupes of ten to fifteen members.

Guereza monkeys feed to some extent on fruits, and insects, but the main item of their diet is leaves, of which they consume large quantities. They have no cheek pouches for storing food, but they do have exceptionally large stomachs well adapted to holding and digesting large masses of food.

Men and women of various African tribes use the skins of guereza monkeys for ornamental dress and for the decoration of their weapons, especially shields. Moreover, the use of these skins is not confined to Africa. Many guereza skins are exported each year, and they are, in fact, the only African monkey pelts with a commercial value. The exceptionally long hair makes them especially suitable for trimming cloth coats that require narrow strips. In some places hunting has greatly reduced their numbers.

Besides the black and white species there is also a red guereza in Africa.

The group shows an old male and female with two young of different ages in the top of a high tree of their native forest. The taxidermy and accessories are the work of Staff Taxidermist Leon L. Pray.



Guereza Monkeys

A new group placed on exhibition in Carl E. Akeley Memorial Hall. These odd-looking creatures from Ethiopia are extremely agile, making downward leaps of forty to fifty feet from one tree to another. Their fur is valued as a trimming for women's coats.

Starches

Starch, like sugar, is produced in all green plants, and is mostly found stored in their seeds and root-stocks. It is thus especially abundant in the various grains, such as wheat, rye, barley, oats, and corn; in other seeds, such as peas, beans, acorns and chestnuts; and in numerous tuberous roots and rhizomes including the potato, sweet potato, arrowroot, etc.

The principal commercial starches are: rice, wheat, corn, sago, arrowroot, cassava, and potato. Many other starches are of local importance in the countries where they are produced. Besides its use as food, starch is employed in the textile industries and in the manufacture of paste and glucose.

Among the vegetable food products in Hall 25 there is exhibited a representative series of commercial starches as well as a number of little-known or unusual starches from various parts of the world.

Some of the world's least-known metals, with collections of objects illustrating their use, are exhibited in Frederick J. V. Skiff Hall (Hall 37, Case 39).

EVOLUTION OF SNAKES

BY KARL P. SCHMIDT
Curator of Reptiles and Amphibians

Snakes present strong and varied evidences of evolution. Their anatomy shows plainly that they are directly allied to the four-limbed lizards. Within the snake

group itself there has been a progressive evolution, accompanied by loss of limbs and the acquisition in some cases of a poison apparatus for obtaining prey. For example, the boas and pythons are entirely non-poisonous, but show strong evidence of their lizard ancestry in having vestiges of the hind limbs and two lungs, while the members of the main group of snakes, composing the family Colubridae, have lost all trace of limbs, have lost one of the lungs, and thus plainly show that they have developed further in the same direction.

Finally the poisonous snakes have perfected an elaborate means of food-getting, the cobras and vipers being two quite distinct types which have developed in this direction. In the cobras and their allies such as the coral snakes, mambas, and kraits, the poison apparatus consists of short fixed fangs at the front of the upper jaw. In the vipers and pit vipers, the very large poison fangs fold back when not in use.

One reason for seeing an evidence of evolution in this development of a poison apparatus lies in the fact that there is a large group of

snakes which are partially or mildly poisonous, with poison conducting teeth at the rear of the jaw. These bridge the gap between the harmless snakes and the truly venomous ones.

Another type of evolution is especially well displayed among the snakes. Some snakes have departed from the normal ground dwelling habit, and become exclusively tree snakes, water snakes, or burrowing snakes, and they have become characteristically modified for each mode of life. Tree snakes are slender and elongate, and frequently green; water snakes have valve-like nostrils, eyes on top of the head, and flattened oar-shaped tails; and burrowing snakes have cylindrical bodies and short tails. Many of the types of snakes mentioned herein are to be seen in the Museum's reptile collections in Albert W. Harris Hall (Hall 18).

Pond scums and sea weeds present an interesting phase of botanical study. A case illustrating the chief facts about them is available for reference in the Hall of Plant Life (Hall 29, Case 803).

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

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*Deceased January 28, 1937

Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

Nov., Dec., Jan., Feb., Mar.	9 A.M. to 4:30 P.M.
April, September, October	9 A.M. to 5:00 P.M.
May, June, July, August	9 A.M. to 6:00 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are available for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

STEPHEN CHAPMAN SIMMS

March 22, 1863—January 28, 1937

Field Museum of Natural History has suffered one of its most severe losses of recent times by the sudden death, on January 28, 1937, of Director Stephen Chapman Simms. His passing came without warning—on the very day before, he was at his desk, his usual hearty, jovial self, and apparently in good health. He made his customary survey of the work in progress throughout the building, full of the characteristic vigor and enthusiasm with which he always kept in touch with every activity of the Museum he loved so much. When he left the building



Stephen C. Simms

in the evening, none of his associates on the Staff would ever have dreamed he was never to appear here again—he remains in memory as the living, ever alert, energetic man that he was.

Few men have had such qualifications, such native ability combined ideally with years of varied experience, for the position of director of a great museum. His was a truly notable

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 unflinching 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, and his remarkable understanding of the ways in which the Museum could be made most useful and valuable to the public, will leave a lasting impress on the institution. The kindness and sympathy shown in his relations with members of the Staff will never be forgotten by them.

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. While on the R. F. Cummings Expedition to the Philippines in 1909, Mr. Simms successfully carried out the difficult and hazardous task of recovering the body of Dr. William Jones, leader of the party, who had been murdered by native head-hunters on the upper Cagayan River, Island of Luzon. Mr. Simms also found and brought back Dr. Jones' collections and records, and on a subsequent expedition completed the work in the Philippines, obtaining for the Museum collections which remain today as permanent and valuable features of the exhibits.

In 1912, when the N. W. Harris Public School Extension was established through the interest and generosity of its founder, the late Norman Wait Harris, Mr. Simms was appointed Curator of the Department. Under his supervision 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 700,000 school children by means of traveling exhibits circulated among their schools; and he directed 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 the sciences with which the other four Departments of the Museum are concerned, gave Mr. Simms an experience which was to prove invaluable when, in 1928, the Trustees of the Museum selected him as Director of the Museum, and made him a Trustee, and Secretary of the Board.

Mr. Simms' administration as Director was marked by two distinct and important periods of the Museum's history. The first embraced several 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 difficulties unparalleled in previous years, 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 of suffering among the personnel.

One might write many thousands of words in eulogy, and still all that should be said could not be told. Stephen Chapman Simms' accomplishments live after him in the Museum, a better monument than any memorial that can be written.

C. C. Gregg Appointed Acting Director

Following the death of Director Stephen C. Simms, Mr. Stanley Field, President of the Museum, announced the appointment of Mr. Clifford C. Gregg as Acting Director. Mr. Gregg has been a member of the Staff of the Museum since 1926, and has served as Assistant to the Director under both Mr. Simms and the preceding Director, the late David C. Davies. Prior to coming to the Museum, Mr. Gregg was engaged in commercial business. During the world war he was a lieutenant in the United States infantry, and is at present a major in the army reserve corps. He is a graduate of the University of Cincinnati, and has taken post-graduate studies at Northwestern University.

Post Card Sets

Educational series of photogravure post cards illustrating different phases of anthropological, botanical, geological and zoological subjects, are published and sold by Field Museum. These have proved to be a valuable medium of disseminating scientific information. Each set contains from six to thirty cards with picture and instructive text. Prices range from 10 cents to 50 cents depending upon the number of cards in the set. A list of the subjects may be obtained from the Museum on request.

The lapis lazuli from Chile exhibited in Hall 34 (Case 23) is from a deposit so high in the Andes that snow and mountain storms make it inaccessible except for a few days each year.

FREDERICK HOLBROOK RAWSON
 May 30, 1872—February 5, 1937

The Trustees and the Staff of Field Museum have learned with deep regret of the death on February 5, 1937, of Frederick Holbrook Rawson, former member of the Board of Trustees, 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 the Museum, and his wise counsel and respected advice had been sorely missed ever since ill health forced him to retire from the Board of Trustees in 1935.

Because of his high standing as one of Chicago's leading bankers, his fellow Trustees placed Mr. Rawson 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 sums of money to the institution for the carrying out of projects important to its growth and progress. In 1926 he organized 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 where 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 one of those whole-hearted civic leaders 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



Frederick H. Rawson

business activities, too, he was well known as a great leader—one who possessed not only the qualities which brought him success, but who was imbued with a full measure of warmth and human kindness.

MATERIAL FOR STORK GROUP RECEIVED FROM POLAND

Material for a habitat group of European white storks was received at the Museum last month as a gift from the Polish-American Chamber of Commerce in Warsaw. The Polish government extended its cooperation in making possible the collection and presentation of this material. Included in the shipment are five stork specimens (an adult pair and three half-grown young), a large nest, and the gable and part of the roof of a house supporting the nest. Arrangements for collecting the birds and accessories were made through the assistance of Dr. Wacław Gawronski, Consul-General of Poland in Chicago, and Mr. Jerzy Bojanowski, an official of the consulate.

The group, which is to be installed in the foreign series in the Hall of Birds (Hall 20), will represent a view of a typical Polish village as seen over the rooftops. In the foreground will be the actual roof included in the gift, with the nest built upon it. The birds, mounted in natural attitudes, will be seen in or about the nest.

The stork is of great interest to ornithologists because it is the outstanding example of a large bird which, while not domesticated, has nevertheless almost completely adapted its mode of living to conditions established by civilized human life, states Mr. Rudyerd Boulton, Curator of Birds. That is, practically all storks, since the human inhabitants of Europe first began the building of houses, have deserted their former nesting places on cliffs to build their nests on the roofs of men's dwellings.

These storks migrate to Africa in winter. Among Negro tribes there are many legends concerning the birds, but they do not include the one associating them with the acquisition of human babies.

Vegetable Oils

In the living tissue of most plants there exist small drops of oil that serve as reserve food for the plant or its seedlings. The most common storage place for these fats is the seed, where oil is almost always present in at least a small amount or in some instances may be the dominant form of storage food. Edible vegetable oil is not confined to seeds, however, but is found also in the flesh of fruits, such as olives and oil palm fruits; in root-stocks and tubers, such as potato, iris and sedges; and in bulbs, such as onions.

The principal sources of edible oils are cotton seeds, peanuts, olives, coconuts, corn, soy beans, sunflower seed, mustard seed, and sesame seed.

In Hall 25, part of which is devoted to food plants, there is on display a representative series of edible oils from various countries, together with their respective plant-sources.

Pseudomorphic minerals—minerals which by substitution or alteration assume the form of other species—are represented by a large collection in Hall 34 (Case 34).

Into the making of one of the various Indian curry powders there go products from forty different plants. The ingredients in their raw state form an exhibit in Hall 25.

BASQUE AND GEORGIAN RACES DEPICTED

Less familiar to the average person than most European races are the Basques and Georgians. Types of these groups are included among the Races of Mankind series of sculptures by Malvina Hoffman, on exhibition in Chauncey Keep Memorial Hall.

The Basques inhabit the region of the Pyrenees Mountains between France and Spain, where they have had a long and troubled history, which continues to this very day, as some of them are involved in the present Spanish civil war. The chief industries of the Basque Provinces are sea fisheries and iron mining. Some of the mines around Bilbao are extremely ancient.

The language, which is spoken by half a million persons, is much isolated from the speech of surrounding regions, and is supposed to be the last representative of an ancient Iberian tongue that was superseded by Latin during the Roman conquest.

The Spanish Basques are a bold and independent people, who were able to maintain a degree of self-government until the year 1876. They are of that branch of the white race which is akin to the Berbers of north Africa. The bronze sculpture in the Museum portrays a man of good physique, with large regular features and deeply set eyes.

The Georgians inhabit the magnificent mountain region of the Caucasus near the eastern end of the Black Sea. Here they have dwelt for perhaps 4,000 years, boldly preserving their independence against attacks from both the European and Asiatic sides of the Caucasus barrier.

The languages spoken by Georgians are divided into two main divisions known as north and south Caucasian. They are marked by many guttural sounds. Georgian is the only Caucasian language that has developed a literature. This began with a translation of the Bible in the eighth century. The Georgians can be divided into several groups and many minor sections according



Photographs copyright Field Museum of Natural History

Basque and Georgian

Two of the lesser known European races, as represented in sculptures by Malvina Hoffman. On exhibition in Chauncey Keep Memorial Hall.

to physical differences. They are generally regarded as being a handsome people. The bronze head of a Georgian male shows regular, moderately large features, and high cheek bones.

Photographs of the Basque and Georgian, as of nearly all the racial sculptures in Chauncey Keep Hall, may be purchased at the Museum. Available also are individual post cards, and post card sets of various geographic groups of peoples. Orders by mail are given prompt attention.

LECTURE COURSE FOR ADULTS OPENS ON MARCH 6

Field Museum will present its Sixty-seventh Free Lecture Course for adults on Saturday afternoons during March and April. Eight lectures on science and travel will be presented by men well-known for their work in natural history and exploration. All the lectures will be illustrated with motion pictures or stereopticon slides.

Lectures begin at 3 P.M., and are given in the James Simpson Theatre of the Museum. The complete schedule of dates, subjects, and speakers is as follows:

- March 6**—Birds, Bergs, and Kodiak Bears
Dr. William L. Finley, Portland, Oregon
- March 13**—Exploring the Atlantic's Great-est Deep
Dr. Paul Bartsch, Smithsonian Institution, Washington, D. C.
- 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
(with sound effects)
Dr. Arthur A. Allen, Cornell University
- April 24**—Plant Life in the Caribbean
Dr. William Seifriz, Philadelphia

No tickets are necessary for admission to these lectures. A section of the Theatre is reserved for Members of the Museum, each of whom is entitled to two reserved seats on request. Requests for these seats may be made by telephone or in writing to the Museum, in advance of the lecture, and seats will be held in the Member's name until 3 o'clock on the day of the lecture. Members may obtain seats in the reserved section also by presentation of their *membership cards* to the Theatre attendant before 3 o'clock on the lecture day, even though no advance reservation has been made. All reserved seats not claimed by 3 o'clock will be available to the general public.

SOUND FILMS INCLUDED IN RAYMOND SERIES

The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures will present its annual spring series of free motion picture programs for children on Saturday mornings during March and April. Eight programs, including twenty-nine films in all, will be given. A good proportion of the films have talking and other sound effects. There will be two showings of the films on each program, one at 10 A.M., and one at 11, in the James Simpson Theatre of the Museum. Children from all parts of Chicago and suburbs are invited to attend. They may come alone, in groups from schools and other centers, or with parents, teachers, or other adults. No tickets are required for admission.

The installation of equipment to produce sound effects with motion pictures represents the fulfillment of a desire of several years' standing. For some time past it has been increasingly difficult to obtain good pictures on scientific and geographic subjects, because the Simpson Theatre was equipped only for silent films. Realizing this, the Board of Trustees recently authorized the purchase of a sound projector. As a result, many of the films to be shown this

spring are from among the most interesting natural history and travel pictures of recent production.

Following is a schedule of the dates, and titles of the films to be presented on each:

- March 6**—The Story of Krakatoa (*thrilling eruption of a sea volcano*), Insect Clowns.
- March 13**—Mexico and Its Western Coast, The Clever Ant-Lion, A Piute Squaw Makes Acorn Bread, Uncle Sam Moves His Eskimo Family.
- March 20**—Brock the Badger, Outwitting the Timber Wolf, Freak Fish of the Seven Seas, Eclipse of the Sun, Tides and the Moon.
- March 27**—Undersea Thrills, *which includes*: Baby Goes Down, A Native Diver Among the Corals, Baiting the Sharks, and 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 Weaverbird and Its Neighbors, and The Eve of the Revolution, *which includes*: The Ride of Paul Revere, On Lexington Green, and By Concord Bridge.
- April 24**—Trooping the Color, The Great Raccoon Hunt, Alaskan Seals at Home.

MUSEUM MEMBERSHIP SHOWS SUBSTANTIAL INCREASE

After five years, during four of which there was a steady decline in the number of Members on the Museum rolls, and one (1935) in which the number remained exactly the same as in the preceding year, a gratifying membership increase was attained in 1936. After adjustment for cancellations and deaths, the total number of names on the membership lists at December 31, 1936, was 4,238, as against 4,143 on the corresponding date of 1935. This increase of nearly one hundred Members is a hopeful sign contrasted with the worst year of the depression when 819 members were lost.

Every endeavor is now being made to obtain greater increases in membership during 1937. A strong membership is a vital factor in the maintenance of the welfare of the Museum, and it is now hoped that the peak totals of pre-depression years may again be reached and even surpassed.

The past and present support of its Members is deeply appreciated by the Museum administration. It is desired to thank them again for their interest in and financial contribution toward the scientific and educational work which the Museum performs. In an increased membership lies largely the hope for expansion and improvement of Museum activities. For this reason, it is hoped that all current Members will continue their association with this institution; that former Members who found it necessary to resign during the depression may see their way clear to enroll again; and that all Members may cooperate in the campaign to obtain additional supporters by proposing the names of persons of their acquaintance as prospective new Members.

—CLIFFORD C. GREGG, *Acting Director*

Fossil skeletons of two of the most formidable enemies of prehistoric man, the European cave bear and the sabertooth tiger, are on exhibition in Ernest R. Graham Hall (Hall 38).

MARCH GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for March:

Week beginning March 1: Monday—Races of Man-kind; Tuesday—Habitat Groups; Wednesday—Interesting Geology Exhibits; Thursday—General Tour; Friday—Plants of Economic Value.

Week beginning March 8: Monday—Jades; Tuesday—Egypt; Wednesday—Birds of North America; Thursday—General Tour; Friday—Asiatic Birds and Mammals.

Week beginning March 15: Monday—China and Its Art; Tuesday—Fishes, Past and Present; Wednesday—Animals of Ages Past; Thursday—General Tour; Friday—North American Indians.

Week beginning March 22: Monday—Marine Life; Tuesday—South America; Wednesday—Amber, Copal, Turpentine and Rubber; Thursday—General Tour; Friday—Peoples of the South Seas.

Week beginning March 29: Monday—Central American Archaeology; Tuesday—Horned and Hoofed Animals; Wednesday—Rocks and Minerals.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturers' services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Bailey Hortorium, Cornell University—331 herbarium specimens, Mexico; from Dr. Josef Kissler—a specimen of *Picea wood*, Austria; from Museo Nacional—535 herbarium specimens, Costa Rica; from Professor T. G. Yuncker—171 herbarium specimens, Honduras; from Dr. Salvador Calderón—20 herbarium specimens, Salvador; from Leslie Wheeler—92 birds of prey and 10 other bird skins, Colombia, Bolivia, Ecuador, and Brazil; from Leon Mandel—45 bird specimens, a tree frog, a rhinoceros iguana, and 5 specimens of flying-fishes, West Indies; from Lincoln Park Zoo—17 snakes, a lizard, and a smooth-clawed frog; from Spencer Stewart and Robert Sykes—a young whale shark skin, about twenty-five feet long, Mexico; from A. J. Bujac—3 beaver skeletons, Michigan; from Chicago Zoological Society—29 birds, 9 mammals, a gila monster, a lizard, a turtle, and 4 snakes; from Dr. Cyril von Baumann—4 bats and 75 specimens of butterflies, moths, and beetles.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from January 16 to February 15:

Associate Members

Mrs. John Porter Denison, Miss Elsa B. Eisenrath, William B. Eisenrath, Miss Celia Ellbogen, E. L. Hieka, Jr., Whipple Jacobs, Mrs. L. B. Patterson, Mrs. Charles R. Rice.

Non-Resident Associate Members

W. A. Mitchell

Sustaining Members

Ainslie Y. Sawyer

Annual Members

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The so-called white rhinoceros of Africa, now rapidly becoming extinct, is represented in an exhibit in Hall 22.

Field Museum News

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Vol. 8

APRIL, 1937

No. 4

NEW HABITAT GROUP SHOWS HARBOR SEALS IN A NORTHWEST COAST SCENE

BY COLIN CAMPBELL SANBORN
Curator of Mammals

One of the best known and most frequently seen of all marine mammals is the harbor seal. This is so because it has the widest geographic range of any seal. It is found in the Pacific from the coast of Japan north to Siberia, and south along the American coast to Lower California. In the Atlantic it occurs from about New York to Greenland, and from Spain, through the British Isles, to the Scandinavian Peninsula. A coast inhabiting species, it lives in fjords and near rocky points, islets and sand bars. Often it enters the larger rivers and bays. Its appearance in these latter places, frequently as much as a hundred miles from the sea, accounts for its having been named "harbor seal." It was described and pictured by writers and artists as early as the middle of the sixteenth century.

The harbor seal is the smallest member of the family Phocidae, which comprises the true or earless seals. In these, the hind flippers form functionally part of the tail, and are useless for progression on land.

Harbor seals never exceed six feet in length. Large ones weigh between eighty and one hundred pounds. They do not gather in such large herds as other species—seldom are more than twenty-five found together. They are also less migratory, usually living in the same place throughout the year if weather and food conditions permit. A few come south along the New England coast each winter.

The coats of harbor seals are extremely varied in color. The fur of some is uniformly yellowish-gray or dark gray; others have the yellowish coat with irregular dark spots, or the dark coat with yellowish spots. The spotted ones are often called leopard seals. The young are born either with or without a white woolly coat; those with this coat lose it in a very short time. A pair of harbor seals has only a single pup each year, usually about March. Births often occur on the bare ice.

Although harbor seals feed mainly on fish,

clothing and tents. Garments made from harbor seal skins may be seen in some of the Museum's anthropological exhibits. As these seals are not found in large herds and are difficult to shoot, relatively few skins reach the market, and they have no great commercial importance.

Because they inhabit coastal waters and have been continually hunted, harbor seals are very shy and wary of man. Specimens for Field Museum were shot about dawn while animals were sleeping on the rocks exposed by low tide. Nets are often used to catch them, and they are sometimes trapped in salmon nets from which they frequently steal fish.

There are many stories of the harbor seals' curiosity about strange noises or musical sounds. It is said that where they are not hunted they can be attracted towards shore by the playing of a flute or other musical instrument, and that at one place the ringing of the church bells always caused them to gather near shore. They make very docile and interesting pets. Their only enemy besides man is the polar bear.

A habitat group of harbor seals was recently added to the Hall of Marine Mammals (Hall N). Five specimens are included—a bull, two cows, a yearling, and a small pup. They are shown

in a setting representing a scene on the coast of the state of Washington, near La Push, Clallam County. The specimens were collected there by Staff Taxidermist C. J. Albrecht, who prepared the group. The background is by Staff Artist Charles A. Corwin.



Harbor Seals

A new habitat group in the Hall of Marine Mammals (Hall N). These seals, smallest species of their family, have a wider geographic range than any others, being found in Pacific, Atlantic, and far northern waters.

their flesh is quite palatable as food for humans. It is said to be most tasty when roasted or broiled. These seals are one of the main sources of food for the Eskimos, who hunt them for this reason and also for their skins, which are used in making

CHICAGO AREA EXHIBITS FOR CHARTER JUBILEE

Field Museum exhibits pertaining to Chicago, its prehistory, later history, flora, fauna, and geology, are being given special attention during the seven months of Chicago's Charter Centennial Jubilee which opened on March 4. In Ernest R. Graham Hall (Hall 38), among twenty-eight mural paintings of prehistoric subjects by Charles R. Knight, is one depicting the site of Chicago as it appeared 400,000,000 years ago, when it was bound by a coral reef in a tropical sea. Fossils tracing life in this region through various epochs, ranging from primitive invertebrates of as far back as

600,000,000 years down to the mastodon which became extinct only a few thousand years ago, are shown in the same hall. The mastodon is represented not only by a skeleton, but, in another of the Knight paintings, as it appeared in life.

On the bridge between Clarence Buckingham Hall (Hall 35) and Hall 34 is a series of relief maps illustrating various stages in the emergence from an old lake bed of the plain upon which Chicago is now built.

In James Nelson and Anna Louise Raymond Hall (Hall 4) are exhibits illustrating the life of the Potawatomi Indians who formerly inhabited the Chicago area, and ceded this territory in 1833 to the white settlers. Plants of the Chicago area are

included in the Department of Botany. The Department of Zoology has a special exhibit of mammals of the Chicago area (in an alcove south of the east entrance to Hall 17). In the systematic series of birds in Hall 21, all species which live in or pass through Chicago are exhibited.

The Chicago exhibits are featured in guide-lecture tours at 3 P.M. on Thursdays.

Hopi House

A Hopi Indian house, reproduced in actual size, and containing life-size figures of typical people of the tribe, is on exhibition in Hall 7. This group was recently renovated and improved.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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*Deceased February 27, 1937

FIELD MUSEUM NEWS

CLIFFORD C. GREGG, Acting Director..... Editor

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WILFRED H. OSGOOD	Chief Curator of Zoology
H. B. HARTE	Managing Editor

Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

Nov., Dec., Jan., Feb., Mar.	9 A.M. to 4:30 P.M.
April, September, October	9 A.M. to 5:00 P.M.
May, June, July, August	9 A.M. to 6:00 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

LESLIE WHEELER

May 17, 1892—February 27, 1937

In the recent death of Leslie Wheeler, member of the Board of Trustees of Field Museum, Research Associate in the Division of Birds, and a generous Contributor to the institution's collections, both the Administrative and Research Staffs of the Museum suffered an acute loss. After successfully rallying from the effects of two severe illnesses in recent months, Mr. Wheeler died suddenly in Florida when his



Eola White photograph

Leslie Wheeler

recovery seemed assured. Only two days before his death, there was received at the Museum a letter full of new plans for the further development of the Division of Birds.

Forty-four years ago Leslie Wheeler was born in Evansston, son of Charles Pinckney Wheeler and Martha (Seymour) Wheeler. He entered Yale University and was graduated in the class of 1914. After several years with the iron firm of Pickands, Brown and Company he devoted his time to social service and charitable organizations. His active interest in and association with Field Museum began in 1933 when he undertook the difficult task of building up and adding to the Museum's collection of birds of prey, in which he had always had a profound interest. In quick succession he became Research Associate in the Division of Birds and a member of the Board of Trustees. He was a member of the American Ornithologists' Union and a Fellow of the American Geographical Society. He is survived by his widow, Violet Patten Wheeler, and two sons, Leslie Jr., and Harry.

As a result of his activities, Field Museum's bird collections have been enriched by more than one thousand specimens of hawks and owls as well as many hundreds of other birds. These have been acquired by Mr. Wheeler's collectors and agents in almost every part of the world. Specimens are constantly arriving, and will continue to come for months from collectors in inaccessible regions where news of his untimely death has not yet reached. Just before his last illness he had practically completed for publication his first formal research, a taxonomic revision of a group of South American wood-owls, together with the description of a new species from a Chilean island.

Every day, "Les," as he was affectionately known to many, spent a large part of his time as Research Associate studying and working on the birds of prey that he had presented to Field Museum, from the point of view of both their taxonomic and biological importance as well as their far-reaching economic significance. He was called on to answer the many requests for information that normally come to Field Museum concerning this important and world-wide group of birds. As a result of this intimate study he was possessed of a wide and detailed knowledge of the plans and needs of Field Museum as a whole. His position was unique. As a member of the Scientific Staff as well as of the Board of Trustees he was highly regarded by his associates both for his scientific achievement and scholarship as well as for his charming and gentle character.

EXPEDITION WILL SEEK REPTILES IN ARIZONA

Despite great interest evinced in recent years in the study of North American reptiles and amphibians, much remains to be learned about these creatures. In the southern and western states especially, field studies and collecting are still an important museum activity. Studies of North American reptiles and amphibians by Field Museum have hitherto been largely restricted to Illinois and the Chicago region.

This year a definite project for studies will be conducted in the southwestern states by Messrs. Karl P. Schmidt, Curator of Reptiles, and Leon L. Walters, Staff Taxidermist. This will be aimed on the one hand toward the filling of conspicuous gaps in the Museum's exhibits, and on the other to the development of plans for specific scientific researches.

Messrs. Schmidt and Walters will leave Chicago April 1, for a field base at Tucson, Arizona. They will make a long stop at Yuma, where North American maximum desert conditions are readily accessible. Desert reptiles are of special interest for both exhibition and study, because of their peculiarities of coloration, locomotion, and behavior.

FOUR CHILDREN'S PROGRAMS OFFERED IN APRIL

There remain for presentation on Saturday mornings during April four more of the spring series of free motion picture programs for children, provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. Some of the films to be presented have talking and other sound effects. New projection equipment for sound films was recently installed in the James Simpson Theatre of the Museum. There will be two showings of the films on each program, one at 10 A.M., and one at 11. No tickets are required for admission. Following is a schedule of the programs:

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 Weaverbird and Its Neighbors, and The Eve of the Revolution, which includes: The Ride of Paul Revere, On Lexington Green, and By Concord Bridge.

April 24—Trooping the Color, The Great Raccoon Hunt, Alaskan Seals at Home.

Dr. George H. Sherwood Dead

News of the death on March 18 of Dr. George H. Sherwood, Honorary Director of the American Museum of Natural History, New York, was received with deep regret at Field Museum. He had many friends on the Staff of Field Museum, and was instrumental in promoting the cordial relations existing between this and the New York institution.

Dr. Sherwood was completing his thirty-sixth year with the American Museum at the time of his death, having joined its staff in 1901. He became Director in 1927, and retired from that position in 1933 because of ill health. He continued his association with the museum, however, as Honorary Director, and as Curator of its Department of Education. His notable career won admiration and respect in scientific circles throughout the country.

"PIECES OF EIGHT" IN CHINA

By C. MARTIN WILBUR
Curator of SinoLOGY

A surprising memento of early Sino-European trade is furnished by a small chalcedony snuff-bottle, engraved by a Chinese carver to represent a Spanish Carolus dollar dated 1774. This snuff-bottle is in the remarkable collection of 485 such bottles, made of a wide variety of materials and in extremely diverse artistic designs, received at Field Museum recently as part of the bequest of the late Mrs. George T. (Frances Gaylord) Smith, of Chicago.

A significant historical fact lay behind the choice of decorative motif selected by the carver of this bottle. Late in the fifteenth century hardy European explorers discovered new ocean routes to "the Indies," and were quickly followed by traders eager to exchange their silver for Chinese silks, porcelain, tea and other novelties. Most highly esteemed by the Chinese was the Spanish dollar—the "piece of eight" of pirate yarns—which for a hundred years, and long after it had ceased to circulate at home, commanded in China thirty per cent above its intrinsic value.

It is easy to understand how some Chinese craftsman hit upon the idea of copying one of these valuable coins on another western novelty, a snuff-bottle made to hold an American product, tobacco. As the illustration shows, his copying was sketchy. He did not understand the Roman letters, and copied them only roughly, just as illustrators for our popular magazines draw Chinese street scenes and write incorrectly the Chinese characters on shop-signs. Yet the date 1774, and the numeral III are clear. On a real Carolus dollar the inscription reads "CAROLUS. III. DEI. GRATIA. 1774."; while on the back is: "HISPAN. ET. IND. REX. M. SR. F. F." The arms are of Leon and Castile, quartered, between the Pillars of Hercules, with the enscrolled legend "PLUS. ULTRA."

More than a thousand years earlier than this the Chinese encountered western money through their silk and spice trade with Rome. Even within the last few years



Spanish Motif in Chinese Art

Front and back views of chalcedony snuff-bottle engraved with representations of obverse and reverse sides of a Spanish dollar dated 1774.

Roman coins have mysteriously appeared in China, after having lain hidden for centuries in some tomb or forgotten cache.

The Chinese are great numismatists. They have studied their own coins, which date back 2,500 years, with zeal and thoroughness. Yet foreign coins usually puzzled them. They found particularly strange the use of a ruler's portrait on a coin, because their own emperors did not indulge in this flattering practice. When Chinese numis-

METEORITE'S FALL RECORDED BY 15TH CENTURY ARTIST

By HENRY W. NICHOLS
Chief Curator, Department of Geology

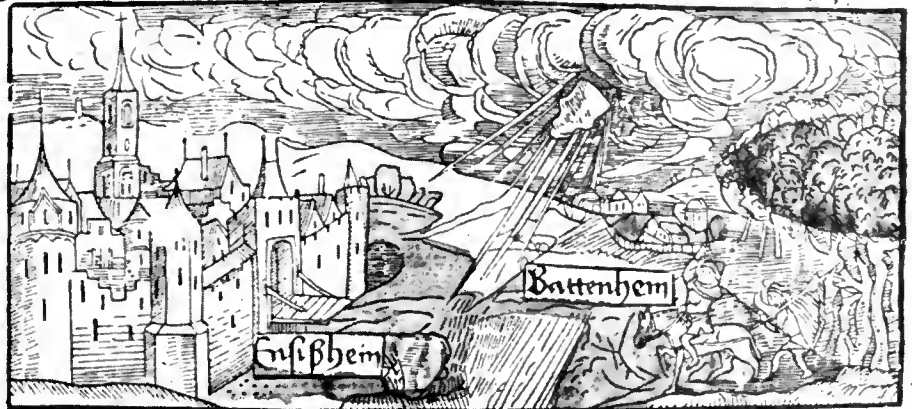
The oldest meteorite on record of which specimens were preserved by witnesses who actually saw its fall is one which dropped into the little village of Ensisheim, Alsace, on November 16, 1492 (just about a month after Columbus's discovery of America).

The "thunderstone," as the villagers called it, fell shortly before noon, "with a loud crash of thunder and a noise heard

architecture—Ensisheim, and its neighbor, Battenheim. The meteorite is seen breaking through a cloud above them, its path marked by accompanying rays of light. Its fall is being watched by startled villagers, who appear at the right.

There is a title in ancient German above the picture, and another below in Latin which is defective. The German title reads: *Von dem donnerstein gefallen im XCII jahr vor Ensisheim*—"From the thunder-

Von dem donnerstein gefallē im xciij. jar: vor Ensisheim



De fulgerra anni xciij.

*Was wundert mancher fremder gsch
Der merck vnd les auch dis berich*

The "Thunderstone" That Fell in 1492

Illustration from an old German book, presumably an eye-witness's impression of the fall of the Ensisheim meteorite in Alsace. This meteorite, of which fragments are exhibited at Field Museum, is the earliest one of which specimens were preserved by observers who saw it fall.

afar off," in a field at Ensisheim, according to old records. It made a hole five feet deep, from which the inhabitants excavated it. The weight of the stone was 260 pounds. Two small pieces were broken off, one for presentation to King Maximilian, and one for Duke Sigismund of Austria. The remainder of the meteorite, regarded as a miraculous object, was taken to the village church. Later it was removed to the village hall of Ensisheim, where it remains to this day.

Field Museum is fortunate in the possession of a few fragments of this meteorite which has such a unique history. These are exhibited in Hall 34, where is displayed the world's most comprehensive collection of meteorites. With the pieces of the Ensisheim meteorite there is now displayed a copy of a contemporaneous print picturing the fall. This quaint drawing, reproduced on this page, shows two villages of mediaeval

stone which fell in '92 (1492) before Ensisheim." The Latin title is *De fulgerra (fulgora?) anni XCII*—"Concerning the thunderbolt of the year '92." Below the picture at the right is a rhymed couplet in old German which may be freely translated:

"If you would seek wonderment,
Then observe this strange event."

Field Museum's meteorite collection includes also the largest stone meteorite ever seen to fall, which struck the earth near Paragould, Arkansas, on February 17, 1930. Altogether there are more than 700 specimens in the Museum, comprising more than two-thirds of all recorded falls. These embrace both stone and iron specimens, and their aggregate weight amounts to several tons. Fifty-two per cent were actually seen to fall; the others were identified as meteorites through peculiarities of structure and composition not found in anything of earthly origin.

R. A. Martin Appointed to Staff

Mr. Richard A. Martin has been appointed Curator of Near Eastern Archaeology on the staff of the Department of Anthropology. Mr. Martin, former Field Director of the Syrian Expedition of the Oriental Institute (University of Chicago), spent seven years in the Near East and contiguous regions, directing excavations and making studies of ancient civilizations. In 1934 he accompanied Mr. Henry Field, Curator of Physical Anthropology, on the Marshall Field Anthropological Expedition to the Near East. Since 1935 he has been engaged at Field Museum under special arrangements to work on material collected at Kish by the Field Museum-Oxford University Expedition. He is a graduate of the University of Chicago.

Museum Open 9 to 5 in April

From April 1 to 30 visiting hours at Field Museum will be from 9 A.M. to 5 P.M. instead of 4:30.

LECTURES FOR ADULTS CONTINUE IN APRIL

The spring course of free illustrated lectures for adults will continue on Saturday afternoons in April. The four remaining lectures include some of the most interesting in the series, and will be given by well-known scientists and explorers. All are illustrated with motion pictures or stereopticon slides. The lectures are given in the James Simpson Theatre of the Museum, and begin at 3 P.M. Following are the dates, subjects and speakers:

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
(with sound effects)

Dr. Arthur A. Allen, Cornell University

April 24—Plant Life in the Caribbean

Dr. William Seifriz, Philadelphia

No tickets are necessary for admission to these lectures. A section of the Theatre is reserved for Members of the Museum, each of whom is entitled to two reserved seats on request. Requests for these seats may be made by telephone or in writing to the Museum, in advance of the lecture, and seats will be held in the Member's name until 3 o'clock on the day of the lecture. Members may obtain seats in the reserved section also by presentation of their membership cards to the Theatre attendant before 3 o'clock on the lecture day, even though no advance reservation has been made. All reserved seats not claimed by 3 o'clock will be available to the general public.

It is regretted that unavoidable circumstances caused the disappointment of Members attending the lecture presented on March 13. Some came expecting to hear Dr. Paul Bartsch, of the Smithsonian Institution, lecture on "Exploring the Atlantic's Greatest Deep"; others expected to hear Lieutenant-Commander George O. Noville, U.S.N., lecture on "Fifteen Years of Aerial Exploration," as announced in the newspapers after Dr. Bartsch had been compelled to cancel his engagement because of an unexpected call to duties in connection with an expedition. On the morning of the lecture day the Museum was notified that Lieutenant-Commander Noville was in the hospital due to sudden illness. The Museum was forced therefore, without public announcement, to substitute Mr. H. Canfield Cook who gave his lecture "Amazing Finland."

A RARE FOSSIL PLANT

By B. E. DAHLGREN

Chief Curator, Department of Botany

A well preserved fossil cycad stem has recently been received by Field Museum, and is esteemed as a specimen of great botanical interest. In general shape it resembles either an old-fashioned straw beehive, or a barrel-cactus of moderate dimensions. Its surface is marked by triangular pits interrupted by rounded rosette-like areas with smaller concentric markings. About two feet in height and sixteen inches in diameter, the petrified cycad weighs nearly 500 pounds.

For lack of a better descriptive term, the specimen is called a fossil cycad or, more correctly, cycadeoid stem, but it represents much more of the original plant than the mere trunk. In fact, it consists of the entire above-ground part of the plant, minus only the leaves which extended in all direc-

tions but have been lost in the course of time or were shed before the process of fossilization set in. The triangular pits mark their points of attachment, and represent the somewhat eroded external surface of the armor of leaf-bases which is a fairly constant feature of living cycads.

The rosette-shaped areas represent flower buds surrounded by whorls of small bracts. The flowers of this ancient cycad thus grew among the leafbases directly from the stem, and at any place on the trunk instead of appearing only at the tip or summit of the stem as is the case in their extant relatives.

The structure of these flower buds has been the subject of thorough investigation by Professor G. R. Wieland of Yale, and on the basis of his findings and with his cooperation a model of a fossil cycad flower was prepared in the Museum some years ago. With this model at hand, and



Fossil Cycad Trunk

A rare specimen, recently acquired by the Museum, under inspection by Mr. Emil Sella of the Department of Botany. Visible on the exterior are remains of old leaf bases and well developed flower buds.

the fossil trunk, together with such information as exists of the leaves of this group of Mesozoic plants, it becomes possible to reconstruct the entire cycad as it must have appeared when it grew some 120,000,000 years ago during the lower Cretaceous period.

The Museum specimen was collected in 1893, and was long a part of the collection of Black Hills cycads at the University of Iowa. It was obtained in exchange through the interest of Mr. Fred C. Thompson and Dean G. F. Kay. The site which once yielded these fossils, and where others may still be buried, has since been set aside as Cycad National Monument.

SPECIAL NOTICE

Members of the Museum who have changed residences or plan to do so are urged to notify the Museum of their new addresses, so that FIELD MUSEUM NEWS and other communications may reach them promptly.

Members going away during the summer, who desire Museum matter sent to their temporary addresses, may have this service by notifying the Museum.

APRIL GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for April:

Thursday, April 1—General Tour; Friday—Races of Mankind.

Week beginning April 5: Monday—China and Tibet; Tuesday—Animal Life in the Chicago Area; Wednesday—Hall of Plant Life; Thursday—General Tour; Friday—Men of the Stone Age in the Old World.

Week beginning April 12: Monday—Crystals and Gems; Tuesday—Animals of Plains and Deserts; Wednesday—The Eskimos; Thursday—General Tour; Friday—Primitive Philippine Life.

Week beginning April 19: Monday—Fishes, Amphibians and Reptiles; Tuesday—Palma and Cereals; Wednesday—Story of Coal; Thursday—General Tour; Friday—Birds of the Chicago Area.

Week beginning April 26: Monday—Ancient Burials; Tuesday—Carl Akeley and His Work; Wednesday—Hall of Prehistoric Life; Thursday—General Tour; Friday—Fibers and Their Uses.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturers' services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Raymond K. Smith—2 clay objects; one a figurine, the other a small temple model, Mexico; from Museo Nacional—73 herbarium specimens, Costa Rica; from University of Texas—135 herbarium specimens, Texas and Mexico; from Rev. Brother Elias—168 herbarium specimens, Colombia; from B. A. Krukoff—a forked stem of *Astrocarium jauari*; from Irving W. Knobloch—53 herbarium specimens, Mexico; from Dr. Cesar Vargas C.—38 herbarium specimens, Peru; from Dan P. Mumbrue—18 specimens of concretions and concretionary coloring, Montana; from E. M. Cole—one specimen of annularia, Iowa; from G. W. Wharton—a fossil plant in shale, Oregon; from Edwin C. Galbreath—tibia and fibula of *Castoroidea* and dorsal vertebra of *Oriborine*, Illinois; from Paul O. McGrew—lower jaws of *Meshippus bairdi*, Nebraska; from William Callahan—a pleiosaur vertebra and 2 gizzard stones, Kansas; from Elmer L. Rembold—a geode, Kentucky; from Polish-American Chamber of Commerce—a white stork's nest and accessories, 5 white stork skins, and 8 magpies, Poland; from Leslie Wheeler—95 birds of prey and 22 other bird skins, Brazil, Belgian Congo, Chile, and Canada; from Howard A. Kelly, from Albert B. Lewis, and from M. Afzal Husain—valuable books for the Library.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from February 16 to March 15:

Associate Members

Seymour E. Clonick, Fred B. Hamm, George W. Overton, Leon Lipman Ramia, Charles H. True, Mrs. Flora VanArtsdale, Bernard W. Vinissky.

Annual Members

Mrs. Laura T. C. Alford, J. A. Anderson, W. C. Banes, James M. Barker, Frank A. Benson, Walter E. Bothof, Otto Frederick Carl, William Citron, Miss Mildred H. Croft, Mrs. C. H. Dean, William J. Dempsey, Mrs. R. W. Hawkins, Vincent E. Healy, Frank A. Lang, John H. Lindeman, Miss Madeline Magerstadt, Arthur H. Mayer, Edwin T. Maynard, Mrs. W. E. McCollum, Marion Everett McCreight, J. F. McManus, C. P. Meek, Mrs. Paul S. Moyer, John Romaszkievicz, Hugo H. Rosenfels, Milton C. Rosenow, Mrs. Dave Rothstein, Hiram A. Rowland, Samuel D. Ruby, Earle Schultz, Mrs. Otto Schulz, Mrs. Lawrence W. Scudder, John A. Sidney, Fred P. Siebel, Miss Alma May Stewart, Willard J. Stier, Dr. Austin H. Thurber, Cluade Towne, Carl W. VonHelmolt, Wendell Walker, Edgar C. Webster, Edward S. Weil.

Some of the flowers that bloom in spring on prairies and in woods of the Chicago region are represented by exhibits in the Hall of Plant Life (Hall 29).

Field Museum News

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MAY, 1937

No. 5

VILLAGE WEAVER-BIRDS OF AFRICA ARE SHOWN IN NEW HABITAT GROUP

BY RUDYERD BOULTON
Curator of Birds

Three habitat groups of African birds have been completed and installed in an alcove of the new foreign section of the Hall of Birds (Hall 20). They include village weaver-birds, birds of Mount Cameroon, and Kalahari Desert birds. Specimens for the first two are the gift of Mrs. Oscar Straus, of New York, sponsor of the Straus West African Expedition of Field Museum (1934); the third is composed of specimens collected and presented by Mr. Arthur S. Vernay, of New York and London. Mrs. Straus, who accompanied the expedition at the time the weaver-birds were collected, visited the Museum last month for an informal preview of the groups.

Due to construction work currently under way in Hall 20, it is necessary temporarily to restrict public view of the groups to Saturdays and Sundays.

Weavers, which constitute the largest and most varied bird family of Africa, rank among the best architects of the feathered world, and the village weaver-birds (*Ploceus cucullatus*) are among the most skillful nest builders of their family. Their globe-shaped nests are woven from strips of grass or palm leaves. "Woven" is not a loosely used term, but an accurate description of the method employed by the birds. Detailed studies of the nests of another weaver species have revealed that certain definite knots are used to tie the ends of the strips of material—they are not merely tucked in. A firmly woven vertical ring about six inches in diameter is first made by the birds to serve as a foundation. The hemispherical chamber for the eggs and young is then added on one side, and the down-turned spout or entrance is added on the other. Nests in various stages of construction are shown in the Museum group.

The village weaver-birds exemplify a highly gregarious mode of living coupled with a peculiar preference for association with conditions imposed by the existence

of socially organized human life. Rather than remain exposed to purely natural conditions involving greater dangers from predatory animals, they have chosen to build their colonies or "villages" of as many as a hundred nests in trees near the villages of human natives. This habit accounts for

of fluttering half upside down while it reaches through the "door" of the nest for its prey.

An economic problem to agriculture is presented by the weavers in Africa. During the dry or winter season, when they are in their dull plumage, weavers of certain species congregate in huge flocks and devastate rice and millet fields. Consequently, among some native tribes, small boys have been assigned, from time immemorial, to sit all day long, as living scarecrows, on scaffolds and platforms in the fields. Their efforts to frighten the weavers away from the crops are not highly effectual, however.

Weavers comprise about twelve per cent of all birds of Africa. Thus they compare in dominance over that continent with the sparrows and finches which in America form the largest family, with approximately seventeen per cent of the total bird population here. Although they superficially resemble each other, these two important families of birds have definite and constant characteristics that serve to distinguish them. Sparrows belong to the group of birds known as "nine-primaried"—that is, with nine flight feathers on the outer part of the wing. Weavers, on the other hand, are "ten-primaried," possessing an additional small feather. Reduction and simplification of this sort are generally considered to be evidence of evolutionary progression. Consequently, sparrows are placed at the top of the scale of birds for



Birds That Prefer Human Neighbors

Habitat group showing how village weaver-birds of Africa build their colonies of uniquely woven nests in proximity to native huts. Specimens for the group were collected by the Straus West African Expedition.

the name that has been applied to them. These birds occur over a wide area of western and central Africa. The Museum exhibit represents part of a colony near the village of Niamey, on the Niger, French West Africa.

Some other species of weavers that do not nest in colonies make long slender hanging entrances like rain spouts, as much as two feet long, and are thus better protected from predacious animals than the village birds. Prominent among their enemies is a species of West African hawk which has long slender legs, and has developed the habit

this and other reasons.

The village weaver-bird group was prepared by Staff Taxidermist John W. Moyer. The plant accessories, which include a reproduction of a "woman's-tongue tree," so-called because the wind rattles its seeds noisily in their dry pods all day long, were made under the supervision of Preparator Frank H. Letl. The painted background is the work of Staff Artist Charles A. Corwin.

The other new bird groups will be dealt with in future issues of FIELD MUSEUM NEWS.

Paleontological Expedition

Plans have been completed for the field party that will spend the summer collecting fossil vertebrates in Colorado to leave the Museum May 15. Work that yielded important results in 1932 and 1933 will be resumed. The party, consisting of Assistant

Curator Bryan Patterson and Assistant James H. Quinn, will be joined by Curator Elmer S. Riggs for part of the summer.

Radiographs made by a number of different species of radio-active minerals are exhibited in Hall 34 (Case 34).

Tusks Fourteen Feet Long

Prehistoric elephants had tusks as much as fourteen feet in length. The fossil bison of one species had a spread of horns reaching six feet. Modern animals of the better breeds are prized for their short horns and short tusks.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

Nov., Dec., Jan., Feb., Mar.	9 A.M. to 4:30 P.M.
April, September, October	9 A.M. to 5:00 P.M.
May, June, July, August	9 A.M. to 6:00 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

LAURA SHEDD SCHWEPPE

April 8, 1879—April 20, 1937

The sudden death, on April 20, of Mrs. Charles H. (Laura Shedd) Schweppe, well-known philanthropist, is a loss in which Field Museum shares with many other cultural and charitable institutions of Chicago.

For years Mrs. Schweppe had displayed an active and friendly interest in the Museum. Her generous gifts placed her name high on the list of this institution's Contributors. Most notable of these is the beautiful "Unity of Mankind" group by Malvina Hoffman, which occupies the center of Chauncey Keep Memorial Hall. This symbolical group of bronze statuary is composed of figures, in heroic size, of a white, a yellow, and a black man, supporting a globe representing the world. Several other sculptures in the Races of Mankind series by Miss Hoffman are likewise gifts from Mrs. Schweppe. She was the donor also of valuable material for the Museum's Chinese archaeological collection.

Mrs. Schweppe was the daughter of the late John G. Shedd. She was a Benefactor of the Aquarium which her father founded, and which bears his name. Her husband, Mr. Charles H. Schweppe, is a Trustee of the Aquarium, and she shared his interest in the administration of that institution. She was actively associated with the work of many other civic institutions, among them St. Luke's Hospital, the Home for Crippled Children, the Visiting Nurses' Association, the Art Institute, Chicago Historical Society, Chicago Symphony Orchestra, and the Alice Home Hospital in Lake Forest.

Fellowship to S. K. Roy

The Carnegie Corporation, New York, has awarded a fellowship to Mr. Sharat K. Roy, Curator of Geology at Field Museum. It provides funds for travel to eastern museums and universities for studies of geological and paleontological collections, and for consultations with specialists in Ordovician stratigraphy. The data Mr. Roy obtains will be used in a forthcoming monograph on the geology and paleontology of southeastern Baffin Land, based upon work in which he was engaged as a member of the Second Rawson-Macmillan Expedition to the Subarctic (1927-28).

Summer Visiting Hours Begin

Beginning May 1, summer visiting hours, 9 A.M. to 6 P.M., go into effect. The Museum will be open during these hours up to and including September 6 (Labor Day).

HOATZINS COLLECTED

Mr. Emmet R. Blake, Assistant Curator of Birds, reports splendid progress on his expedition to British Guiana. Practically all material for a habitat group of hoatzins has been collected and soon will be shipped to Chicago. This group will be installed with other ecological habitat groups in the new foreign bird section of Hall 20. Material for a smaller group showing the extraordinary communal nesting habits of anis, the strange black cuckoos of the New World, has also been acquired.

A much needed skeleton of the capybara, largest living rodent, has been collected, as well as five species of monkeys for exhibition in Hall 15. Already, in only one month's

field work, study specimens of 259 birds, 141 fish, 53 mammals, and 54 reptiles have been obtained.

After completing work in British Guiana early in June, Mr. Blake will proceed to Matto Grosso in Brazil where he will collect specimens and accessories for a group of rheas, the so-called South American ostriches.

WHALE SHARK

BY ALFRED C. WEED
Curator of Fishes

Field Museum has recently received as a gift from Mr. Spencer W. Stewart and Mr. Robert J. Sykes, of New York, the skin of a whale shark taken at Acapulco, Mexico. The whale shark 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. The basking shark and the great white shark are the only known fishes that approach it in size.

Individual whale sharks reach a length of more than forty feet and a weight of several tons. Specimens have been taken in many parts of the warmer seas. At least seven have been caught in the Florida Straits. Many have been seen in the shallow waters around the Seychelles Islands, northeast of Madagascar. Another breeding ground and center of distribution seems to lie in the Sulu Sea, between Borneo and the Philippine Islands. Quite recently it has been found that this immense fish is fairly common along the west coast of Mexico. From the considerable number that have been seen on the Florida coast, and from accounts of fishermen, it seems likely that there is also a breeding ground somewhere in the southern part of the Gulf of Mexico.

With its bold pattern of alternating white lines and rows of white spots, this is one of the most striking of sharks in its color pattern. Some of the sharks of the western Pacific may be more beautiful with their variegated colors, but none of them approach the whale shark in size.

The skin is being prepared for mounting, and will be placed on exhibition in Hall O, a new marine hall now under construction.

Spruce and Alder Specimens Needed

The collection of American trees in Charles F. Millsbaugh Hall (Hall 26), planned to represent all the most important timbers of North America, has long been in a state approaching completion. The addition during the past month of Idaho white pine and sycamore reduces the number of gaps in this educational display to two. Western alder and Sitka spruce still remain to be obtained.

A New Genus of Fossil Mammals

A critical study by Museum paleontologists of the strange genus of fossil mammals, *Titanoides*, has resulted in the establishment of a new genus, *Barylambda*, of which a large skeleton recently installed in Ernest R. Graham Hall (Hall 38) becomes the type. A photograph and description appeared in FIELD MUSEUM NEWS, February, 1936.

Flying Reptiles

A plaque in Case No. 50 in Ernest R. Graham Hall (Hall 38) shows an Old World flying reptile, life size. Beside it is a drawing of a much larger winged reptile, without teeth, from North America. The relationship is evident at a glance. It is an interesting study to learn how these flyers lost their teeth as they advanced in wing-spread.

A MODERN GOAT TRACED TO ANCIENT KISH

The discovery that domesticated goats, presumed to be entirely unknown until recent times, actually were familiar approximately 5,000 years ago to inhabitants of Mesopotamia, has been made through the joint researches of archaeologists and zoologists. Material recovered from the site of the ancient city of Kish by the Field Museum-Oxford University Joint Expedition to Mesopotamia played a vital part in the pursuit of these researches, which are reported upon in a paper by Dr. Wolfgang Amschler, a professor at the College of Agriculture, Vienna. A summary of the paper by Dr. Amschler, who is noted as a specialist in the identification of domesticated animal bones, follows:

BY WOLFGANG AMSCHLER

The excavation of the ancient royal cemetery at Ur of the Chaldees, under the direction of Sir Leonard Woolley on behalf of the British Museum and the University of Pennsylvania, revealed a striking allegorical sculpture of the afterworld—the so-called ram, now famous throughout the archaeological world, found in the grave of Queen Shubad. The queen had been interred with her entire household—ministers and court ladies, as well as with great riches.

This superb sculpture is of a "ram" reared upon its hind legs, the forelegs bound by a costly chain to a little golden tree. Woolley has already indicated that in this motif there is a forerunner of the portrayal of the Biblical "ram caught in a thicket by his horns" (Genesis xxii, 13). From the classical form of the horns the animal represented was considered to be a mythical creature, the invention of some Sumerian craftsman's imagination. Careful investigation, however, indicates that the animal represented is a goat and not a ram. In the sculpture there is a pronounced beard, and sheep never possess beards. Furthermore, the horns are directed diagonally upward and are sharply twisted. This is in direct contrast to sheep's horns, which have flat or rounded frontal portions, with an outward to downward directed spiral axis.

Even if the sculpture could be proved conclusively to be that of a goat belonging to the species *Capra prisca*, one would be unable to cite for comparison any even vaguely similar variants from the many forms of domesticated or wild goats hitherto known. This apparent inconsistency caused the writer to search for similar forms in the cultures of Mesopotamia, Egypt and the Indus Valley.

In the standard of Ur this same *Capra* is represented both in a naturalistic pose, and as forming part of a tribute which included an ox and two sheep. The repeated portrayal of one type of goat suggested that it might well represent a species of *Capra* which lived in ancient Mesopotamia.

A search among representations of large animals from ancient Egypt revealed this same goat in the period about 2000 B.C. Further investigations revealed that it was kept in herds as late as the seventeenth century A.D. on the Bodensee and in Vorarlberg.

The work of Professor Magliano of Messina brought a further surprise. In 1930 he published a paper upon a goat, with curious spiral-shaped horns, occurring at Girgenti in Sicily. Magliano named it *Capra girgentana*. We see in this description the same type of goat, still living in herds in Sicily, that was shown in the sculpture found in Queen Shubad's grave.

In 1935 the question of identification of the Kish fauna, at Field Museum, led to

studies by the writer. Among the bones were thirteen fragments which when joined together formed a horn 17 centimeters in length. This horn belonged to a goat, *Capra girgentana*. Furthermore, when the Kish horn is compared to that portrayed in the Ur sculpture there remains no doubt regarding the identity of the two animals. Thus we have actual proof of *Capra girgentana* living between 3000-2530 B.C. at Kish and reproduced in sculpture by a contemporaneous craftsman at Ur of the Chaldees. Woolley's "ram caught in a thicket" was not a flight of fancy on the part of a Sumerian artist, but an actual representation of a then living *Capra girgentana*.

METEORITE OF RARE TYPE PRESENTED TO MUSEUM

BY HENRY W. NICHOLS
Chief Curator, Department of Geology

A highly valuable meteorite specimen, of special interest both because it represents a rare type and because it fell closer to Chicago than any other known meteorite, has been received at Field Museum from the estate of the late William Rumely, of Chicago and LaPorte, Indiana. Mr. Richard L. Rumely,



Iron Mass from the Sky

Chief Curator Henry W. Nichols (left) examining meteorite of rare type, presented to the Museum by the estate of the late William Rumely, represented by Richard L. Rumely (right), son of the original owner.

of Chicago, son of the original owner, acted on behalf of the estate in presenting it.

A preliminary study of the specimen indicates that the meteorite is one of the rare group known as hexahedrites. This type has a unique composition and structural form, found in only about one out of twelve iron meteorites. The specimen received weighs thirty-two pounds, and is about the size of an average man's head. It fell near LaPorte, where it was found and removed from the ground by a farmer living in the vicinity about the year 1900. The finder brought it to the farmers' supply store at that time operated in LaPorte by William Rumely. Mr. Rumely recognized the interest and value of the specimen, and kept it among his most cherished possessions.

The time of the meteorite's fall is unknown, but a guess, based on the excellent state of preservation, would indicate that it could not have been in the ground more than ten or fifteen years before it was discovered, and it is possible that it was found only a short time after it fell.

As the Museum's collection of iron meteorites is temporarily withdrawn from exhibition while undergoing rearrangement and reinstallation, it will be a month or more before this new specimen can be exhibited.

FIELD MUSEUM "DRAMAS" TO GO ON RADIO

The work of Field Museum—its expeditions, its research, the preparation of its great exhibits—will be presented in dramatized form in a series of thirteen radio programs beginning some time in May. These programs will be broadcast from coast to coast over the Mutual Broadcasting Company's network, with station WGN as the Chicago outlet. At the time this issue of FIELD MUSEUM NEWS goes to press, definite details as to what evening each week, and what hour, the Museum programs will be given are not available. They will be announced, however, on the radio pages of the daily newspapers.

The broadcasts will be presented jointly by the Museum and the University Broadcasting Council, the latter an organization noted for some of the most successful series of educational programs on the air. The Museum programs will be presented in dramatic fashion, similar to that which has made the well-known "March of Time" broadcasts so interesting and popular. The listener will be taken into the field with expeditions, to trail rare animals in jungles, mountains, and deserts, and to the sites of ancient civilizations to dig for archaeological material. He will accompany other expeditions to excavate the fossils of prehistoric animals, or to seek rare plants along the remote headwaters of tropical rivers.

These dramatizations have been planned to give the public a broader view and more intimate knowledge of the aims and methods of the Museum, and an insight into the many problems and difficulties encountered in the building up of important exhibits.

CELLULOSE-ACETATE TAXIDERMISTRY APPLIED ON OSTRICH

A new African ostrich exhibit has been installed in the systematic series of birds in Hall 21. It is another example of the new method of preparation, invented and developed in the Museum by Staff Taxidermist Leon L. Walters, which has in the last few years been applied to an increasing number and variety of zoological specimens.

Unlike the reptiles, and the hippopotamus and white rhinoceros exhibits in which this method has been used in the past to reproduce the entire original specimen, the ostrich exhibit is only "semi-synthetic." The natural feathers, plumes, and skin of the original bird are used, in combination with skillfully made reproductions in cellulose-acetate of the head, neck, legs and feet. The lifelike reproduced parts are made by the careful application of layer upon layer of cellulose material, blended with the proper pigments. This is done in plaster molds of the corresponding original parts of the bird, thus assuring complete fidelity to details of form. After the removal of the plaster, and assembly of the reproduced parts with the salvaged portions of the original ostrich, the resulting final exhibit is found to be more lifelike and accurate than could be obtained from merely mounting the complete actual bird. The original specimen, captured in Somaliland, was for some years a resident of the Lincoln Park Zoo, which presented it to the Museum upon its death. Mr. Walters was aided in preparation of the ostrich by Assistant Taxidermist Edgar G. Laybourne.

During 1936 more than 62,000 sheets of plants representing many regions of the earth were added to the Museum Herbarium.

FOSSIL CONES AND BRANCHES OF ARAUCARIAN TREES

BY ELMER S. RIGGS
Curator of Paleontology

The evergreen cone-bearing tree, known in forestry as the *Araucaria*, is more commonly designated as the Brazilian or Chilean pine. A picture of the Chilean species appeared in *FIELD MUSEUM NEWS*, May, 1936. A related Australian species has been introduced to various sections of North America. Fossil cones and branches of trees related to *Araucaria* have been found in various parts of North and South America. A few years ago a fossil forest, similar in importance to that of Arizona, was discovered in the Province of Santa Cruz, Argentina. It is designated as the Cerro Cuadrado Fossil Forest, named after a volcanic crater and landmark of that region. This locality was visited by the Marshall Field Paleontological Expedition in 1924, and a large collection of remarkably fine agatized cones, branches and trunks was brought to Field Museum. The collection forms the basis of a publication issued in 1935 by Dr. G. R. Wieland, of Yale.

From this Argentine fossil forest, Dr. Wieland has reported two distinct kinds of evergreen conifers. These species are based upon numerous beautifully agatized fossil cones which are so well preserved as to show in detail their seed-bearing structures. They are also known from twigs which show by leaf-scars the nature and arrangement of the foliage; likewise from many sections of branches and larger trunks showing annular rings and the grain of the wood.

The larger species of this conifer has been named *Proaraucaria mirabilis* and is designated as an ancestor of both the modern *Araucaria* and the pines. The species was first reported by Señor Carlos Spegazzini of Argentina, in 1924, and its study was further elaborated by Dr. Wieland in his publication.

A much smaller cone-bearing tree was named *Pararaucaria* and studied and illustrated by Dr. Wieland in the same publication. This species is regarded by him as another branch of the family and more distantly related to the modern species.

An elaborate series of these fossil cones, collected by the Marshall Field Paleontological Expedition to Argentina, has recently been placed on exhibition in Ernest R. Graham Hall (Hall 38) of Field Museum. Many beautiful sectioned and polished cones, both male and female, are included in this exhibit. Beside them, for comparison, are exhibited cones of the modern Australian *Araucaria bidwilli* with branches and foliage of the same.

The specimens were found eroded from a bed of volcanic ash, near two volcanic craters, which poured out sheets of lava during the Oligocene period. It is quite probable that volcanic ash thrown out about the same time covered and preserved the trees and cones of the fossil forest.

PORCELAIN REVEALS TECHNIQUE

The technique of Chinese porcelain manufacture is accidentally revealed in a globular blue censer now in Field Museum. It was made probably in the sixteenth century, and was presented, as a supplication offering for sons, to a temple in Peking. The inscribed petition of the would-be-father, a man named Fang, is of interest. A translation appears on the label accompanying the censer, which is on exhibition in Case 31 of George T. and Frances Gaylord Smith Hall (Hall 24).

Five holes, cut through the sides, disclose the real body of the vessel, and also illustrate

the steps in making it. The bowl was first shaped, dried, and then painted. Next the glaze was laid on, but before baking the five holes were cut. Finally it was fired at a high temperature which fixed the glaze and incidentally oxidized the edges of the holes to a red color. If the cutting had been done after the baking these edges would have been white. The holes were cut as sockets for the legs and handles, which are now missing.

—C.M.W.

KASHMIRI IN MEDITATION

On the southern slopes of the Himalayas lies the native Indian state of Kashmir. It occupies a number of successive steps or valleys, the largest and richest of which is the famous "Vale of Cashmir," approximately eighty miles long and twenty-five miles wide. With an average elevation of 6,000 feet, it is surrounded by lofty mountain ranges, and is separated from the plains of northern India by rocky barriers fifty to seventy-five miles in width.

Despite this isolated geographical location, its inhabitants, the Kashmiris, are a mixed



Photograph copyright Field Museum of Natural History

Mystic

Bronze sculpture of a Kashmiri in meditation, representing one of India's many racial groups. On exhibition in Chauncey Keep Memorial Hall.

people. They are typical representatives of the Indo-Aryan group, but shows an undercurrent of a more primitive dialect. In religion most of the Kashmiris are Mohammedans, but about one-quarter are Hindus. The majority of the latter are Brahmins, and it is a common sight to see a holy man sitting under a tree surrounded by his disciples, or sunk in deep meditation in the attitude of prayer. Such a one was chosen by Miss Malvina Hoffman to represent these people in the Races of Mankind sculptures in Chauncey Keep Memorial Hall (Hall 3).

MAY GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for May:

Week beginning May 3: Monday—Indians of the Chicago Area; Tuesday—Animals of Economic Importance; Wednesday—Primitive Philippine Life; Thursday—General Tour; Friday—Trees of the Chicago Area.

Week beginning May 10: Monday—Egyptian Exhibits; Tuesday—Bird Habitat Groups; Wednesday—Moon, Meteorites, Minerals; Thursday—General Tour; Friday—The Cave Peoples.

Week beginning May 17: Monday—Primitive African Exhibits; Tuesday—Plants of Economic Value; Wednesday—Hall of Fossil Plants and Animals; Thursday—General Tour; Friday—Game Animals.

Week beginning May 24: Monday—Skeletons, Past and Present; Tuesday—Indians of Plains and Deserts; Wednesday—Modern Man; Thursday—General Tour; Friday—Unusual Plants.

Monday, May 31—Memorial Day holiday, no tour.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in *FIELD MUSEUM NEWS*. Guide-lecturer's services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Harold S. Gladwin—29 pieces of pottery and 50 potsherds, Arizona; from Miss Caroline M. Wicker and Mrs. Frances Rugman—3 ethnological specimens, Sudan; from Dr. E. E. Sherff—296 herbarium specimens; from Professor J. Douglas Hood—28 herbarium specimens, Peru; from R. H. Stewart—a specimen of lepidodendron, West Virginia; from Estate of William N. Rumely—an iron meteorite, Indiana; from Alfred A. Look—a fossil *Titanoides* skull, Colorado; from Lincoln Park Zoo—an adult chimpanzee; from P. E. P. Deromayaga—9 snakes, Ceylon; from John G. Shedd Aquarium—8 fish specimens and 15 snake eels, Africa, Mexico, and Florida; from Chicago Zoological Society—7 birds, a lizard, 2 snakes, a small panda, a kangaroo, and a hyrax; from Howard K. Kelley, from Dr. E. E. Sherff, and from J. Eric Thompson—valuable books for the library.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from March 16 to April 15:

Associate Members

Rev. Edward S. Ames, Dr. Fred Bischoff, James A. Gamble.

Annual Members

Leon J. Caine, Edward C. Cronwall, Miss Hilda G. Davis, Peter Diem, Mrs. Fred B. Edell, Mrs. Anne Forester, Mrs. Rushton L. Fordey, Dr. E. M. K. Geiling, Mrs. Ida M. Headley, Arnold Horween, Charles W. Jones, Mrs. Rose H. Keller, Edward L. Kunze, Miss Jennie Lintuman, Alfred W. Mansfield, John A. Massen, W. Edward Maurer, Frederick Mayer, Mrs. E. Eugene Neff, Hoogner Nelson, Ludwig Plate, Mrs. James E. Poole, Jerome B. Rosenthal, Max Rosner, Julius Schwill, Burton F. Secord, Isaac Shapiro, W. D. Steele, Mrs. Etta D. VanNlissingen, William Wager, W. S. Weber.

Distinguished Visitors

Four noted European scientists were visitors at Field Museum last month. They are 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, and Dr. Dorothy A. E. Garrod, research fellow of Newnham College, Cambridge, England. Dr. Garrod assisted the Museum some years ago in planning the Gibraltar Neanderthal group in the Hall of the Stone Age of the Old World (Hall C).

Field Museum News

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No. 6

KLIPSPRINGER HABITAT GROUP ADDED TO AKELEY HALL

By COLIN CAMPBELL SANBORN
Curator of Mammals

A group of klipspringers, representing one of the smallest and most interesting species of all African antelopes, was installed late in May in Carl E. Akeley Memorial Hall (Hall 22).

Klipspringers are found in Africa from Cape Colony northwest to Angola, and northeast to Somaliland and Ethiopia, wherever there is rocky or mountainous country. Their range includes both the low regions, and the highlands up to altitudes of about 9,000 feet.

These antelopes, which stand less than two feet at the shoulder, have short pointed faces. For so small an animal their ears are large. In Schillings' klipspringer, the form shown in the group, the female has horns, but in other closely related forms, the females are hornless. In the males the horns reach lengths up to about six and one-quarter inches.

The very thick coats of klipspringers are composed of hair unlike that found in any other African antelope. The hairs are coarse and bristly, and have pithy centers, very much like those of North American pronghorn. They are loosely fastened in the skin, and drop out easily. When a klipspringer is shot, hairs fly out like a bird's feathers. For this reason it is very hard to handle their skins and preserve them in good condition. The thick coat is a protection to the animal in case of a fall among the rocks.

Klipspringers seldom fall, however, because they are so well adapted to their life in rough and rocky places by their narrow, cylindrical, and cup-shaped hoofs. They carry themselves on the tips of these hoofs and are said to be more nimble in rocky country than on soft or sandy ground.

When disturbed in their feeding, or while resting in the shade they seek during the hottest part of the day, they always run uphill. They can be stopped by a sharp whistle and often, on reaching higher ground, they turn to look at their pursuer. The slightest projection on the face of a cliff serves as a foothold for them. They are equally sure-footed in descending, and, when cornered by dogs and men, are known to have successfully jumped downward thirty feet from one ledge to another. Because of their agility they are often called the "chamois of Africa." The name klipspringer was given to them by the Dutch who first discovered them, but they are also called cliff-springers and rock-jumpers.

They are preyed upon by the leopard, caracal, and the larger birds of prey. Their

principal food is grass, and their flesh makes excellent meat. Therefore they are hunted excessively in many places. Their hair is in demand for stuffing saddles, which is another reason they are sought. The forms living in very dry country are supposed to drink seldom, getting their moisture from food plants.

Klipspringers are usually found in pairs, but often six or eight may be attracted to the same feeding ground. Their call, when disturbed, is a shrill whistle.

The range of Schillings' klipspringer is Kenya Colony. It is named after C. G. Schillings, the pioneer flashlight photographer in Africa. The specimens were collected by Carl E. Akeley during the Field Museum

BY RADIO WITH EXPEDITIONS OF FIELD MUSEUM

"From the Ends of the Earth," a series of thirteen radio programs presenting the work of Field Museum expeditions in dramatized form, began in May, and will continue through June, July, and the first two weeks of August. These unique broadcasts are presented each Wednesday evening at 9 o'clock Chicago daylight saving time, the local outlet being station WGN. The programs are carried also from coast to coast by stations associated with the Mutual Broadcasting System network, at the corresponding hour in other time belts.

The first program was given on May 19, with the story of the hunt for the rare Marco Polo sheep (*Ovis poli*) by the James Simpson-Roosevelts Asiatic Expedition. In addition to the dramatization of the expedition's exploits high in the remote Pamir Mountains of Asia, a brief talk was given by Colonel Theodore Roosevelt, who, with his brother Kermit, led the party which obtained the specimens now exhibited in the Museum's habitat group of Marco Polo sheep. The second broadcast, on May 26, was a re-enactment of excavations and archaeological discoveries on the Lowry ruin. This is the prehistoric Indian site in southwestern Colorado opened by an expedition led by Dr. Paul S. Martin, Chief Curator of the Department of Anthropology.

Following is a schedule of the broadcasts to be given during June (announced subject to change):

June 2—With the Rawson-Mac-Millan Expedition of Field Museum to Labrador and Baffin Land

June 9—Digging Up an Ancient Civilization with the Field Museum-Oxford University Joint Expedition to Kish (Iraq)

June 16—Collecting Fossils of Prehistoric Animals

June 23—Collecting Animals for the African Water-hole Group (Harold White-John Coats Abyssinian Expedition of Field Museum)

June 30—Seeking Reptiles with the Cornelius Crane Pacific Expedition of Field Museum

These broadcasts, a distinct innovation in this institution's activities, are presented by Field Museum in conjunction with the University Broadcasting Council.

Museum Botanist in Paris

Mr. J. Francis Macbride, Associate Curator of the Herbarium, who has been engaged on a botanical project in Europe since 1929, has left Geneva temporarily to work upon type specimens in the Muséum d'Histoire Naturelle in Paris. He will resume activities at Geneva institutions later.



Nimble Rock-jumpers

The klipspringers—tiny antelopes of Africa, as shown in a new habitat group installed in Carl E. Akeley Memorial Hall. Less than two feet tall, these little animals make downward leaps of as much as thirty feet from ledge to ledge.

African Expedition of 1905-06, and the group was prepared for exhibition by Staff Taxidermist Leon L. Pray.

Transparent Coal

Specimens of an impure coal, cut so thin that they are translucent, have been mounted as a transparency in a window near the coal exhibit in Hall 36. They illustrate strikingly the fact that when a person burns coal he is really burning wood, for these films of coal are seen to be composed of massed fragments of wood and vegetation from Carboniferous Period forests.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

CLIFFORD C. GREGG, *Director of the Museum*.... Editor

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Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

Bequests to Field Museum of Natural History may be in securities, money, books or collections. They may, if desired, take the form of a memorial to a person or cause, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

CLIFFORD C. GREGG ELECTED DIRECTOR OF THE MUSEUM

At a meeting of the Board of Trustees of Field Museum, held May 17, Mr. Clifford C. Gregg was elected Director of the Museum, effective from that date. Simultaneously, Mr. Gregg was elected Secretary of the Museum.

The directorship and secretaryship had been vacant since the death, on January 28, of Mr. Stephen C. Simms, who had held the office since 1928. In the interim, Mr. Gregg has been in charge of the administration of the Museum under a temporary appointment as Acting Director.

Mr. Gregg, 42 years old, is the youngest man ever to be charged with the responsibility of administering the diversified and widespread operations of Field Museum, which ranks among the four most important of all the world's scientific museums. He is the fourth Director the Museum has had since it was founded in 1893, his predecessors, besides the late Mr. Simms, having been the late David C. Davies, and the late Frederick J. V. Skiff, who was the first Director. A member of the Staff since 1926, Mr. Gregg served as Assistant to the Director under both Mr. Simms and Mr. Davies.

Prior to coming to the Museum, Mr. Gregg was engaged in business, a training which qualifies him for the executive and administrative position he has now assumed. The difficulties of the Museum directorship, it was pointed out by President Stanley Field in announcing the Trustees' choice, are increased at this time by the necessity of holding expenses down because of declining income. The revenues of Field Museum, like those of practically all other endowed institutions, have suffered seriously in the past few years due to reduced rates of return from endowment fund investments, and also from a reduction in the amount received from taxes levied for the benefit of museums.

Mr. Gregg was born in Cincinnati. He is a graduate of the University of Cincinnati, and engaged in post-graduate studies at Northwestern University. During the world war Mr. Gregg won a commission as an infantry lieutenant in the United States Army, and has since retained his connection with the Army Reserve Corps, in which he now ranks as a major. He has been prominent in community activities of Park Ridge, Illinois, where he resides with his family. He has taken an active part also in affairs of the American Legion, and in the local direction of the Boy Scouts of America.

EXPEDITION TO COLLECT SEALS AMONG PRIBILOF ISLANDS

An expedition to the Pribilof Islands in the Bering Sea, off the coast of Alaska, to collect fur seals for a projected habitat group, will leave early in June. It is planned to collect more than thirty specimens of both sexes and of various ages. The group, illustrating the "home life" of the animals, will reproduce a rookery or breeding ground,

and will be installed with a scenic background in the Hall of Marine Mammals (Hall N).

The expedition leader is Staff Taxidermist C. J. Albrecht, who worked in the same region a number of years ago. He will spend the greater part of the summer in the islands, living among the native Aleut inhabitants.

Permits to collect the seals have been granted by the United States Department of Interior, and through the cooperation of the Bureau of Fisheries of that department the museum expedition will sail from Seattle aboard the government survey vessel *Penquin*.

DR. STEPHEN LANGDON DEAD

Dr. Stephen Langdon, director of the Field Museum-Oxford University Joint Expedition to Mesopotamia, died May 20 at his home in Oxford, England.

Dr. Langdon, who was born in Monroe, Michigan, was a well-known archaeologist. For many years he was professor of Assyriology at Oxford University. He was 61 years old at the time of his death.

He personally supervised the excavations at Kish during two seasons of work of the Field-Oxford Expedition, which was in operation from 1923 to 1932. During the rest of the time he guided its progress through field directors who were in constant communication with him. He devoted much time to research upon the collections obtained, and was the author of numerous important books. His passing will be felt as a severe blow by scholars all over the world.

Botanist Joins Staff

Dr. Julian A. Steyermark, formerly of St. Louis, has been appointed to the Museum staff as Assistant Curator of the Herbarium. He entered upon his duties last month. Dr. Steyermark received his doctorate in botany from Washington University, St. Louis, Missouri. He has engaged in studies at the Missouri Botanical Garden, and the Gray Herbarium of Harvard University. He is a joint author of *Flora of Missouri*, of a monograph of the genus *Grindelia*, and of other important botanical works.

Annual Report Published

The Annual Report of the Director of Field Museum to the Board of Trustees was published last month. A book of 147 pages, with fourteen photogravure plates, it is the last report of the late Stephen C. Simms, former Director, who died on January 28, a short time after he had prepared it. It contains detailed accounts of all the activities of the Museum during 1936. Copies will be distributed to Members of the Museum at an early date.

Horns for Medicine

A principal occupation of an African medicine-man is the making of concoctions which are supposed to possess magical, protective, and curative powers. Among the Ovimbundu of Angola the substances used include human bone finely powdered, together with animal fat and charcoal. Such ingredients are stuffed into a horn small enough to be worn around the neck of a patient. Sometimes a large horn may be placed upright in the ground near a native encampment in order to keep away thieves and wild animals.

A habitat group illustrating the bird life of Fox Lake, Illinois, in summer, is on exhibition in Hall 20.



Clifford C. Gregg

OUR GREEN WORLD

By B. E. DAHLGREN

Chief Curator, Department of Botany

In the humid tropics, where seasons may be said not to exist, the world appears always green. The inhabitants take the verdure for granted and often are bored by its interminable prevalence.

In our northern latitude of contrasting seasons, we are thrilled each spring by the appearance of millions of new leaves. But even here, after a few weeks, when the foliage has attained its full summer color, we think of the verdure, if at all, simply as the natural and commonplace characteristic of plants in general—which it is.

The green of plants, however, may truly be called the most significant and fundamental single fact of natural history, a *sine qua non* for the existence of all life on this planet. Without it, the utilization of the radiant energy of the sun would be quite impossible to living organisms as now constituted, and life in the sea as on land would perish speedily. The entire animal creation, lacking ability to sustain itself on inorganic matter, is dependent on plants for food in the form of organic compounds. These organic compounds can be produced by the plants themselves only by virtue of the presence of the green coloring matter in the plant cells. The process does not take place in plants like the fungi, or in those parts of green plants which are devoid of the essential pigment. In the sea, with its teeming animal life, myriads of microscopic plant organisms constitute the ultimate and indispensable food supply. There are even a few animals which have minute green plants enclosed within their tissues. On land the dependence of animals on the plant world for food is too well-known and obvious to need comment, other than that the animals which live on prey or carrion and may seem to form an exception, are merely a step farther removed from the source of supply.

Water with mineral salts in solution, and air, are the elements from which the plant produces its substance. The "factories" in which the process is carried on are the green cells, especially those of the leaf, which is essentially an adaptation of the plant body to its food manufacturing function. No factory can work without expenditure or conversion of energy. That employed by the plant is the radiant energy of sunlight. The energy transformer is the green pigment called chlorophyll. This in itself is a complex substance related to hematin, the red coloring matter of the blood of animals, from which it differs chiefly in containing magnesium instead of iron.

The process which takes place in the green leaf under the influence of sunlight is called photosynthesis. In this the carbon dioxide of the air and water are combined and built up in a few steps into a form of simple sugar which may be converted into starch or transported as sugar in solution to various parts of the plant for use or for storage in the form of starch until needed. In terms of energy, that portion of the sunlight which is employed is converted into chemical potential that may be released by breaking down the organic compounds produced. Hence this is the source of energy not only of all animal and plant life, but also the main source of power of our whole industrial world. The motive power of factories, railroads, steamships and motor-cars, as well as our electric light and heat, are almost all obtained by releasing now from coal and petroleum the energy built up by the green coloring matter of the plants of past eras.

A long list of chemists have devoted themselves to the study of the chemical changes involved in photosynthesis. Great progress has recently been made in this direction. Dr. Paul W. K. Rothmund, of Antioch College, reports having reached the half-way mark toward the synthesis of the most important pigment in the world, chlorophyll, with its relative hematin.

HAPALOPS, THE "GENTLE-FACED" FOSSIL GROUND SLOTH

By ELMER S. RIGGS

Curator of Paleontology

A skeleton of the ground sloth *Hapalops* recently was added to the exhibits in Ernest R. Graham Hall (Hall 38). This is one of the smaller of the many kinds of sloths which lived in South America in Miocene time, some ten million years ago. It was an animal about as large as the common black bear of North America, but had a very much smaller head. The amiable-sounding name *Hapalops* comes from the Greek and means "gentle face."

This skeleton was found on one of the tide-flats of the Atlantic coast in southern Argentina. There the sea is encroaching upon the pampa and cutting away the land which stands as a bold sea-wall two hundred or more feet in height. Ledges of soft sand-



Hapalops Passes Inspection

Curator Elmer S. Riggs making final check on installation of addition to prehistoric mammal collection before exhibition case is glazed and made available to public.

stone laid thus bare by erosion yield many specimens of fossil mammals of which this is a good example.

Hapalops, like all the sloths of its time, was a herbivorous animal. Its teeth are simple cylinders which, lacking the enamel coat of higher animals, wore away into cup-like shapes at the crown. The fore and hind feet each bear five toes, four of which are armed with claws. The fore legs are much longer than the hind ones, and were capable of free movement like those of the apes. With them the animal was able to climb among low trees, pull down branches to feed upon the leaves or fruits, or dig in the ground for roots and tubers.

The specimen was collected by the Marshall Field Paleontological Expedition to Argentina, and has been prepared and mounted by Assistant Phil C. Orr.

ARCHAEOLOGICAL EXPEDITION TO THE SOUTHWEST

Leaving Chicago early in June, Dr. Paul S. Martin, Chief Curator of the Department of Anthropology, will spend most of the summer on archaeological work in southwestern Colorado. The purpose of this expedition will be to excavate several small ruins in the vicinity of Lowry Pueblo. A report on Lowry has already been published by Field Museum under Dr. Martin's authorship, as a result of excavations he conducted there in previous years.

Outlining the objectives of this summer's work, Dr. Martin states: "To understand the importance and significance of the small ruins in which I shall dig, it should be explained that most prehistoric pueblos in the Southwest were inhabited only for short periods. Communities constantly shifted their dwelling places, the settlement of any one site often having been only twenty to fifty years. As a result of this restlessness, thousands of ruins, each containing objects in vogue during its short existence, are widely scattered. Consequently, archaeologists can recover from small ruins mere segments of the long cultural history which is gradually being reconstructed. Connecting these segments in correct chronological order is a difficult task.

"On sites that were occupied for several hundred years, however, the total changes in culture may be relatively great and well differentiated, and may lie in stratigraphic order—the oldest at the bottom, the next oldest above, and so on. Lowry Ruin was of this character, and has thus supplied archaeologists with standards for making comparisons.

"My earlier surveys in southwestern Colorado revealed the presence of many ruins, but their relative age and therefore their historical meaning were unknown. Some ruins contained one type of pottery, some another, and some contained several types. Comparative studies indicated that some groups of ruins were older than others. Lowry Ruin provided a cultural sequence which should now be applied to the small near-by ruins, so that they may be properly and correctly ranked as to absolute age and historical meaning.

"It is planned, on the present expedition, to excavate ten or twelve small three- and four-room buildings. The data thereby collected could easily be dated in accordance with findings at Lowry Ruin. No one has ever attempted to carry out such a plan for southwestern Colorado, although Dr. A. V. Kidder of the Carnegie Institution, Washington, D.C., has done it at Pecos, as has Mr. H. S. Gladwin of Gila Pueblo, at Snaketown, Arizona.

Botanical Expedition Reports Progress

A recent report from Mr. Llewelyn Williams, Curator of Economic Botany, who is conducting an expedition on the Isthmus of Tehuantepec, Mexico, states that he has completed the collecting of plants and wood specimens in the forests of the Fortuno region. To bring his collections to the coast for shipment to Chicago required an arduous trip by canoes, banana barges, and on foot. He is now at work in another region, in the vicinity of Ubero, Oaxaca.

Turpentine orcharding is the subject of an economic exhibit in Hall 28 (Case 660). The methods of tapping pine trees used in the southern United States, Portugal, and France, are illustrated.

MODEL OF A GLACIER

A diorama which illustrates in miniature the formation and action of a huge mountain glacier has recently been installed in Clarence Buckingham Hall (Hall 35). The model also explains the origin of the glacial hills which form so characteristic a feature of the landscape in the vicinity of Chicago, particularly in the lake region to the north. Grinding and crushing the rocks in its way, as well as great quantities of pebbles and sand which become imbedded in its icy mass, a glacier becomes like a giant sheet of sandpaper which scratches, cuts and smooths the floor and sides of the valley in which it slowly but mightily advances. It leaves a heavier track than anything else, animate or inanimate, that moves on the face of the earth.

The Museum exhibit, built under the supervision of Chief Curator Henry W. Nichols of the Department of Geology, shows one large glacier and several small ones, together with the fields of perpetual snow on mountain peaks from which they descend. Shown prominently is the projecting tongue of "flowing ice." Under the great pressure of its enormous weight the ice does flow slowly like tar or wax, possessing in such huge masses a certain plasticity which seems incompatible with the brittleness ordinarily associated with ice as observed in small quantities. However, as the model shows, there are frequently crevasses or cracks across a glacier, due to breaking of the ice when it is flowing over abrupt changes of slope. Illustrated also are the lateral moraines or long rows of loose rocks which fall along the sides of a glacier from the heights above, and the terminal moraine of earth and rocks transported by the glacier to the end of its movement, and there released as the ice melts.

TRILLIUMS OF THE CHICAGO AREA

The name "trillium" or "wake-robin" usually denotes the large-flowered *Trillium grandiflorum*, with white flowers on erect stalks, but two other white-flowered species are found in the Chicago area, *Trillium Gleasoni*, which is common, and the rare *Trillium cernuum*. Both are characterized by nodding flowers. Two other trilliums, much less conspicuous, are brownish-red or purplish-brown: *Trillium sessile* and *Trillium recurvatum*, of which yellow-flowered forms are sometimes encountered.

The trilliums are members of the lily family. They are all perennial plants, and have all their parts in threes, which accounts for their name "trillium." They all thrive best in the rich soil of wooded areas.—J.A.S.

SOLOMON ISLANDERS

By ALBERT B. LEWIS

Curator of Melanesian Ethnology

The Solomons are a group of seven large and a great number of smaller islands, stretching over about 800 miles in the Pacific Ocean east of New Guinea. Most of them are rough and mountainous, and covered with dense tropical forests.

The natives form a part of the Melanesian group of peoples, all of whom speak languages also known as Melanesian. These are fundamentally related in a grammatical sense, but differ greatly in vocabulary.

The Solomon Islanders are vigorous and warlike, but are now compelled to keep the peace except in the interior of one or two of the larger islands. Many of them were formerly head-hunters and cannibals, and often made raids on their neighbors, using large high-built war canoes forty to fifty

feet long, capable of carrying twenty-five or more men. Clubs and spears were the principal weapons, but bows and arrows were used in some places.

The natives are of medium height, but vary considerably. In the western end of the group they are rather tall, somewhat negroid in appearance, with kinky, black hair and a very dark or sooty-black skin. The eastern islanders are somewhat smaller, of a lighter, chocolate-brown color, with curly or wavy hair. It is evident that in the Solomons, as in all other Melanesian islands, there is an underlying Oceanic Negroid or Papuan type, mixed to a greater or lesser degree with Indonesian or Malayan immigrants.

For food the natives are largely dependent on their gardens, taro being the most important foodstuff. Other vegetables are used to some extent, but taro is the basis of nearly every meal, with fish, shrimp or meat (chiefly pork) being added when obtainable. The natives are very fond of the milk and meat of the unripe coconut, to obtain which they must climb the coconut palms. This they do with the greatest



Photograph copyright Field Museum of Natural History

Solomon Islander in Bronze

A splendid interpretation of the remarkable tree-climbing technique of a wild people.

agility. Their method of climbing is well illustrated by the bronze sculpture of a Solomon Islander, in the racial series by Malvina Hoffman, exhibited in Chauncey Keep Memorial Hall (Hall 3).

Distinguished Visitors

Among distinguished scientists who visited the Museum last month were the following: 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, and Dr. T. S. Westall, ichthyologist of the University of London.

A specimen of the Chinese takin, one of the most peculiar of extant ruminant animals, is to be seen in George M. Pullman Hall.

JUNE GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for June:

Tuesday, June 1—General Tour; Wednesday—Egypt; Thursday—General Tour; Friday—Hall of Plant Life.

Week beginning June 7: Monday—Habitat Groups; Tuesday—General Tour; Wednesday—Geology Exhibits; Thursday—General Tour; Friday—Chinese Exhibits.

Week beginning June 14: Monday—Fish and Reptiles; Tuesday—General Tour; Wednesday—Jades and Gems; Thursday—General Tour; Friday—Mexico.

Week beginning June 21: Monday—Plants of Economic Value; Tuesday—General Tour; Wednesday—Races of Mankind; Thursday—General Tour; Friday—Prehistoric Plants and Animals.

Monday, June 28—Summer Birds of the Chicago Area; Tuesday—General Tour; Wednesday—Hall of Stone Age Man.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturer's services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Mrs. C. H. Riendeau—6 ethnological specimens, southern Alaska; from W. P. Neff—a "ceremonial" artifact of flint, Oklahoma; from Rev. Luis Mille, S. J.—28 herbarium specimens, Ecuador; from Museo Nacional—262 herbarium specimens, Costa Rica; from Professor J. Soukup—49 herbarium specimens, Peru; from Professor Manuel Valerio—61 herbarium specimens, Costa Rica; from Hermann C. Benke—236 herbarium specimens, central states; from University of Minnesota—75 herbarium specimens, Alaska; from Frank Von Drasek—5 mineral specimens, New Mexico and Arkansas; from H. V. Schiefer—9 cabochon cut chaledonies, Ohio; from J. Atkinson Conrow—12 specimens of fossil shells and marls, Maryland; from Tokumatsu Ito—20 specimens of products of the Fushun coal mine, Manchukuo; from Lincoln Park Zoo—a mandrill, 6 tegus, and 2 chameleons; from B. J. Bujak—an otter skeleton, and 3 beaver skeletons, Michigan; from Alastair Gordon Cumming—16 red grouse, Scotland; from J. Andrews King—10 bird skins, Chile; from Chicago Zoological Society—5 bird skins; from Leslie Wheeler Fund—23 skins of birds of prey, and 3 other bird skins, Canada and India.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from April 16 to May 15:

Associate Members

Mrs. Walter F. Beachy, John M. Burgmeier, Miss Ruth M. Engberg, Mrs. Hermon Dunlap Smith, Gray B. Tuthill, Kenneth Williams, Leon Witkowsky.

Annual Members

Mrs. Hugo F. Arnold, Mrs. Robert G. Bear, J. Ludvig Bengtson, Miss Elizabeth Browning, John Keenan Brunkhorst, Dr. J. R. Buchbinder, Charles C. Davis, William S. Deree, Earl B. Dickerson, George H. Eckhouse, Louis A. Ferguson, Jr., Mrs. G. W. Hales, Francis H. Hardy, Ernest F. Koopmann, Rudolph Krasberg, W. F. Kurfess, J. V. Lacroix, Robert E. Landon, Henry J. Mawicke, W. H. McDonald, Preston McGrain, Joseph Michaels, William F. Moore, Sarkis H. Nahigian, Mrs. Sidney S. Porter, Dr. James M. Robbins, Arthur Rubloff, William R. Sachse, Adolf Schmidt, Clarence J. Swarting, Fred F. Skeel, Mrs. Eugene S. Talbot, Jr., Lloyd Roger Townsley, S. W. Tracy, E. L. Wilson, Lawrence W. Zonsius.

Curator Sanborn Returns

Mr. Colin C. Sanborn, Curator of Mammals, has just returned from a trip through the east, during the course of which he attended the meeting of the American Society of Mammalogists held at Washington, D.C., and engaged in studies at Boston and New York scientific institutions.

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VARIED BIRD INHABITANTS OF AN AFRICAN DESERT SHOWN IN NEW GROUP

By RUDYERD BOULTON
Curator of Birds

In the alcove of African birds recently opened in Hall 20, three habitat groups show the range and variation in climate and vegetation that are such important factors in the distribution of animals on the African continent. One of these, the village weaver-bird group, was described in the May issue of *FIELD MUSEUM NEWS*. Birds of the Kalahari Desert, shown in the second group, form a colorful part of this series. Specimens for this group were collected by the Vernay-Lang Kalahari Expedition (1930), and presented to the Museum by Mr. Arthur S. Vernay, of New York and London.

Generally speaking the life zones of Africa present a remarkably simple picture, although local conditions introduce complexity of detail. The low-lying central portion of the continent, the drainage basin of the Congo River, is covered with a luxuriant rain-forest more than 700,000 square miles in extent, unbroken except for clearings made by the natives for their little gardens. Wherever the altitude of isolated mountains provides suitable climatic conditions of lower temperature and excessive rainfall, areas of mountain rain-forest occur. Surrounding the huge central forest, and sharply demarcated from it, are concentric zones of hotter and drier country that progressively change from savanna to thorny forests, and finally to true barren desert. In one of these outer dry and hot zones, the semi-desert savanna, lies Gomodino Pan, the site represented in the Museum's Kalahari Desert group.

A "pan," in South African terminology, is a slight depression in the center of a

plain. It is filled with water during the rainy season, and may be even marshy. In the dry season, the area of water shrinks and may entirely evaporate. Pans are often brackish or even saline, as the Great Makarikari Salt Pan. Over large parts of Bechuanaland the only available water is that which stands in these depressions, and around them much of the bird and animal life of the so-called Kalahari Desert is congregated.

In the center of the Museum group a pair of black-bellied bustards display interest

the water in flocks. Sand-grouse are curious desert birds which resemble both pigeons and quail, and have several remarkable habits. The regions that they frequent are very arid, and they limit their visits for water to one trip every day or two. They come in large flocks as punctually as trains on schedule, drink prodigious quantities of water in a few seconds, and whirl away into the desert.

Several fundamental types of animal coloration are shown by the six species of birds in the group. Counter-shading is perhaps the most universal pattern of color in the animal kingdom. Where an animal receives the most light it is darkest, and where it receives the least light it is lightest. In this way the shadow that a bird or animal casts upon itself compensates for the lighter coloring, and at a distance it appears uniformly colored and inconspicuous. For this reason 99 per cent of all animals are darker on their backs and lighter on their under parts.

All of the birds in the group except two are counter-shaded. These two, the little Namaqua dove and the black-bellied bustard, so strongly follow the principle of "ruptive marking" that counter-shading is almost eliminated. A ruptive mark, generally white on black or vice-versa, is a very contrasting pattern that cuts across and breaks up the silhouette or outline of the animal. The outrageously grotesque patterns and designs used in camouflaging ships during the great war were developed from the ruptive markings of animals. At a distance the eye tends to see the design rather than the outline, and the bird, animal, or ship looks like something else.



Birds of the Kalahari Desert

One of the three new habitat groups of African birds recently completed in Hall 20. Specimens in this exhibit were collected by an expedition led by Mr. Arthur S. Vernay. Birds mounted by Staff Taxidermist Arthur G. Rueckert; background by Staff Artist Charles A. Corwin; accessories by Preparator Frank H. Lett.

in a small sand lizard which has attracted the attention also of a pair of scarlet-breasted bush-shrikes. A two-banded courser is scooting away from the commotion.

Three yellow-throated sand-grouse rest in the shade of a clump of red aloes and mopane bush before flying to the pan for their daily drink of water. Other sand-grouse can be seen in the distance circling

MORE FIELD MUSEUM EXPEDITIONS TO BE RADIO-DRAMATIZED

Six more programs remain to be given on Wednesday evenings during July and August in the radio series, "From the Ends of the Earth," presenting the work of Field Museum expeditions in dramatized form. As in May and June, the broadcasts will begin at 9 P.M. Chicago daylight saving time, and station WGN will be the local outlet; also, they will be carried at the corresponding hour in other time belts on sta-

tions of the Mutual Broadcasting System.

The departure of certain Museum staff members on new expeditions in the past few weeks made necessary some deviations from the schedule announced tentatively in the June issue of *FIELD MUSEUM NEWS*. The following schedule for the July programs is announced subject to further variations or substitutions—there will be a program on each date even if not that listed:

July 7—The Making of a Zoologist

July 14—From King Charles III of Spain

(1759-88) to Field Museum (the story of research in the Museum's botanical laboratories on a plant collection made by a historic expedition)

July 21—Hunting Birds with the Straus West African Expedition

July 28—Finding and Excavating Fossils of Prehistoric Animals (postponed from June 16)

The University Broadcasting Council is cooperating with the Museum in the presentation of these programs.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

CLIFFORD C. GREGG, *Director of the Museum*.... Editor

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HENRY W. NICHOLS	Chief Curator of Geology
WILFRED H. OSGOOD	Chief Curator of Zoology
H. B. HARTE	Managing Editor

Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

SUBTERRANEAN OIL RESERVOIR, AND HOW IT IS TAPPED

BY HENRY W. NICHOLS

Chief Curator, Department of Geology

The geological conditions which favor the accumulation of oil in subterranean reservoirs, and the methods used by man to obtain the oil, are illustrated in a model on exhibition with the collection of petroleum products in Hall 36. The model shows the various rock strata between the ground surface and the oil pocket, which frequently is as much as 4,000 feet down.* To reach it, oil drillers must bore through all this great distance of intervening rock, and pump the oil out. The model, made in the Museum on the basis of studies conducted in the Lawrenceville (Illinois) oil field, is accompanied by detailed explanatory labels.

Petroleum has its origin in the remains of animals and plants which lived in past ages and were buried in mud and clays under the waters they inhabited. The



Oil Well

Model in Department of Geology. Black section near bottom represents oil trap underground. Vertical lines through rock strata above are bores drilled for pumping petroleum to the surface.

partial decomposition of these remains, and a natural distillation, produced the petroleum. Drops of petroleum, leached from the clays by percolating waters, are carried to more permeable beds of sandstone and porous or broken limestone. Through these the underground waters flow away, while the oil, lighter than water, rises to the top of the bed and may accumulate in reservoirs where the geological structure is favorable. This occurs where there exist an area of fossiliferous shales or clays, an oil sand (which is a bed of porous or broken rock to provide passage for circulating water and pore space for storage of oil), and an impervious rock layer above the sand to prevent escape of oil, together with a folded rock structure to provide a trap to catch the oil. The com-

*The record depth for an oil well is 12,786 feet (nearly two and one-half miles).

monest form of oil trap (shown in the model) is an anticline or inverted trough formed by the crumpling of rock by lateral pressure. By penetrating into such a reservoir, or pool, the drillers obtain the black liquid riches so important in world commerce and industry.

LIFE MEMBERSHIP GIFT AWAITS 20,000,000th MUSEUM VISITOR

With the attendance tally showing more than 19,800,000 visitors received at the time this issue of FIELD MUSEUM NEWS goes to press, and assuming that the current rate of attendance will continue, Field Museum's twenty-millionth visitor since the opening of the present building on May 2, 1921, should arrive about the end of July or early in August. In addition, the Museum attendance during the twenty-five years and some months (June 2, 1894 to February 23, 1920) of occupancy of its first home in Jackson Park was 5,839,579, making a total of approximately 26,000,000 visitors during the entire time of the institution's operation.

The contrast between the two periods—20,000,000 visitors in sixteen years in the new building as against less than 6,000,000 in twenty-five years in the old—testifies to the foresight of the Museum Trustees who were responsible for obtaining the present centrally located site easily accessible from all parts of the city. This change of location, along with the expansion of Museum activities, growth of the city's population, and general widening interest of the public in scientific and cultural advancement, has without doubt been a major factor in accomplishing this enormous increase in the usefulness of the institution. Average attendance in the new building has been approximately 1,250,000 a year as against 228,000 in the old, an increase of over a million visitors a year.

Recognizing attainment of the 20,000,000 attendance mark in this building as an occasion of significance in the history of the Museum, the Board of Trustees, at a meeting held June 21, authorized the presentation, free, of a \$500 Life Membership to the person—man, woman or child—who is the twenty millionth to pass through the doors. He, or she, will be welcomed at the entrance by Director Clifford C. Gregg, and given the Life Membership certificate.

Illustrating the advances made in Museum methods in the forty-odd years since Field Museum first opened in 1894, there will be a special temporary display in Stanley Field Hall this summer of a typical exhibit of the early years compared with an exhibit of the modern type now used.

Among other attendance statistics of Field Museum's history, the following are interesting:

1927—this year, with an attendance of 1,043,546 was the first in which attendance exceeded one million during a single year. Attendance has exceeded a million in every year since that time.

1933—with an attendance of 3,269,390, Field Museum established a record exceeding any single year's attendance at any museum in the world at any time in history.

August 24, 1933—the biggest single day's attendance ever experienced at Field Museum, with 65,966 visitors.

Distinguished Visitors

Among distinguished visitors received at Field Museum last month were Dr. Wolfram Eberhard, anthropologist, of the Museum für Völkerkunde, Leipzig, Germany, Dr. Rudolf Florin, paleontologist, of the Stockholm Museum in Sweden; and Mr. Marshall Field and Colonel Theodore Roosevelt, of New York.

MRS. RAYMOND GIVES \$2,000; FOUNDATION'S WORK EXPANDS

Continuing the interest and generosity which she has displayed for years in connection with Field Museum's activities for the benefit of children, Mrs. James Nelson Raymond, one of the most prominent of this institution's Benefactors, last month made a further gift of \$2,000 for the support of this work.

As founder of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, Mrs. Raymond in 1925 established an endowment fund of \$500,000. Since that time, additional contributions have been received from her many times, and with this latest gift, these now reach a total of \$52,422.

The work of the Raymond Foundation is recognized, by Museum officials, school authorities, teachers, parents, and others, as one of the most valuable activities conducted by Field Museum. Through it, the Museum makes direct contact with approximately quarter of a million school children a year, and the work is increasing. The Raymond Foundation reaches the children in various ways. It sends extension lecturers out into the public schools within the city limits to speak to the pupils in classrooms and assembly halls on natural history subjects, accompanied by stereopticon pictures. It conducts groups of children on lecture tours of exhibits at the museum. Each spring and autumn, it provides a series of free motion picture entertainments in the James Simpson Theatre. The equipment of the Theatre has recently been modernized by the installation of sound-projection apparatus, a development which has greatly widened the

scope of the educational films presented. Members of the staff of the Foundation, in addition to their duties as lecturers, write series of Museum Stories for Children. These are printed by Field Museum Press and distributed free to the children attending the Theatre programs, and through other channels. All of these activities, as well as the generally cooperative spirit of the Foundation in its dealings with teachers and school authorities, have attracted wide and favorable comment. In the Chicago Public Schools, the Foundation has worked out a systematic correlation of its activities with the curriculum provided by the Board of Education.

There has been a marked increase in the number of groups of children sent by schools to the Museum for Raymond Foundation service this year. In the first five months of 1937, tours have been provided for 539 groups, from both Chicago and suburban schools, as compared to 326 groups in the corresponding months of 1936. The photograph accompanying this article shows a recent group of children in typical attitudes of rapt interest as a Raymond Foundation lecturer explains to them the significance of exhibits in the Hall of Egyptian Archaeology.



Opening New Worlds to a New Generation

Happy interested children continually throng Field Museum, where they are introduced to wider horizons of knowledge. A prime factor in extending the Museum's usefulness is the James Nelson and Anna Louise Raymond Foundation, one of whose guide-lecturers is with this group.

CHIEF CURATOR OSGOOD RETURNS WITH INDO-CHINA COLLECTION

Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, returned to the Museum last month from a trip around the world during which he spent two months collecting zoological specimens in French Indo-China. He obtained approximately 500 mammal, bird and reptile specimens, and accessory material for several habitat groups in which some of the mammals and birds will be used.

Outstanding in the collection are a series of gibbons and various other apes and monkeys, green peacocks including one seven feet long, a python fifteen feet long, a ten-foot king cobra (one of the most dangerous of snakes), scaly anteaters, giant squirrels, rare tree shrews, and a variety of bats and small rodents.

On his way home, Dr. Osgood made brief stops in France, England and New York for consultations on scientific subjects with other eminent zoologists. As part of his baggage across the Atlantic he brought a consignment of live birds of paradise for American zoological gardens, including several beautiful examples for the Brookfield Zoo of the Chicago Zoological Society.

End of the World

That the end of the world, or rather of life on the earth, will ultimately come about through the absorption of all free oxygen by the rusting of iron, which makes up so much of the earth's bulk, is suggested by the Princeton astronomer, Professor Henry Norris Russell. The danger, however, is not imminent, being regarded as at least a billion years distant.

IMPORTANT REPTILE COLLECTIONS OBTAINED IN SOUTHWEST

The Field Museum Herpetological Expedition to the Southwest returned May 18 from its reconnaissance of the mountain and desert regions of Texas, Arizona and California. Mr. Karl P. Schmidt, Curator of Reptiles and Amphibians, was leader. Molds, studies of habits, accessory material and color notes were obtained by Staff Taxidermist Leon L. Walters for a number of conspicuous types of reptiles desired for exhibition. Also, about 500 specimens were collected, and preserved in alcohol, forming a notable addition to the study collection.

Notable among the forms collected are the larger lizards, such as the chuckawalla, which inhabits rock crevices in the desert ranges; the desert iguana, which lives in holes in the creosote-bush desert; and the sand lizard, which lives only in dune sands, and is provided with fringed toes and fingers that increase its traction in difficult terrain.

Especially desirable for exhibition among the expedition's collections are the beautifully ringed Sonora snake, California milk snake, and sharp-nosed snake; the curiously modified leaf-nosed snake; and the small rattlesnake, confined to the sandy regions, known appropriately as the "side-winder." The locomotion of the last-named species is especially remarkable, for it rolls over the surface of loose sand with a motion very dissimilar to that of the ordinary wriggling snakes, as may be seen by examining its tracks. These form parallel series of nearly straight imprints, the direction of motion being almost at right angles to the direction in which the snake faces.

Dr. Alfred E. Emerson, of the Department of Zoology, University of Chicago, accompanied the expedition. He reports a rich collection of the insects on which he is a specialist, namely the termites or "white ants," and the curious termitophiles which include insects of various groups which have become permanent guests in the nests of the social termites. These insects are preyed upon by a number of especially adapted snakes, lizards, and frogs, so that the associated collecting of Dr. Emerson with Messrs. Schmidt and Walters was peculiarly effective.

Oxford Confers Science Doctorate on Curator Henry Field

Mr. Henry Field, Curator of Physical Anthropology, received the degree of doctor of science from Oxford University last month. Notified of the honor by the Oxford authorities, he went to England in time to participate in the university's commencement ceremonies.

Curator Field completed his undergraduate studies at Oxford before joining the Museum staff in 1926. The doctor's degree has been conferred upon him in recognition of the vast amount of research he has conducted at Field Museum, the work he has performed on several expeditions for this institution, and the many comprehensive scientific reports he has written here and had published by Field Museum Press. He has specialized in studies of prehistoric man, the rise of ancient civilizations, and the comparative physical anthropology of peoples of the Near East and contiguous territory. He has performed notable work in connection with Museum exhibits, particularly in planning and directing the preparation of the Hall of the Stone Age of the Old World. He participated actively also in the development of the plans, later successfully executed, for the Races of Mankind exhibits in Chauncey Keep Memorial Hall.

INSPIRATION OF ANCIENT MEXICAN SIMILAR TO RODIN'S

A forcible, gripping portrayal of a man in deep thought, as conceived by an unknown aboriginal artist of Mexico more than 800 years ago, is presented in a small pottery figure, "The Thinking Man," on exhibition among the Mexican archaeological collections in Hall 8 (Case 1).

While, of course, stylistically very contrasted, and with its subject in a considerably different pose, the Mexican statuette is nevertheless strikingly similar in motif to Auguste Rodin's famous statue, "The Thinker," made in the early part of this century.

The Mexican piece was obtained on the

west coast of Jalisco, and represents the culture of the Tarascan people and related tribes who inhabited that region and several neighboring states. In the fifteenth century the Aztecs attempted to subdue the Tarascan peoples, but were beaten back.

Other figurines of these tribes included in the exhibit represent portraits and caricatures of men, women, deities and animals. A few were used for water jars, and as vases to receive offerings to the gods. Others were placed in graves to give companionship to the deceased. Two of the figures represent the hairless type of dog domesticated in Mexico before the Spanish invasion.



Ancient Mexican "Thinking Man"

A pottery figure (on left) in Field Museum's Tarascan archaeology collection, compared with the famous statue by the modern French master, exhibited in the Musée Rodin, Paris. The aboriginal artist of 800 years ago apparently tried to express the same basic idea that is the motif of the twentieth century sculpture.



"The Thinker" by Rodin

Photograph courtesy of Art Institute of Chicago

Expedition to Collect Fishes Along the Coast of Maine

Leaving Chicago early in July, Mr. Alfred C. Weed, Curator of Fishes, and Staff Taxidermist Leon L. Pray, will spend a few weeks on the coast of Maine, collecting materials for a projected habitat group of the shore fishes from the cold bays along the northern part of the Atlantic coast. Most of the collecting will be done in the vicinity of the Biological Station of the University of Maine at Lamaine. This station is located at the head of Frenchman's Bay, north of Mount Desert Island.

Geological Expedition

To obtain material illustrating the origin of mountains, the cause of earthquakes, and various other phenomena relating to the structure of the earth and the natural forces which change its contours, Field

Museum last month dispatched a geological expedition to northern Colorado. Mr. Sharat K. Roy, Curator of Geology, is in charge. He will collect rock specimens, some of large size, which demonstrate such structural features as joints, folds, faults, dikes, and other effects of terrestrial shifting. Operations will be conducted principally in canyons in the vicinity of Boulder.

Professor Noé in Panama

In order to obtain some first-hand acquaintance with the tropical American flora, Professor A. C. Noé, Research Associate in Paleobotany, left Chicago early in June for Panama to spend the summer in the Canal Zone where he will make headquarters at the Barro Colorado Island biological station.

Professor Noé has recently been occupied with the study of Tertiary plants, many of which have their nearest present-day parallel in the tropics.

GUIDE-LECTURE TOURS

During July and August conducted tours of the exhibits, under the guidance of staff lecturers, will be given on a special schedule, as follows:

Mondays: 11 A.M., Plant Life Exhibits; 3 P.M., General Tour of Exhibition Halls.

Tuesdays: 11 A.M., Halls of Primitive and Civilized Peoples; 3 P.M., General Tour of Exhibition Halls.

Wednesdays: 11 A.M., Animal Groups; 3 P.M., General Tour of Exhibition Halls.

Thursdays: 11 A.M. and 3 P.M., General Tours of Exhibition Halls.

Fridays: 11 A.M., Minerals and Prehistoric Life; 3 P.M., General Tour of Exhibition Halls.

There are no tours given on Saturdays or Sundays.

Persons wishing to participate in the tours should apply at the North Entrance. The tours are free, and no gratuities are to be proffered. Guide-lecturers' services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Mr. and Mrs. Paul J. Rupprecht—2 Afghan daggers, India; from Escuela Nacional de Agricultura—368 herbarium specimens, Guatemala; from Professor Manuel Valerio—61 herbarium specimens, Costa Rica; from Dr. Helen Dixon—700 herbarium specimens, Utah; from University of Texas—334 herbarium specimens, western Texas and Mexico; from Dr. Julian A. Steyermark—498 herbarium specimens, Missouri, Maine, and New Hampshire; from Standard Oil Company (Indiana)—14 specimens of petroleum products; from Michael A. Weyman—19 specimens vertebrate fossils, South Manchuria; from Miss Margaret Simmona—106 mineral specimens and 35 mineral chips; from L. B. Roberts—5 specimens fossil wood petrified with iron oxides, Louisiana; from W. E. Matthews—one septarium, Indiana; from Leon Mandel—203 crabs, shrimps, anails, and other sea specimens including 2 wahoo fish, near Bahama Islands; from John F. Jennings—skulls of 7 jaguars, a brocket deer, and an ocelot, Brazil; from Chicago Zoological Society—37 zoological specimens, including 22 birds, 6 snakes, 3 lizards, a baboon, and 2 Australian gliders; from A. E. Borell—a bassarisus skeleton, Texas; from Dr. A. E. Demaray—13 lizards and 14 snakes, Texas; from Professor H. W. Norris—a specimen of frilled shark; from Carnegie Institution of Washington, from Stanley Field, from American Chemical Society, from Boardman Conover, from Dr. F. M. Olbrechte, and from Karl P. Schmidt—valuable books for the Library.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from May 17 to June 15 inclusive:

Life Members

Mrs. Walter P. Hemmena

Associate Members

Edgar C. Banks, Miss Ada I. Sylvester, L. S. Taylor, F. K. Vial.

Annual Members

Mrs. James R. Addington, Harold V. Amberg, William A. Bade, Mrs. A. M. Barrett, Kent S. Clow, J. A. Conner, Miss Eether A. Craigmile, Mrs. Robert P. Eckart, Charles B. Eldridge, Mrs. I. C. Elaton, Jr., Mrs. Ward Farnsworth, Roland D. Feltman, Henry Kramer, Mrs. George H. Kuhnén, Harold Lachman, Emanuel Loewenstein, Dr. Ira M. Mason, Malcolm McDowell, Dr. B. Newton Novy, J. Albert Rehm, Harry F. Reutlinger, Mrs. Joseph D. Ryan, George E. Scott, Lester J. Sholtz, Miss Edith Shultz, William Steinwedell, Edwin J. Ward, Mrs. F. Edson White Carl H. Zeiss.

"Basket Maker" Culture Illustrated

A valuable collection representing the archaeology of the so-called "Basket Maker" Indians of southeastern Utah is on exhibition in Hall 7. The material was presented to the Museum some years ago by the late Martin A. Ryerson. The Basket Makers were the first known inhabitants of the southwestern part of the United States, and are believed to have lived until about 2,000 years ago. In their culture, an extremely interesting and highly developed one, they differed markedly from most of the other American Indian peoples.

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MUSEUM'S PROGRESS MEASURED AS TWENTY MILLIONTH VISITOR ARRIVES

Special Exhibit Illustrates Advances Made Since Founding of the Institution in 1893

BY H. B. HARTE
Division of Public Relations

Field Museum this month is celebrating an occasion—the welcoming of the twenty-millionth visitor to enter its portals during the sixteen years since the present building was first opened to the public on May 2, 1921. This should occur, at the present

than 65 per cent greater than the combined land, sea and air forces of the next two military powers together.

More significant, from the standpoint of indicating how well the Museum is accomplishing its educational mission, twenty million visitors represent an average attendance of 1,250,000 annually during the sixteen years of occupancy of this building. This is more than five times the average of 228,000 a year received in the old building in Jackson Park which housed this institution during the first

Hall, where it will be maintained until Labor Day (September 6).

This special exhibit illustrates, with old and new Museum specimens, with photographs, and with charts and graphs, the progress of the Museum since its inception by Founder Marshall Field and the public-spirited citizens associated with him in 1893. The development of Museum methods of preparing exhibits is vividly shown by comparisons of old exhibits, long withdrawn from public view, with exhibits of the modern type now used. Each Department—Anthropology, Botany, Geology and Zoology—is represented among these “then and now” displays. Marked contrasts will be noted in the preparation of the specimens themselves, in the construction of the cases that



A Museum Exhibit of 1894

Mounted seals and elephants, prepared by taxidermic methods which have since become obsolete. These were shown at Field Museum in its earliest days. Acceptable at the time, they were withdrawn a few years later as more scientific, naturalistic and artistic processes of preparing animal exhibits developed.

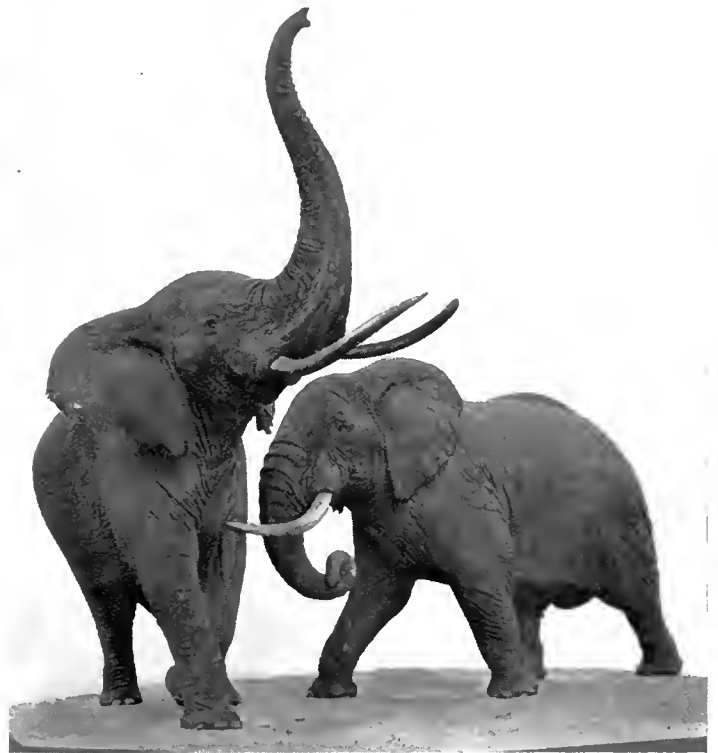
rate of attendance, probably within the first week of August. However, it may have occurred even *before* this issue of FIELD MUSEUM NEWS reaches its readers, since press time falls a week or so prior to the end of July, and accurate advance estimates of attendance cannot be made.

The man, woman or child entering on the twenty-millionth click of the counter in the hand of the guard checking attendance will be met by Director Clifford C. Gregg and presented with a special certificate of Life Membership in the Museum, on which will be embossed a record of the historical significance of the occasion.

Even to a nation recently accustomed, in some matters, to thinking in billions, twenty million is a large number of people. It is more than the total population of London, New York and Chicago combined. Mobilized, it would constitute an army one-third larger than the greatest military force maintained by any nation, and more

twenty-six years of its existence.

An occasion such as this seems a natural time to survey the Museum's accomplishment, and to look both backward and forward—to observe how far it has developed since it was founded forty-four years ago, and what is yet to be done to insure continued progress and expansion. The opportunity to survey the Museum's achievement at the present time is available every day to any one visiting the Museum. To assist those interested in examining the past and forecasting the future, a special series of exhibits occupying eight cases has been installed in Stanley Field



Fighting African Elephants

Famous group completed in 1909 by the late Carl E. Akeley, and still on exhibition in Stanley Field Hall. Akeley—taxidermist, sculptor, inventor, hunter, and true genius—revolutionized methods of preparing zoological exhibits while he was Chief Taxidermist at Field Museum. His influence is still felt in this, and all natural history museums. These elephants represent the first application to such large animals of the modern methods which he originated.

hold them, in their illumination, in the attractiveness and legibility of the accompanying descriptive labels, and other exhibition features. The value of maps, added to many of the modern labels, will be realized. As the Museum has progressed through the years it has adopted many innovations for the improvement of its exhibits. Always



Steffler's Sea Lions

To realize how far exhibition practices have improved during the comparatively brief history of Field Museum, compare the seals in this habitat group in the Hall of Marine Mammals (Hall N) with the seal exhibit of 1894 pictured on page 1. These specimens were collected by a special expedition under the leadership of Staff Taxidermist C. J. Albrecht who also prepared the group. The background is by Staff Artist Charles A. Corwin.



Photograph copyright Field Museum of Natural History

Prehistoric Humans Restored

A Neanderthal family and their rock-shelter at Gibraltar, as re-created by the sculptor Frederick Blaschke in the Hall of the Stone Age of the Old World (Hall C). This group is one of a series, in life size, which rank among the outstanding exhibits conceived and completed at Field Museum.



One of the World's Rarest Animals

Much has been heard of the Giant Panda in recent months. Field Museum was the first institution to obtain specimens for a habitat group, including the first of the animals ever to be seen alive and to be shot by white men. Collecting for this group was done by the William V. Kelley-Roosevelts Expedition to Eastern Asia in 1928. Taxidermy is by Staff Taxidermist Julius Friesser, and background by Staff Artist Charles A. Corwin.

it has been alert to find and utilize whatever would make them more interesting, more attractive, and of greater educational value.

Another division of the special exhibit is devoted to the research collections maintained in each Department, which in number of specimens greatly exceed the exhibited collections. Samples of these specimens, which are of such vast importance to those engaged in scientific studies, and which include many rare forms and type specimens,* are displayed here, along with photographs of the various store-rooms and laboratories in which they are kept and used. Charts show the growth of the collections which now number hundreds of thousands of specimens.



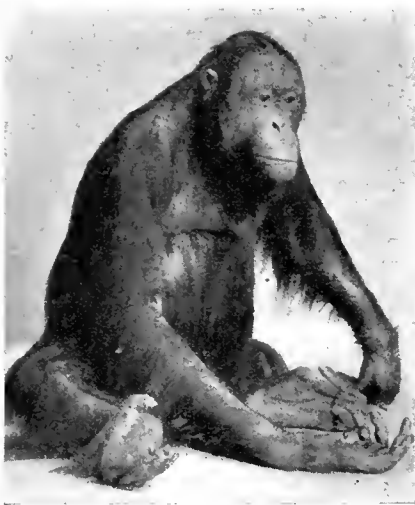
Mr. Stanley Field

President of Field Museum continuously since 1909. Under his able leadership and largely due to his profound and sympathetic interest, the institution has accomplished its greatest development.

The scope of Museum expeditions is indicated on a map of the world showing the many localities where operations have been conducted. This embraces collecting for all Departments, and for both the exhibits and the study collections.

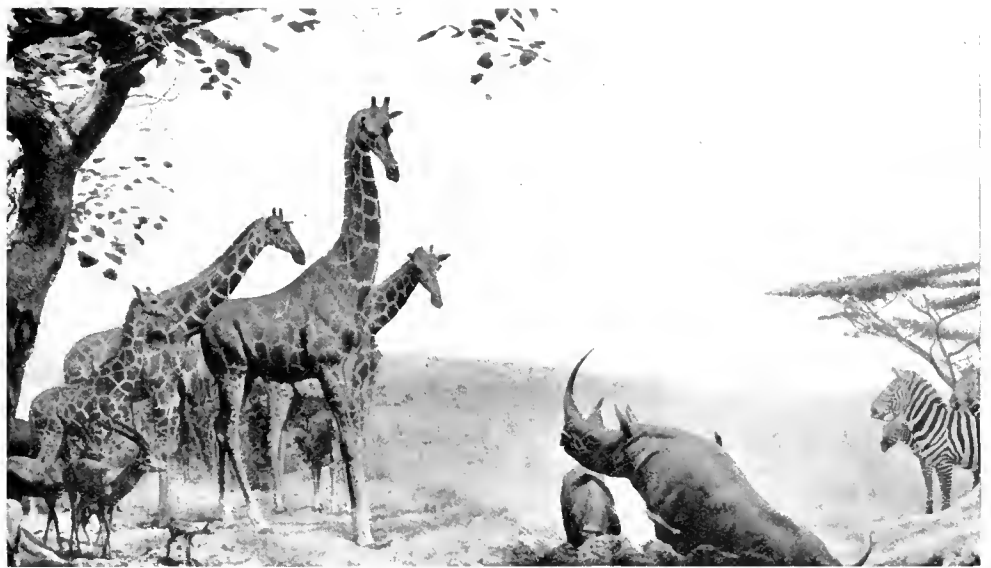
Included also in the special exhibit are statistical charts and graphs showing the steady increase in Museum attendance through the years, the growth in the number of publications issued, and the changes which have occurred in Museum endowment and in income from that and other sources. The last of these give some idea of the financial problems of a great institution of this kind. From them it will readily be perceived how revenues seldom keep pace with other developments. They show how normal progress of the institution's work must necessarily be seriously retarded when economic depression causes reductions in the yield from securities in which endowment funds are invested.

*A type specimen is a single specimen designated or selected as the prime basis of the original description and naming of an animal or plant.



A New Type of Taxidermy

This orang, in Hall 15, constitutes the first application to a hairy mammal of the cellulose-acetate process of reproduction, invented by Staff Taxidermist Leon L. Walters chiefly for use on exhibits of reptiles and other hairless or nearly hairless creatures. The original hair of the orang is imbedded in a composition reproducing the skin, with a result more lifelike than could be achieved by mounting the actual pelt.



Animals at a Water-hole in Ethiopia

Photograph shows main part of one of the world's largest and most elaborate habitat groups, installed in Carl E. Akeley Memorial Hall. The animals were collected by the Harold White-John Coats Abyssinian Expedition. Preparation occupied Staff Taxidermist C. J. Albrecht, a member of the expedition, and assistants, for two years. Like nearly all habitat groups in this institution, it has a background painted by Staff Artist Charles A. Corwin, who has been associated with the Museum for thirty years.



A Forest of the Coal Age, 250,000,000 Years Ago

Photograph copyright Field Museum of Natural History

A restoration of vegetation of Carboniferous time. Accurately reproduced, in accordance with scientific knowledge, by the Plant Reproduction Laboratories of the Department of Botany, and exhibited in Ernest R. Graham Hall of the Department of Geology.

Photographs draw attention to the work done in the public schools by the Department of the N. W. Harris Public School Extension, and the James Neilson and Anna Louise Raymond Foundation for Public School and Children's Lectures. Other Museum activities are also represented.

As a whole, the special exhibit is designed to show what a museum really is, and what it does—how it functions both as an educational agency for the general public and as a research institution adding to the world's store of knowledge.

Examples of the most modern types of exhibits are pictured on pages 2, 3, 6 and 7 of this issue of FIELD MUSEUM NEWS.

NOTABLE LIBRARY ACCESSIONS

Sumptuously illustrated works on birds have been familiar since the time of Audubon, but really ambitious attempts to depict reptiles in color have been few. A monograph, *Snakes of Japan*, by Moichiro Maki, containing beautiful colored folio plates, and published with both Japanese and English text in 1931, has just been acquired by Field Museum. Eighty-nine of the ninety-seven species and subspecies of snakes listed for the Japanese empire are represented. While the plates are by no means uniform in excellence, they represent the most elabo-

rate modern work of reptile illustration, and it is to be regretted that no comparable work exists for our colorful and interesting North American snakes.

Another work notable for its fine colored plates, as well as for historic and scientific interest, has recently been acquired for Field Museum Library. It is a series of reports on Brazilian reptiles and amphibians by Spix and Wagler, based on the great collections of Spix and Martius made in the early part of the last century. This work was needed in the study of Field Museum's Brazilian collections. —K.P.S.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

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Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

GEOLOGY EXPEDITION RETURNS

A Field Museum expedition, in charge of Mr. Sharat K. Roy, Curator of Geology, returned July 19 after five weeks of collecting and reconnoitering in the mountainous regions of Colorado.

Important structural specimens—folds, faults, slickensides, joints, dikes, etc.—illustrating the origin of mountains, the cause of earthquakes, and various other phenomena relating to the structure of the earth, were acquired. These were especially selected to form the nucleus of a proposed exhibit of structural geology in Clarence Buckingham Hall (Hall 35).

Very fine specimens of zeolites—a group of secondary minerals, occurring in wall crevices of basic rocks, such as basalt and diabase—were also collected. These, because of their freshness, color, and beauty of crystallization, will form a notable addition to the exhibits and the study collection.

HOW PLANTS ARE DETERMINED

The following, by Ernest J. Palmer, in a recent Bulletin of the Arnold Arboretum, applies so well to all other institutions which furnish information to the public on the identity of plants, that it is reprinted here to describe part of the daily work of Field Museum Herbarium.

When a specimen is received for naming, it is examined by a member of the staff, who may be able to identify it at sight. Some plants are so distinct and easily recognizable



Working on Historic Plants

Curator Paul C. Standley of Field Museum Herbarium has been engaged for months on research in connection with the famous Sessé and Mocino plant collection, obtained 150 years ago by explorers sent to Mexico and Central America by King Charles III of Spain. The expedition was dramatized on July 14 in the series of radio programs, "From the Ends of the Earth," currently being presented at 9 p.m. on Wednesdays over WGN and the Mutual network by Field Museum and the University Broadcasting Council.

that it may be possible to name them from a single typical leaf or fruit, but often the problem is not so simple. If the plant is not readily recognized, the investigator tries to limit it to certain plant families through such characters as are shown by the specimen, and then proceeds to follow up clues that may lead to its full identification. This is done by comparing it with mounted speci-

mens in the herbarium, and by consulting descriptions and illustrations in the literature dealing with the group to which it is thought to belong. This may involve much library and herbarium search, and hours may be spent in solving a particularly difficult problem. Sometimes the material received is so inadequate that the investigator must send for a more typical specimen. However, because of an unwillingness to disappoint the inquirer and because a difficult problem offers something of a challenge, every effort is made and every means is exhausted before such a course is taken. In cases where some doubt may remain after a careful study of the material, the investigator often consults with other members of the staff, especially if the plant belongs to a group with which one of his colleagues is especially familiar.

NOTABLE POLISH COLLECTION OBTAINED FOR MUSEUM

Through the cooperation of the Polish-American Chamber of Commerce of Warsaw, the Polish Government, and the Consulate-General of Poland in Chicago, Field Museum has received a collection of specimens for all Departments.

This material was brought from Poland by Mr. Anthony Mazur, an employe of Field Museum prominent in Chicago Polish-American circles, who was furnished with transportation for the purpose by the Polish Government, under arrangements made with the assistance of Dr. Wacław Gawronski, Consul-General in this city.

Among the specimens obtained by Mr. Mazur are the following: a goat-antelope (chamois), a boar, several small mammals, various birds, fishes and other marine creatures, a meteorite specimen, specimens of cave products, a variety of rocks and minerals, a large number of specimens of Polish grains and plant material, and artifacts from a site at Biskupin once inhabited by prehistoric men.

Polish scientific institutions, and various individuals, extended their aid in the assemblage of this material, including the Gdynia-America Steamship Line; the Polish-American Society, and its President Dr. M. Szymanski; Mr. Kwapiszewski, Director of the Polish-American Chamber of Commerce; Mr. Stanley Lesniowski, Director of the Museum Tatrzańskie, Zakopane; Dr. J. Kostrzewski, of the Museum of Anthropology, Poznan; Professor Joseph Fudakowski of the Museum of Jagielon University, Cracow; Dr. Wolski and Director Januszewski of the Zoology Museum, Warsaw; the Museum Dzieduszyckich, Lwow; and Professor Czarnowski of the Polish Government Geological Institution.

Field Work in Western Texas

Messrs. Karl P. Schmidt, Curator of Reptiles, and D. Dwight Davis, Assistant Curator of Vertebrate Skeletons, are collecting reptiles and mammals for the Museum in the Chisos Mountains in southwestern Texas, in informal cooperation with the United States National Park Service. Mr. Tarleton Smith, of the Park Service, has consulted Mr. Schmidt regarding his reptile problems during past seasons of collecting, and has presented many specimens to the Museum. He will prepare a report on the reptiles of the Big Bend region under Mr. Schmidt's direction. The reptiles of the arid and mountainous country between the Pecos and Rio Grande in western Texas are of unusual interest. They include numerous strikingly distinct species which are found nowhere else.

MUSEUM RECEIVES "WAHOO FISH" FROM MR. AND MRS. MANDEL

Two specimens of "wahoo fish" were caught by Mr. and Mrs. Leon Mandel, of Chicago, on a recent cruise to the Bahamas aboard their yacht *Buccaneer*. They have presented one of them to Field Museum, and its preparation for exhibition is already under way.

The wahoo is a tropical game fish averaging five to six feet in length, and weighing in the neighborhood of 50 pounds. It is a hard fighter, and very difficult to land. Hooked, it "walks on its tail" along the surface of the water, as the angler tries to haul it to his boat, according to Mr. Alfred C. Weed, Curator of Fishes.

The wahoo is shaped somewhat like a mackerel. It has an extraordinary backbone with special "engineering features"



Photograph courtesy of Chicago Tribune

The "Wahoo Fish"

Curator Alfred C. Weed (left) and John La Bonté inspect specimen recently presented to the Museum by Mr. and Mrs. Leon Mandel, who caught it while cruising to the Bahamas aboard their yacht.

consisting of a lattice work of unique bones which brace the spine in such a way that the fish cannot bend its body up or down, and is extremely limited in bending sideways, states Curator Weed. The scientific name of the fish is *Acanthocybium petus*.

PREHISTORIC MEN CONDUCTED COMMERCE IN FLINT

BY HENRY FIELD

Curator of Physical Anthropology

In prehistoric times flint was in great demand because excellent weapons and implements of all types could be fashioned from it. Since flint occurs only in a few regions, it was necessary for tribes which lived at some distance from the flint quarries to import it. Therefore, this kind of stone was one of the first important articles of commerce.

At Grand-Pressigny, in France, an extensive Neolithic workshop was discovered about seventy years ago. The local flint is of fine quality and of a color resembling that of beeswax. On account of its attractive shade and remarkable flaking quality, Grand-Pressigny flint became an important article of Neolithic commerce. Due to its exceptional color, the extent of the trade in this material can be traced geographically. Examples have been found in Belgium,

Switzerland, and northern Italy, as well as in many widely scattered regions in France.

Displayed in the Hall of the Stone Age of the Old World (Hall C) is a splendid series of artifacts from Grand-Pressigny, including a large rubbing stone used for polishing axes, hammer stones, large nuclei, and tools of various kinds.

CATTLE KEEPERS OF ANGOLA

BY WILFRID D. HAMBLEY

Curator of African Ethnology

In the undulating grasslands and on the plains of south Angola live the warlike Vakuanyama, an intelligent people who own large herds of cattle. When the Frederick H. Rawson-Field Museum Expedition passed through this country the chieftainess of the Vakuanyama owned 14,000 head of cattle. The Vakuanyama are tall, slim people whose Negro characteristics, such as the broad nose and thick lips, have been greatly modified, presumably by Hamitic elements from east Africa.

The people practise agriculture, yet they have milk and butter as staple foods. Women may be seen sitting on the ground swinging calabashes of milk on horizontal poles that rest on upright supports. Cattle are not killed merely for food, but they are slaughtered in great numbers to provide meat for funeral feasts. The horns are mounted on poles over the graves, and if the deceased is a chief his body is sewn in ox-hide.

The Ovimbundu of central Angola sever the head of a chief from the body, wrap the head in ox-hide and preserve it for consultation. The box containing the head is fastened to a pole which is supported on the shoulders of two bearers. A medicine-man questions the mounted head concerning success in trade, the reason for sickness or drought, and the spirit is supposed to answer by movements of the pole; these motions the medicine-man can interpret.

In a case at the east end of Hall D, several objects from the Vakuanyama are displayed, including milk pails and jugs, skilfully carved; assagais of iron, their shafts encased in bullocks' tails with the tufts of hair attached; omba shells and ostrich egg-shell beads; long knives of exceptionally good workmanship, and hide skirts, made by men for their wives by a laborious process of soaking, treading under foot, and smearing with grease and red ochre, after which they are neatly pleated.

Fluorescent Opal

A fluorescent specimen of more than usual beauty has been added to the exhibit of fluorescent minerals in Hall 34. This is a hyalite, a colorless, water-clear, transparent variety of opal. It is shown in the form of a film covering a granite surface. When exposed to ultra-violet light, as provided in the Museum exhibit, the colorless mineral emits a brilliant green light, while the enclosing granite glows dully with a contrasting red.

BABIES' RATTLES FROM 2600 B.C. AND OTHER ANCIENT TOYS

BY RICHARD A. MARTIN

Curator of Near Eastern Archaeology

Rattles, such as are used to pacify babies, have a long history. Field Museum is in possession of several children's rattles, made of pottery, dating back to 2600 B.C. Some of these are in the shape of animals, such as hedgehogs or goats, while others are very similar in form to those used to-day. They are hollow and contain one or more pebbles which make the noise. These rattles are from the ancient city of Kish, and were excavated by the Field Museum-Oxford University Joint Expedition to Mesopotamia. One of these rattles might have belonged to Sargon of Akkad, whose youthful days were spent in Kish, or perhaps to a playmate of this founder of a great dynasty.

Also in the collection is a whistle, the sound of which was heard on the radio-drama about life in Kish given June 23 over WGN, in the series "From the Ends of the Earth" currently being presented by Field Museum and the University Broadcasting Council. Among other toys are models of chariots such as those mentioned in the broadcast.

In general, outside of modern Europe and America, rattles have been used more by adults than by children. In India, however, native children are given rattles to play with. Among the Chinese, various sorts of bronze rattles were formerly used as musical instruments, and the Museum has on exhibition a set of this type of rattles which was used by an ancient Chinese military orchestra.

A large and varied collection of rattles used in the magical rituals of African tribes is on display in the halls of African ethnology. Various tribes of American Indians used rattles similarly in religious ceremonies, and various types made by them are included in the Museum exhibits. In ancient



Toys from Ancient Kish

Donald Miller, 7 years old, of Springfield, Illinois, on a visit to Field Museum, learns from Curator Richard A. Martin about toy chariots, animals and rattles made for Sumerian children about 4,500 years ago.

Egypt a sort of rattle, called a "sistrum," which consisted of a staff with metal rings dangling on its end, was used by priests in very solemn religious ceremonies. A bronze sistrum is exhibited in Hall J.

RELIEF MAPS OF CHICAGO

BY HENRY W. NICHOLS
Chief Curator, Department of Geology

Of special interest at this time, while Chicago is celebrating its Charter Centennial Jubilee, are four relief maps which occupy a prominent place on the bridge connecting Halls 34 and 35. They illustrate stages in the emergence from an old lake bed of the plain upon which Chicago is built, and show the position of successive ancient beaches, spits and other shore features. Many of these may still be recognized, but much has been obliterated by building operations.

The Chicago plain is a low, flat, crescent bordering the head (commonly regarded by error as the foot), of Lake Michigan. Its northern end lies at Winnetka. The plain broadens to a width of twelve to fifteen miles in a southwesterly direction from the city, and again narrows to the eastward about the head of the lake. This plain rises gradually to a nearly uniform height, at its inner margin, of about sixty feet above the lake. West and south is an elevated belt known as the Valparaiso Moraine. This once marked the western boundary of a body of water confluent with Lake Michigan and known to geologists as Lake Chicago. The recession of this lake, which produced the Chicago plain, was marked by three successive stages the varying outlines of which are shown in the maps exhibited.

The earliest stage is the Glenwood, so called because the beach it formed is especially well shown near the village of Glenwood. The water at this time stood about sixty feet above the present level of Lake Michigan. The drainage of the lake, instead of being eastward as now, passed in the form of a broad river southward to the Mississippi. The waters form a bay up the present valley of the Des Plaines River. A spit was created near the present village of Oak Park, and another at Glenwood. The present Mount Forest area was a triangular island. The only other emerging land within the area was Blue Island, a ridge of drift about six miles long and one mile wide. After the Glenwood beach was formed, a northeastern outlet for the lake seems to have been opened, and the waters

receded from the plain. Following this interval of emergence, the plain was again submerged. This may have been due to a return of a glacier or to a rise of the land.

The level to which the water then rose marked a second stage called the Calumet. This was thirty-five or forty feet above the present lake level. The stage receives its name from the Calumet River. The intervening plain between Mount Forest Island and Blue Island emerged, so that the area formed one large island. The head of the Sag outlet lay between the south end of Blue Island and the inner margin of the moraine. The waters here were divided by a low body of land known as Lane's Island. The waters of Stony Creek now traverse the former north channel here. From a point north of Chicago there was formed into the Chicago embayment a conspicuous bar, called Rose Hill bar, on which Rosehill cemetery is now located.

Next came the Toleston stage with a

elevation is now traversed by North Clark Street, and about midway of its length lies Graceland Cemetery. Probably while this bar was being made, diminishing the outflow to the northwest, the present outlet of the lake to the northeast was being established. Another bar formed from Groveland Park southwestward through Washington Park to Englewood. Stony Island emerged as a reef or island possessing a controlling influence on the currents. Under its protection a ridge and sandy beach were developed from South Englewood through Burnside to Stony Island. The formation of the basin now occupied by Lake Calumet is probably also due in part to this influence. Like ridges produced Hyde Lake, Wolf Lake, and Lake George.

Following the Toleston stage, the history of Lake Chicago passed into that of Lake Michigan. Bars and beaches were built which in time produced the present shore line. Filling has taken place through the



Photograph copyright Field Museum of Natural History

A Coral Reef in a Tropical Sea

Guess what place this scene represents. Somewhere near Tahiti? Sorry, but it's the site of Chicago, as science indicates it must have appeared 400,000,000 years ago. One of the 28 large mural paintings of prehistoric scenes by Charles R. Knight, exhibited in Ernest R. Graham Hall (Hall 38).

third recognizable shore line formed at a level about twenty feet above the present lake. It is named from the village of Toleston in northwestern Indiana. From Summit southwest towards Willow Springs the shore of the outlet at this stage is marked by a fifteen or twenty-foot drift bluff, now followed by Archer Road. From the Rose Hill bar the shore currents deposited material in a great bar over that part of Chicago which lies between the north branch of the Chicago River and Lake Michigan. This

its present position north of Miller, Indiana. The river finally reaches the lake after doubling on itself 22 miles. The present short branch to the lake is artificial.

The location of Chicago was largely determined by the former course of drainage of the lake southward. The remains of the old channels made a convenient line of portage by which early traffic passed from the Great Lakes to the Mississippi. Thus a trading post was established from which the present city of Chicago has developed.

BOARD OF EDUCATION APPROVES "FOOTPRINT SERIES" BOOKS

Six small books for children, with texts based entirely on material in Field Museum, and containing "three-dimensional" illustrations of Museum habitat groups of animals, were recently placed on the Approved Work Material and Test List adopted by the Chicago Board of Education. This is a list of reading material recommended to teachers to supplement regular text books. Before being placed on it, books are reviewed and analyzed by com-

mittees of teachers and principals, and their choices are passed upon by officials of the Textbook Section, Bureau of Research and Building Survey, Superintendent of Schools William H. Johnson, and Dr. William G. Brink, of Northwestern University, as educational counselor.

The books based on Museum material are *The Deer*, *The Bear*, *The Lion*, *Wild Sheep and Goats*, *Giants of the Animal Kingdom*, and *Monkeys and Apes*, published by the Orthovis Company, Chicago, under the general title "The Footprint Series." The author is H. B. Harte, who is in charge of

Field Museum's Division of Public Relations. Each book contains several pictures which stand out in three dimensions when viewed through a special device accompanying every copy. Also approved are two manuals on classroom use of the books.

Suitable also for children's use at home, these books may be obtained at Field Museum. They are priced at 15 cents each, with postage additional on mail orders.

Field Museum memberships make ideal gifts for various occasions. Full information on request.

HUMAN TWINS AS GUINEA PIGS IN COFFEE AND TEA TESTS

By B. E. DAHLGREN
Chief Curator, Department of Botany

Except for reports by early travelers, the tea of China and the coffee of Arabia remained unknown in western Europe until the first part of the seventeenth century. The story of their introduction is lengthy and complicated. Appearing almost simultaneously, both found enthusiastic devotees, and both aroused lively opposition, often from official quarters. At first the new beverages were condemned as vain and useless affectations, then as insidious and dangerous foreign luxuries threatening the business of wine growers and brewers. It was said they dried up the juices of the body, deranging its natural functions, producing wakefulness and sedition, and causing early death.

As, in the course of time, both became firmly established in spite of opposition, the arguments for and against coffee and tea became chiefly those of partisans and promoters of one or the other. The controversy in the end was generally resolved in accordance with predominating national interests. England with its Oriental trade and tea plantations became a tea drinking country. Holland and France, with coffee plantations in the East and West Indies, became consumers principally of coffee.

In the Scandinavian countries, where coffee and tea arrived rather late, both sides contended for a market. In the latter part of the eighteenth century the rival propaganda became so absurd and fantastic that the king of Sweden, Gustaf III, a liberal-minded and original monarch, became annoyed and sought means of putting an end to the extravagant and unsubstantiated claims of both parties.

Opportunity came when a pair of twin brothers, alike in every physical respect, were convicted of a murder and condemned

to death. Deciding to use them for an experiment which would forever settle the dispute over tea and coffee, the king commuted their sentences to life imprisonment with the provision that one of them should be made to consume daily a powerful potion of tea, the other an equivalent potion of coffee. Physicians from the two rival camps were appointed to follow the experiment and to watch and record its progress. For some time expectations ran high among both the tea and coffee factions, but the harmful effects predicted were so slow in manifesting themselves that public interest lagged, and even the physicians grew weary of watching. After some years one of the medicos died. The death of the other soon followed. Then, in 1792, the king was assassinated. But the punishment of the prisoners went on. For years after they had been forgotten by the outside world, they continued to consume their prescribed daily potion, which instead of bringing them the speedy death predicted had come to be their chief delight, serving to sustain their old age in prison. Finally one of the twins—the tea drinker—died at the age of 83, and the circumstances of their life imprisonment were recalled. The king's experiment was ended. Its outcome unquestionably was as if made to order for his subjects, for coffee has grown steadily in popularity in Sweden until its per capita consumption exceeds that of any other country of the world, the United States ranking second.

To King Gustaf III appears to belong the distinction of having been one of the earliest, if not the very first, to use for a well-conceived scientific experiment, what, according to description, must have been a pair of identical twins.

In Hall 25 of the Museum are models of coffee and tea plantations, a reproduction of a tea bush in flower and fruit, and an exhibit pertaining to the production and grading of coffee and tea.

ARCHAEOLOGICAL EXPEDITION REPORTS PROGRESS

In the first few weeks of operation, the Field Museum Archaeological Expedition to the Southwest, under the direction of Dr. Paul S. Martin, Chief Curator of Anthropology, has made a reconnaissance of ten square miles in the vicinity of Lowry Ruin. This is in the extreme southwestern portion of Colorado, close to Mesa Verde National Park and the Ute Indian Reservation. About 200 sites have been charted. Most are of the earliest horizon for this region and have never before been reported.

The searchers have been strung out along a half-mile front, about 100 feet apart, and have proceeded directly across country. In this way even the smallest, one-room dwellings have been reported. Each searcher is equipped with pottery sacks and identification tags for the specimens collected. When a site is discovered it is numbered, noted on a special map, and a careful collection is made of the broken pieces of pottery.

More than 3,500 broken bits of pottery have been brought into camp for washing, sorting, and classification. The locations of new sites are indicated on a large map of the entire region as soon as this work is completed.

Marked differences in types of culture have been noticed in the six-mile east-to-west stretch of the reconnaissance. In the eastern section, which is rolling country covered with sage and piñons, there are found ruins of "Basket Maker" dwellings only. No "Basket Maker" site has been dated at later than A.D. 650.

To the west, where there are deep canyons, barren ledge rock, and sand, there is an intermixture of "Basket Maker" and "Pueblo" or "Cliff-dweller" sites. The cliff-dwellings and pueblos probably date at A.D. 900 to A.D. 1100.

There is good chance of obtaining accurate dates for some of the sites discovered in this survey. A few are burned, with brick-hard adobe and charred roof-beams scattered over the surface of the ground. It is possible, by comparing the tree rings of these burned timbers with a master series for this region which dates back to the year A.D. 1, to obtain dates that are within plus or minus one of being the building dates of the sites.

Excavation has already begun on one of the "Basket Maker" sites.

"ENDS OF EARTH" BROADCASTS LURE BOY FROM MISSOURI

Of the many visitors attracted to the Museum by the current radio series, "From the Ends of the Earth," the most enthusiastic thus far is Robert Kroening, 12-year old boy of Kirkwood, Missouri. Robert, on July 23, traveled all the way to Chicago from his home, a distance of several hundred miles, to join the special tour presented as a followup to the broadcast based on the Straus West African Expedition (on the air July 21).

Robert, who is a seventh-grade pupil at school, found it very exciting to see the habitat groups of African birds, the hunting of which had been dramatized on the radio, and to meet Curator Rudyerd Boulton, leader of the expedition. He told Director Clifford C. Gregg that he had listened to and enjoyed every one of the weekly programs since the series began on May 19, and intended to hear all that are to follow. He was especially interested in the program of adventures in the Philippines, and the experiences of Dr. Wilfred H. Osgood, Chief Curator of Zoology, in hunting the spectacled bear in Peru.



Miniature of a Brazilian Coffee Plantation

One of the plant economics exhibits in Hall 25. Prepared in the Plant Reproduction Laboratories of the Department of Botany by Assistant John R. Millar, with a background by Staff Artist Charles A. Corwin. Accurately scaled, it shows in detail the activities connected with the commercial cultivation of coffee.

Ancient Salt Block Recalls Story of Lot's Wife

A block of transparent rock salt like that into which Lot's wife was changed, according to the story in the Bible, and old enough to have been contemporary with her, has been presented to the Museum by Mr. Morris G. Morrison, of Evanston, Illinois, who lived for many years in Palestine. This

salt comes from the Jeban Usdum, meaning Mountain of Salt, on the shore of the Dead Sea. A cave in this mountain contains many stalactites of rock salt, one of which, also presented by Mr. Morrison, has been added to the collection of cave products in Clarence Buckingham Hall (Hall 35). The rock salt is exhibited in the salt collection in Frederick J. V. Skiff Hall (Hall 37).

TWO MORE RADIO-DRAMAS IN MUSEUM SERIES

The final programs in the radio series, "From the Ends of the Earth," presented jointly by Field Museum and the University Broadcasting Council, will be given on the first two Wednesday evenings in August. Like the eleven previous programs presented during May, June and July, these broadcasts will begin at 9 P.M. central daylight saving time, and will be heard over station WGN in Chicago and vicinity. Other stations of the Mutual Broadcasting System will carry them at the corresponding hour in other time belts.

Subjects of the final dramatizations of the work of Field Museum expeditions are:

August 4—Collecting Plants in the Upper Reaches of the Amazon.

August 11—Mankind All Over the World—the story of the expedition of sculptor Malvina Hoffman on which she circled the globe, seeking and modeling typical representatives of the principal races, for the famous series of bronze and stone figures in Chauncey Keep Memorial Hall. This program, concluding the series, will include an interview with Mr. Stanley Field, President of the Museum.

Praised by Critic

These broadcasts, which have been a striking innovation in Museum activities, have brought much favorable response. Particularly interesting are the comments of *Variety*, weekly journal of the theatrical profession, noted and respected for its always slangily candid, and often caustically expressed, opinions. On its radio review page, issue of June 30, *Variety* said:

"FROM THE ENDS OF THE EARTH"

"Significant of the development of radio is the climb in quality taken by educational programs. In the past, quite naturally neglected because of their non-commercial nature, they were endured by stations for license renewal reasons only, and spotted where dialing out on the part of the public would hurt least. From the first carelessly prepared talk by a non-professional speaker to whom only relatives listened, to a beautifully produced dramatic production, such as this MBS-University Broadcasting series, is a long distance.

"Show caught is part of a series done in cooperation with Field Museum, and on the subject of Filipino head-hunters. Purporting absolute authenticity, not only in subject matter of script, but even in details such as savages' drum rhythm, the show has built into its structure enough action and human interest to rank it with the top fiction-drama programs on the air.

"Capital performances are given by the entire cast, this too, showing the change which has come to educational. This series is being done by the best of the ranking Chicago professionals. As such, maybe they make production easy. If so, well and good, but the production job is unquestionably one to make many a commercial job look sick."

SHEDD AQUARIUM PRESENTS FISHES OF PACIFIC

By ALFRED C. WEED
Curator of Fishes

The active assistance of a large aquarium is a great and much appreciated help to those in charge of the fish collections of a museum. In this respect, Field Museum is especially fortunate in having the hearty cooperation of the John G. Shedd Aquarium. Mr. Walter H. Chute, its Director, and his entire staff, have extended many courtesies

to workers in the Department of Zoology, both by saving desirable specimens, and by granting facilities for the study of exotic fishes.

The Museum collections have been particularly enriched by the results of the Shedd Aquarium expeditions to Hawaii, Fiji and Australia. A great many highly desirable specimens have come to the Museum after having served their purpose in the exhibition tanks of the Aquarium. Among exhibits resulting directly from this cooperation may be mentioned those of sargassum fish, angler fish, scorpion fish, batfish, parrot fishes, groupers, and flounders.

Specimens recently began to arrive from the 1937 expedition of the Aquarium to Hawaii and Fiji. Some of the more interesting ones thus far received are: a little shark boldly banded in black and white; a fine specimen of flying gurnard; some highly colored butterfly-fishes; brilliant trigger-fishes; colorful parrot-fishes; surgeon-fishes; lion-fishes that are described by a recent writer as looking like animated feather dusters; and gobies, blennies, and many others of special scientific interest. Some of these will be used in exhibits; others are designated for research purposes.

1,000 YEARS ADDED TO HISTORY OF DOMESTICATED HORSE

The history of the domestication of the horse has recently been traced back an additional thousand years. Previously it had been thought that the horse was introduced into Babylonia by the Kassites during the early portion of the second millennium B.C. However, the Early Dynastic I (circa 3000-2800 B.C.) tombs at Kish, excavated by the Field Museum-Oxford University Joint Expedition to Mesopotamia, yielded animal bones some of which have now been identified by Professor Wolfgang Amshler, of the College of Agriculture, Vienna, as those of the domesticated horse (*Equus caballus*). These horses were larger than the Arabian horse of today, standing 15 hands* 3 inches at the withers.

These skeletal remains of horses were found hitched to chariots as the animals had fallen, after being slaughtered in the tombs of their masters to provide transportation in the underworld. The bronze harness trappings and portions of the chariots were well preserved, and it is possible to reconstruct the picture from scenes on seals and plaques found at Kish and other sites.

Thus far, no Sumerian word for horse is recognizable, and it was thought that only the donkey was referred to in texts of this period. Now, with the realization that the horse was used at that time, it may be possible to identify some descriptive form of ass with the word for horse, as was done in Old Babylonian where the horse is known as the "ass from the mountains." The earliest Egyptian records show that the Hyksos (circa 1700 B.C.)—the "Shepherd Kings"—brought the horse into the Nile Valley. —R.A.M.

*One hand = 4 inches (10.16 centimeters).

Field Museum Library, with 105,000 books and pamphlets on natural history and related subjects, is available to the public for reference. Open daily 9 A.M. to 4:30 P.M.; Saturday to noon; closed Sunday.

Interesting books and pamphlets on natural history are on sale at the counters near the Museum entrances.

GUIDE-LECTURE TOURS

During August conducted tours of the exhibits, under the guidance of staff lecturers, will be given on a special schedule, as follows:

Mondays: 11 A.M., Plant Life Exhibits; 3 P.M., General Tour of Exhibition Halls.

Tuesdays: 11 A.M., Halls of Primitive and Civilized Peoples; 3 P.M., General Tour of Exhibition Halls.

Wednesdays: 11 A.M., Animal Groups; 3 P.M., General Tour of Exhibition Halls.

Thursdays: 11 A.M. and 3 P.M., General Tours of Exhibition Halls.

Fridays: 11 A.M., Minerals and Prehistoric Life; 3 P.M., General Tour of Exhibition Halls.

There are no tours given on Saturdays or Sundays.

Persons wishing to participate in the tours should apply at the North Entrance. The tours are free, and no gratuities are to be proffered. Guide-lecturers' services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

Chinese images in brass and carved wood, from N. Dwight Harris; 8 Turkish marionettes, from Miss Caroline Wicker; collections of barbarian specimens from Museo Nacional de Costa Rica, Yale University, University of Texas, James Zetek, B. F. Harrison, and Carnegie Institution of Washington, D. C.; mineral and other geological specimens from Anthony Mazur, Mrs. Dorothy K. Young, Messrs. Levin and Rubin, Morris G. Morrison, Industrial and Agricultural Museum of Poland, Oscar U. Zerk, and Dr. Burt Ogden; 248 cabochon-cut Australian opals from Jerome Von Rappaport; a cabochon-cut star sapphire mounted in a white gold ring, from Mrs. William J. Chalmers; a hand-carved Daruma Buddha of jet, from Haruyoshi Tokuno; tooth fragments of *Arkadiskon*, from Homer Mooney; reptile specimens from Mrs. Herman Dunlap Smith, Karl K. Kaempfer, James J. Mooney, Walter H. Chute, and Lincoln Park Zoo; bird specimens from Leslie Wheeler Fund, Al Pfeuger and Dr. M. Don Clawson; mammal specimens from Dr. J. F. W. Pearson, Henry Field, and Colorado Museum of Natural History; fish specimens from John G. Shedd Aquarium, Henry Field, and Stacia Morska (Polish Marine Station); and valuable books for the Library from L. Arpee, Paul Berge, Masumi Chikashige, Administration Puerto Rico, Rodolfo Lenz, James L. Peters, and Clifford H. Pece.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from June 16 to July 15:

Life Members

Mrs. Leslie Wheeler

Associate Members

Mrs. Arch W. Shaw, Frank F. Taylor

Sustaining Members

John D. Swigart

Annual Members

E. E. Adams, J. Walker Black, W. R. Bowes, J. J. Brossard, Dr. Joshua M. Brown, Charles B. Burdick, Harry C. Carr, Irving Leslie Cohen, Mrs. Joseph R. DePencier, Dr. Henry J. Dera, Miss May Diehl, Douglass Doolittle, Mrs. William Haywood, Richard H. Lingott, William A. Magie, John Olson, Charles A. Passell, Mrs. Clarence A. Peirce, Arthur C. Perry, Irwin W. Preetorius, Mrs. Gustave A. Reuter, Jacob Schu, George A. H. Scott, Harry G. Taylor, John R. Winterbotham, Jr., Philip M. Yavitz.

Visitor from Australia

Mr. Gerald Lightfoot, Secretary of the Council for Scientific Industrial Research, Melbourne, Australia, was a guest of Field Museum on July 13.

In Ernest R. Graham Hall (Hall 38) is an ancient human skull with vessels of pottery covered with an incrustation of dripstone (stalagmite). It was found in a cave on the Isle of Crete and is excellent evidence of the great period of time since man began to develop as an artisan.

Extensive free parking spaces are available for Field Museum visitors.

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HABITAT GROUP OF RARE ASIATIC TAKIN ADDED TO WILLIAM V. KELLEY HALL

BY COLIN CAMPBELL SANBORN
Curator of Mammals

The takin—one of the most difficult to hunt of all Asiatic animals—is the subject of a new habitat group opened in William V. Kelley Hall (Hall 17) last month. In the group are five specimens ranging from young calf to old buck, mounted in lifelike attitudes amid a scene representing their mountainous home. The specimens were collected by the Marshall Field Zoological Expedition to China under the leadership of Mr. Floyd Tangier Smith. The group was prepared for exhibition by Staff Taxidermist Julius Friesser and his assistant, Mr. Frank C. Wonder, and has a background by Staff Artist Charles A. Corwin.

The takin is classified in the division of mammals which falls between the goats and the varied forms called antelopes, and hence it is known as a goat-antelope. Other animals belonging to this division are the American Rocky Mountain goat, the European chamois, and the Asiatic serow and goral. All of these are animals that live at high altitudes in rough, and usually rocky, mountain ranges.

There are four known forms of takin, those in the Museum group being of the species known as Szechwan takin. The others are the Chinese or golden takin, the Mishmi Hills takin, and the Bhutan takin. Although their ranges are widely separated, all are very closely related. In George M. Pullman Hall (Hall 13) the Museum has on exhibition a specimen of golden takin.

Takins are solidly built animals, with short thick legs, thick necks, heavy muzzles,

and noticeably convex faces. The muzzle is hairy except for a small spot at the extremity. In color, takins vary from dark brown to a golden yellow. The Szechwan takin is one of the yellow forms, and is further distinguished by its black face.

The horns of the young takin grow straight up; later they curve outward and downward, and in the adult the horns are very broad at the base, curving forward, then bending downwards and outwards, with the points going upward and bending

the year. In winter they live in small bands, but in summer they gather in herds of as many as three hundred. During the day they lie concealed in thick jungles of bamboo and rhododendron, or among the conifers. Late in the afternoon or early in the evening they come out to feed. Warm springs are favorite haunts of these animals. Their food consists of grass, bamboo leaves, and shoots. Spots where they have tarried are always marked, as they bark the trees by rubbing the thick base of their horns against them.

It is said that takins have very poor sight and hearing but a very keen sense of smell. The smoke from a small fire built in a valley where they are grazing, although two or three miles from them, will cause them to move to other parts.

Because they live in such steep and broken country and at such high altitudes, they are extremely difficult to shoot. There are many hardships merely in traveling to their haunts, while climbing about the snow-covered hills and through the bamboo in search of them is still more arduous. It is only in very recent years that foreigners have shot many takins. It is reported that they are held sacred in Tibet, and the punishment for catching or shooting one is to cut off the hands of the guilty man. Elsewhere, how-

ever, natives hunt them whenever possible.

The first one to be shown in a zoological garden was brought to London in 1919, and lived there nearly ten years. The second was not secured until 1923. Only one young takin is born each year to a pair of adults.

The specimens in the Museum's group were collected in the province of Szechwan.



From the Mountains of China

The takin, elusive goat-antelopes of Asia, as shown in new habitat group in William V. Kelley Hall. Specimens collected by the Marshall Field Zoological Expedition to China under the leadership of Mr. Floyd T. Smith. Prepared by Staff Taxidermist Julius Friesser and his assistant, Mr. Frank C. Wonder. Background by Staff Artist Charles A. Corwin.

towards each other at the tip. The females have horns slightly smaller than the males. The record horns measure 25 inches on the front curve, $12\frac{3}{4}$ inches in circumference at the base, and nearly 13 inches from tip to tip.

Takins live on the steepest parts of thickly wooded hills at altitudes from 4,000 to 12,000 feet, depending on the season of

AUTUMN LECTURE COURSE TO BEGIN OCTOBER 2

Field Museum will present its Sixty-eighth Free Lecture Course for adults on Saturday afternoons during October and November in the James Simpson Theatre. In all there will be nine lectures on science and travel by men of eminence in natural history and exploration.

The opening lecture, on October 2, will be "Glimpses of American Wild Life," by Mr. C. J. Albrecht, one of the Museum's Staff Taxidermists. Mr. Albrecht has spent

most of the past summer in the Pribilof Islands on an expedition which collected fur seals for a projected new habitat group.

Among well-known men who will appear on later lecture dates are the explorer Vilhjalmur Stefansson, and the astronomer, Dr. Forest Ray Moulton. The complete schedule of dates, subjects and speakers for the lecture course will appear in the October issue of FIELD MUSEUM NEWS.

No tickets are necessary for admission to these lectures. A section of the Theatre is reserved for Members of the Museum,

each of whom is entitled to two reserved seats on request. Requests for these seats may be made by telephone or in writing to the Museum, in advance of the lecture, and seats will be held in the Member's name until 3 o'clock on the day of the lecture. Members may obtain seats in the reserved section also by presentation of their membership cards to the Theatre attendant before 3 o'clock on the lecture day, even though no advance reservation has been made. All reserved seats not claimed by 3 o'clock will be available to the general public.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

CLIFFORD C. GREGG, *Director of the Museum*... Editor

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WILFRED H. OSGOODChief Curator of Zoology
H. B. HARTEManaging Editor

Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelaon and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additional under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

DIRECTOR OF MUSEUM VISITING EXPEDITIONS IN FIELD

Mr. Clifford C. Gregg, Director of the Museum, is on a month's trip in the west, during the course of which he is making inspection visits at the sites of operation of two current expeditions—the Field Museum Paleontological Expedition to Colorado under the leadership of Assistant Curator Bryan Patterson, and the Field Museum Archaeological Expedition to the Southwest under the leadership of Chief Curator Paul S. Martin. This is the first time in the history of the Museum that a Director has camped with expeditions in the field and participated actively in their work. However, a previous Director, the late Mr. Stephen C. Simms, conducted a number of expeditions while he was an Assistant Curator, many years before he became the institution's chief executive.

EXCAVATIONS BEGUN ON SITES IN SOUTHWEST COLORADO

The work of excavating ancient Indian dwelling sites in southwestern Colorado has been begun by members of the Field Museum Archaeological Expedition to the Southwest, according to a report received recently from the leader of the party, Dr. Paul S. Martin, Chief Curator of Anthropology.

The sites being dug up are the principal ones among some two hundred discovered in an intensive archaeological survey, as announced in the August issue of FIELD MUSEUM NEWS.

Already exposed by the carefully manipulated spades of the diggers are several early houses located on high ridges. Some of these have one room, some two. Most of them are built of slabs of stone on edge with a stockade of poles to support the roof beams; the walls of one very early house, however, consist entirely of adobe.

Found in a niche in the natural dirt wall of one subterranean house was the skeleton of a small child who lived perhaps as much as 1,000 years ago. A grim aspect surrounds this find, for there is every indication that the child's body rested in this place while the building was still in use.

Every shred of evidence, including many pieces of ancient pottery, and burned pieces of roof logs, is being carefully collected and brought to Dr. Martin's camp. There, employing the most advanced technique of archaeological research, attempts are being made to date accurately the occupation of the sites by the early American aboriginals of the region.

The methods employed depend upon statistical evidence rather than on personal opinion. An example is the block method of stratigraphy. Dirt and refuse are removed from a ruin in blocks of definite volume. The broken pieces of pottery and other artifacts are tabulated and analyzed for each block. It is then possible to compare the results from the various blocks with each other, for the same unit volume is represented in each. In this way the chronology of different groups of people of the region is determined, as the blocks reveal certain kinds of pottery and other artifacts at different levels within a site. It is a basic common-sense principle of archaeology that if one kind of pottery is found underneath another type, the under one is almost surely older than the one which overlays it.

"The expedition is engaged in a fight against time, for there has been an unusual amount of rain this year," Dr. Martin's

report states. "At the first sign of rain, the men on reconnaissance and on the dig race into camp, trying to beat the storm, for a fifteen-minute rain can maroon a man in impassable mud miles from our camp. Orders have been given to the men on survey to redouble their efforts, because the work so far completed has revealed tantalizing evidence of these early people which may remain an incomplete story if the rain continues to interrupt operations. Scores of sites deserving individual attention are being reported daily.

"Members of the expedition's scientific staff in the base camp are eagerly scanning survey reports for two things in particular: an extremely deep grave mound that would contain enough material to yield a complete chronology of the region, and ball courts. A small percentage of the pottery indicates that there might be a pueblo in this area that is similar to those found in Arizona. The Arizona people were characterized by their similarity to the ancient Mayas of Yucatan in that they both had ball courts, in which a game similar to basketball was played with rubber balls."

SEA ANEMONES

BY ALFRED C. WEED
Curator of Fishes

Sea anemones are found in almost all except the coldest seas. They are distantly related to the starfishes, but do not travel to seek food. As usually seen, they resemble beautiful flowers. They have a short, thick stem by which they become attached to rocks or other solid substances, and a broad disk with a mouth opening in the center. This orifice is surrounded by a very large number of tentacles that move freely and can be lengthened or shortened at will. The tentacles, covered with stinging cells, serve to capture food. When a small fish touches the upper surface of the disk it is almost immediately paralyzed by the stinging cells and held by the tentacles. Then the disk closes around the fish and carries it down into the mouth where it is digested. In the process the anemone almost entirely turns itself outside in.

In various parts of the South Seas there is a strange relationship between certain species of sea-anemones and certain small fishes of the coral reefs. The fishes live in and on the anemone and manifest great discomfort when they are kept away from it. They spend much of their time rubbing their sides against the tentacles or lying partly buried in them. They even enter the mouth, wholly or partly. Several competent observers have reported seeing the fish carry food and drop it into the mouth of the anemone. The latter seems to enjoy the association as much as the fish does.

These fishes are very brilliantly colored, with bold markings of red, black and white. They make a very striking picture when posed against the white background of the sea-anemone. Some reproductions of sea-anemones are exhibited in Albert W. Harris Hall (Hall 18).

Change in Visiting Hours

Field Museum visiting hours, which have been 9 A.M. to 6 P.M. daily during the summer months, will change to the autumn schedule—9 A.M. to 5 P.M.—on Tuesday, September 7, the day after Labor Day. These hours will continue until October 31. On November 1 the winter hours, 9 A.M. to 4 P.M. will go into effect, continuing until February 28. During the latter period, however, the Museum will be open until 5 P.M. on Sundays.

A NEW YORK BOY, 14 YEARS OLD, IS 20,000,000th VISITOR

As forecast in the August issue of *FIELD MUSEUM NEWS*, the twenty millionth visitor to the present building of the Museum in the sixteen years since its opening, arrived during the first week of August—on Wednesday, August 4.

The person selected by fate to arrive at the decisive moment is John Ladd, 14 years old, a high school boy from New York City, who came to the Museum while visiting relatives in Chicago. John, momentarily startled as he was stopped at the Museum entrance by Director Clifford C. Gregg, recovered his presence when he realized his "arrest" was purely one of welcome. Mr. Gregg informed him that he was the twenty millionth visitor and presented him with a certificate of Life Membership in the Museum. The Director then conducted the lad to the office of President Stanley Field, who reiterated the welcome and presented John with a miniature reproduction of one of the Races of Mankind sculptures in Chauncey Keep Memorial Hall—the bronze figure of a Vedda, of Ceylon, by the noted artist, Malvina Hoffman.

Director Gregg next escorted John on a tour of some of the principal exhibits in the various Departments of the Museum, as well as through the special exhibit in Stanley Field Hall arranged for the occasion of the twenty millionth visitor's arrival. The boy evinced great interest in the comparison of old and new Museum methods illustrated in this special exhibit, and in the pictures, charts, and other features which traced the growth of the institution and its activities from its founding in 1893 down to the present time. It

happened that John, despite his youth, had for some years been developing into an avid museum "fan," with a special interest in various phases of natural history. He had been a visitor in a number of important museums in other cities, and upon his visit to Chicago one of the first things he had expressed a desire to do was to visit Field Museum.

After his inspection of the exhibits, John was taken by Director Gregg to the Museum's printing shop where he saw his name printed on the Life Membership certificate that had been given to him.

The special exhibit is being maintained in Stanley Field Hall until Labor Day (September 6).



President and Director Greet Visitor No. 20,000,000

John Ladd (center), 14 years old, of New York City, entered Field Museum on August 4 just as the attendance tally reached twenty million for the present building. He is seen here holding a bronze sculpture of a Vedda by Malvina Hoffman, presented by President Stanley Field (right). Director Clifford C. Gregg (left) holds a Life Membership certificate which was also given to the boy.

RAYMOND FOUNDATION OFFERS PROGRAMS FOR CHILDREN

The annual autumn series of free motion picture programs for children, presented by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, will begin on October 2, and continue each Saturday morning during October and November. Nine programs, including thirty-two films, will be presented. While a few of the pictures are silent, the majority will be sound films for the presentation of which the James Simpson Theatre of the Museum was equipped earlier this year.

The films to be shown on the October 2 program are: "Su-lin the Panda," "The Haunted House," "Cats and More Cats," and "Top o' the Morning." There will be two showings of the films on each program, one at 10 A.M. and one at 11. A complete

schedule of the dates, and the titles of the films to be presented on each, will appear in the October issue of *FIELD MUSEUM NEWS*. Children from all parts of Chicago and suburbs are invited to attend these entertainments. They may come alone, in groups from schools and other centers, or with parents, teachers or other adults. No tickets are required for admission.

SPECIAL NOTICE

All Members of Field Museum who have changed their residences or are planning to do so are earnestly urged to notify the Museum at one of their new addresses, so that copies of *FIELD MUSEUM NEWS* and all other communications from the Museum may reach them promptly.

BASEMENT HERPETOLOGY

BY KARL P. SCHMIDT
Curator of Reptiles and Amphibians

A herpetologist, whose study includes the amphibians and reptiles, is quite likely to be this sort of specialist because these creatures are to him the most charming of animals, although they include many which millions of people regard as the most repulsive of living things. Perhaps it is only poetic justice, therefore, that the basement of a herpetologist's home should repeatedly become the dwelling place of some of these creatures which are his familiars.

Tiger salamanders, commonly but incorrectly known as lizards, spend their summers on land, burrowing in the soil or beneath logs or boards. In September or October, depending upon the lateness of the season, they are seized with the homing instinct which causes them to travel overland to the ponds and marshes in which they spend the winter. Open cellarways make effective pitfalls for these salamanders, and during this season they are frequently reported to the Museum from the suburbs and even from well within the limits of Chicago. If the cellar door be open, or if there be a crack beneath it, the salamander may enter the basement, and if a moist spot in a dark corner is available, may spend the winter there. The common toad also wanders far from water, and an open cellarway is a trap for him too. A half-grown toad was found to have taken up residence in my basement at Homewood, Illinois, where he stayed in a crevice where wall and concrete floor are defectively joined.

The small swamp tree frog whose loud voice in spring is the only sign of its presence to most Chicagoans, is another creature often trapped in cellarways. Two, in different years, have been found in my basement in crevices between wall and floor. These tree frogs are more sociable than the toad, for when I opened the furnace door and rattled the shovel, these froglets would give their rattling cry in reply. This behavior was continued through the winter—a most cheerful reminder that spring must surely follow.

Examples of a number of these creatures which may accidentally become inhabitants of homes in Chicago and suburbs are included among the exhibits of reptiles and amphibians in Albert W. Harris Hall (Hall 18).

NEW FOSSIL MAMMAL SPECIES DISCOVERED BY EXPEDITION

Discovery of a hitherto unknown species of prehistoric mammal by the Field Museum Paleontological Expedition to Colorado is announced in a report received recently from Assistant Curator Bryan Patterson, leader of the party. The new beast of which fossil remains have been found is one of the earliest of the larger extinct mammals, and is about the size of a hippopotamus. It lived approximately forty-five million years ago, when western Colorado was a low flat region and the Rocky Mountains were in their infancy. It is related to another recently discovered species which has been given the scientific name *Barylambda*. The latter was excavated in the same region three years ago by the same searchers.

Mr. Patterson has been engaged in research among the old formations of the Age of Mammals in Colorado since 1932. He is accompanied by Mr. James H. Quinn, also a member of the Museum staff, as well as a number of local men residing in the region being explored.

SUNDAY LECTURE TOURS TO BE INSTITUTED

To make more Chicagoans "Museum conscious," and to provide a service for persons unable to visit the Museum on week-days and participate in the regular guide-lecture tours, a plan for Sunday tours will be instituted on Sunday, October 3. On that date, and each Sunday thereafter, tours will be conducted by Mr. P. G. Dallwig, layman lecturer. Mr. Dallwig is a Member of the Museum, who has volunteered to undertake this work. He is experienced in lecturing, and because of his deep personal interest in the Museum has made a profound study of its exhibits which qualifies him highly for leading these tours.

The subject of the tours on Sundays in October will be "The Parade of the Races" (Hall of Man—Chauncey Keep Memorial Hall); on Sundays in November the topic will be "Nature's 'March of Time'" (Hall of Prehistoric Animals—Ernest R. Graham Hall); and on December Sundays it will be "Digging Up Our Ancestral Skeleton" (Hall of the Stone Age—Hall C).

The tours will start promptly at 2 P.M. from the center of Stanley Field Hall, and will end at 4 P.M. There will be a half-hour intermission (2:45 to 3:15 P.M.) for relaxation, during which those members of the parties wishing to do so will have opportunity to obtain refreshments and to smoke in the Museum Cafeteria, where special tables will be reserved for the group.

There will be no charge for the lecture tours. All wishing to participate must register and receive an identification ticket, as the number that can be taken on each tour is limited. Registrations may be made in person by speaking to the Attendant at the North Entrance of the Museum, or may be made in advance by telephone (Wabash 9410).

BOTANICAL EXPEDITION OBTAINS LARGE MEXICAN COLLECTION

Field Museum's Botanical Expedition to Southeastern Mexico was brought to a conclusion with the return last month of Mr. Llewelyn Williams, Curator of Economic Botany, who had spent almost six months making a general collection of study and exhibition material for the Department of Botany.

Most of the collecting was done on the Isthmus of Tehuantepec in the southern and eastern parts of the states of Veracruz and Oaxaca. The first ten weeks were spent in native timber camps far up the Coatzacoalcos River, where ideal facilities were provided for studying and collecting little known or new species of tropical timbers. From there Mr. Williams proceeded farther south in the state of Oaxaca collecting in various regions through to Salina Cruz, on the Pacific coast.

The isthmus has a wide range of altitude and climatic conditions, and is exceptionally rich in plant species. On the wet lowlands of the Atlantic side many varieties of tropical trees grow. Among these are mahogany, primavera, cedar, and others which furnish timbers of commercial value. On the Pacific side, however, the plant growth is entirely different and is typical of that found in arid zones. In between the two regions are the highlands of the Sierra Madre where pine, oaks, and other species associated with temperate regions are found.

About two weeks were spent in the Palenque region of northern Chiapas and in the upper reaches of the Usumacinta River, near the border of Guatemala.

The material obtained from the expedition includes approximately 8,000 herbarium specimens of shrubs, herbs, and trees with a large number of duplicates for exchanges with other institutions; more than 600 samples of woods for the study collection; timber and palm material for exhibition; and several hundred photographs.

During his travels Mr. Williams encountered a wine-yielding species of palm. The natives cut it down, scoop out a small trough in the trunk, cover it with leaves, and let it stand for two days. When they return it is found filled with a red wine formed from fermentation of the sap.

Often, lacking other sources of liquid, Mr. Williams had to slake his thirst by sipping



Drinking from the "Water-vine"

Mr. Llewelyn Williams, Curator of Economic Botany, assuaging his thirst with the teacalate vine during his recent expedition to southeastern Mexico. Upon such water-storing plants explorers often must depend in regions where other sources of liquid are few and far between.

the water stored in the stem of the teacalate vine. A three foot long section of this stem, which often is six inches in diameter, provides a refreshing though warm and insipid draught. For the same purpose, there is the fruit of the chichón palm, which the explorer had to break open with his teeth, braving its numerous prickly spines.

The tropical Mexican forests provide a prime example of the survival of the fittest, with plants and trees in combat to push their way through to the life-giving sunlight, Mr. Williams says. Some of the trees in the forest attain enormous size, for example the ceiba, which reaches six feet in diameter. The tallest trees reach heights of about 130 feet. Examples were found of "dendricide," by the "murderous" higo or amate tree, which grows upon other trees, reaching a height of 100 feet itself. It gradually kills the other tree on which it parasitically depends for support. Natives call it *Mata-palo*, meaning "tree-killer."

SEPTEMBER LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for September:

Wednesday, September 1—Birds of Other Lands; Thursday—General Tour; Friday—Plants and Animals of Long Ago.

Week beginning September 6: Monday—Labor Day holiday, no tour; Tuesday—General Tour; Wednesday—Races of Mankind; Thursday—General Tour; Friday—Unusual Plants.

Week beginning September 13: Monday—Eskimos; Tuesday—General Tour; Wednesday—South American Animals; Thursday—General Tour; Friday—Minerals, Moon and Meteorites.

Week beginning September 20: Monday—Egyptian Exhibits; Tuesday—General Tour; Wednesday—Trees of the Chicago Area; Thursday—General Tour; Friday—Marine Life.

Week beginning September 27: Monday—Jades of Many Lands; Tuesday—General Tour; Wednesday—Plants of Economic Value; Thursday—General Tour; Friday—Habitat Groups.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturer's services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Mrs. M. H. Sorensen—model of an Eskimo kayak; from Frederick W. Woodruff—2 Eskimo mukluks, Alaska; from Homer E. Sargent—22 Indian baskets and bags, California, Oregon, and Washington; from Howard Scott Gentry—36 herbarium specimens, Mexico; from Muzeum Tatrzańskie—75 herbarium specimens, Poland; from Professor César Vargas C.—91 herbarium specimens, Peru; from Professor J. Soukup—40 herbarium specimens, Peru; from B. A. Krukoff—667 herbarium specimens, Brazil; from Industrial and Agricultural Museum—an aerolite specimen, Poland; from H. B. Conover—34 tinamou eggs and 2 roseate spoonbills; from Alastair Gordon Cumming—a peregrine falcon; from Leon Mandel—a laughing gull, Great Babama; from Constance Williams—a Siamese cat; from James A. von der Heydt—hoary bat, Illinois; from Karl Plath—a king rail, Illinois; from Polish-American Chamber of Commerce—a European crane; from Colorado Museum of Natural History—4 pikas, Colorado; from Dr. Sholar Wencel—a chamois, Yugoslavia; from J. C. Halls and A. L. Hopkins—a black bear and 2 brown bears, Alaska; from J. W. Christie—an embroidered Persian shawl; from William Gates and Henry Field—valuable books for the Library.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from July 16 to August 15:

Life Members

John Ladd

Associate Members

Henry T. Adamaon, Mrs. Joseph E. Callender, Walter H. Flood, H. C. Johnson, Andrew J. Knopf, Billings M. McArthur, John C. Vaneck.

Annual Members

W. R. Alcorn, J. D. Blosser, Dr. Clement W. K. Briggs, E. W. Burbott, J. A. Clements, Dr. Edward L. Cornell, E. C. Craig, Harry E. DeCamp, Charles L. Dressel, J. Mills Easton, R. A. Fink, P. W. Goodell, James M. Krafthefer, Morrow Krum, Miss Estella Lewin, Frank J. McAdams, Jr., Owen J. McAloon, Mrs. Earl R. McCarthy, Peter J. Medema, Lingard T. Rountree, Jack C. Staenle, George J. Stewart.

737 Meteorite Falls Represented

The meteorite collection, which has just been reinstalled in Hall 34, now contains examples of 737 meteorite falls. The Museum's list of all recorded falls, probably not quite complete, accounts for only 1,175 known meteorites. This collection, therefore, contains specimens from almost two-thirds of all known meteorites.

Field Museum News

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EXPEDITIONS OF 1937 RANGE FROM ALASKA TO BRAZIL, AND MAINE TO ASIA

BY CLIFFORD C. GREGG
Director of the Museum

After an extended lull in expeditionary work, caused by the adverse economic conditions of the past few years, members of Field Museum's scientific staff in 1937 have enjoyed the greatest activity since 1931 in the collecting of specimens, and research in the field.

Although the expeditions of the current year have operated on a small scale in comparison with those in the period from 1922

National Park. A large collection of artifacts has been obtained, and the research conducted has yielded information which throws new light on the little-known history of the early aboriginals of the region.

The Field Museum Botanical Expedition to Southeastern Mexico, conducted by Mr. Llewelyn Williams, Curator of Economic Botany, has completed work in the Isthmus of Tehuantepec and parts of the states of Oaxaca and Veracruz. About 600 specimens of woods, 8,000 herbarium specimens,

in a study of the flora of Panama, working at the Barro Colorado Island Biological Station in the Canal Zone.

Mr. J. Francis Macbride, Associate Curator of the Herbarium, continued his work, begun in 1929, of making thousands of photographs of type specimens of plants in European herbaria.

Mr. Bryan Patterson, Assistant Curator of Paleontology, led the Field Museum Paleontological Expedition to Colorado, obtaining a collection of extremely important



Tracing History of Prehistoric Indians

One of the sites excavated in Colorado by the Field Museum Archaeological Expedition to the Southwest. Dr. Paul S. Martin, Chief Curator of Anthropology, and leader of the party, is seen at right completing his notes on the fire pit of an underground ceremonial chamber. One of his assistants, Mr. Alex Spoehr (left), is checking up to see that no significant data have been overlooked by the researchers.

to 1931, they have been highly effective. Anthropologists, botanists, geologists and zoologists have participated, and a wide range of territory has been explored. Reports from some of the expeditions have appeared from time to time in FIELD MUSEUM NEWS.

Photographs are presented here of camps and activities of several of this year's expeditions. Following is a summary of the field work parties which have been in operation to date in 1937:

The Field Museum Archaeological Expedition to the Southwest, under the leadership of Dr. Paul S. Martin, Chief Curator of Anthropology, has been charting and excavating prehistoric Indian sites in southwestern Colorado, not far from Mesa Verde



Camp in Indo-China Jungle

Headquarters of the expedition recently conducted in French Asiatic territory by Dr. Wilfred H. Osgood, Chief Curator of Zoology. At the time this photograph was taken, the thatched hut occupied by Dr. Osgood was under construction. Some of the explorer's native helpers are seen in the foreground.

a large amount of palm material, and several hundred photographs were obtained.

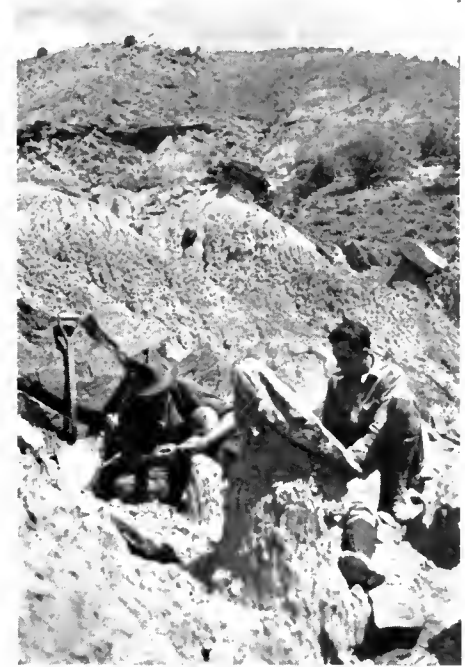
Dr. Julian Steyermark, Assistant Curator of the Herbarium, spent the summer in making a collection of the flora of Missouri, and in research upon the same.

Professor A. C. Noé (of the University of Chicago), Field Museum's Research Associate in Paleobotany, spent the summer



Huge Anaconda for Field Museum

Native helpers bringing giant snake into camp of the zoological expedition to British Guiana and Brazil, currently in operation under the leadership of Assistant Curator Emmet R. Blake. Although this expedition is concentrating principally on collecting birds, it has also obtained many important mammals, reptiles, fishes, plants, and other specimens.



Digging Up Fossils in the West

Members of the Museum's paleontological expedition to southwestern Colorado at work on excavation of prehistoric mammal skeletons from Paleocene formation. Among other important finds, the expedition, led by Assistant Curator Bryan Patterson, unearthed the skeleton of a hitherto unknown beast about the size of a hippopotamus, believed to have lived approximately 45,000,000 years ago.

fossil mammals. He was assisted by Mr. James H. Quinn. Mr. Elmer S. Riggs, Curator of Paleontology, joined the party for a few weeks.

An extensive collection of rock specimens illustrating various phenomena relating to the structure of the earth, was obtained by Mr. Sharat K. Roy, Curator of Geology, on an expedition in mountainous regions of Colorado.

Dr. Wilfred H. Osgood, Chief Curator of Zoology, spent several months in French Indo-China, during which he collected some 500 mammal, bird and reptile specimens, including material for several habitat groups.

A zoological expedition to South America, which left in January, under the leadership

(Continued on page 2)

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

CLIFFORD C. GREGG, *Director of the Museum*.... Editor

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WILFRED H. OSGOOD.....	Chief Curator of Zoology
H. B. HARTE.....	Managing Editor

Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

EXPEDITIONS OF 1937

(Continued from page 1)

of Mr. Emmet R. Blake, Assistant Curator of Birds, is still in the field. Material for a habitat group of the rare and unusually interesting bird known as hoactzin has been obtained, as well as a large general collection of birds, mammals, reptiles and other kinds of animals of British Guiana and Brazil.

Staff Taxidermist C. J. Albrecht conducted an expedition during the summer to the Pribilof Islands, near Alaska, where he collected fur seals for a proposed habitat group.

Mr. Alfred C. Weed, Curator of Fishes, accompanied by Staff Taxidermist L. L. Pray, collected representative fishes of the Atlantic Coast on an expedition to Frenchman's Bay in Maine.

Mr. Karl P. Schmidt, Curator of Reptiles and Amphibians, headed two field parties. On the first, to mountain and desert regions of Arizona and California, he was accompanied by Staff Taxidermist Leon L. Walters, and Dr. Alfred E. Emerson of the Department of Zoology of the University of Chicago. On the second, to western Texas, he was accompanied by Mr. D. Dwight Davis, Assistant Curator of Vertebrate Skeletons, and Mr. Tarleton Smith of the United States National Park Service. Both expeditions obtained important herpetological collections.

ANOTHER GIFT OF \$2,000 FROM MRS. RAYMOND

Mrs. James Nelson Raymond, founder of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, recently made another gift of \$2,000 to Field Museum for support of the Foundation's current activities. This follows closely the gift of \$2,000 presented earlier this year and announced in the July issue of FIELD MUSEUM NEWS. Including the endowment fund of \$500,000 with which Mrs. Raymond established the Foundation in 1925, and many subsequent gifts, the sum total of her contributions to the furtherance of the education of Chicago's school children through the Museum now amounts to \$554,442.

The Raymond Foundation, with the autumn resumption of classes in the schools, and the presentation of the semi-annual series of free motion pictures for children on Saturday mornings during October and November (announced elsewhere in this NEWS), is now beginning the season of its greatest activity. During the school year approximately a quarter of a million children will be reached by the extension lectures sent by the Foundation with stereopticon slides to school classrooms and assemblies, by the guide-lecture tours of the exhibits conducted for groups of youngsters brought to the Museum, and by the autumn and spring series of motion pictures in the James Simpson Theatre of this institution.

SOME MEDICAL PRACTICES OF AMERICAN INDIANS

By PAUL S. MARTIN

Chief Curator, Department of Anthropology

The North American Indians were as interested in the causes of illness and death as we are. Naturally their interpretations were different from ours, but were surprisingly similar to those of our great grandparents. This may be illustrated by the following examples selected from the vast and varied medical lore of certain tribes.

The commonest explanation for any illness was that some unfriendly individual had

caused a small material object, such as a splinter of stick, stone, or bone, to enter the body of the afflicted person. The extraction of this object was necessary in order to bring about recovery and was performed by the medicine-man by sucking on the irritated or aching spot.

Some Indians also practised "preventive" medicine by performing ceremonies to avert sickness. For example, the Navahos believe that illness will occur if one has a bad dream, if one cooks with wood taken from a house in which some one has died, or if one spits on an ant hill. If a Navaho happens to undergo one of these unpleasant experiences or violates a tribal taboo, then one of the curing ceremonies such as the "night chant" or the "mountain chant" must be held.

In the Navaho section of Hall 7 is exhibited a complete set of masks which are worn in the "night chant." This ceremony, of nine days duration, is supposed to cure sore eyes and prevent blindness. The cost of such a healing ritual may amount to two or three hundred dollars, payable either in cash, or in horses, sheep, or blankets. Everyone, except the patient, has a good time, for while he is being cured, the visitors and relatives gossip, dance, feast and renew acquaintances.

IMPORTANT FISH COLLECTION FROM COAST OF MAINE

Bringing material for creation of marine life habitat groups, for exhibits of individual fishes, and for addition to the fish study collections, the Field Museum expedition to the coast of Maine has returned to Chicago. Mr. Alfred C. Weed, Curator of Fishes, was in charge. He was accompanied by Staff Taxidermist L. L. Pray. Six weeks were spent in collecting and studying northern American coastal marine life, chiefly in the vicinity of Frenchman's Bay and the waters of adjoining cold bays. In this region, at Lamoine, is located the Biological Station of the University of Maine, the facilities of which were generously made available to the expedition by Director Joseph M. Murray and his associates.

In addition to collecting specimens, Mr. Pray made many drawings in color of fishes and other marine creatures while they were temporarily stored alive in tanks, or as they were seen about the rocks and in tide pools. Sketches were also made of marine plant life, rocks, and other environmental features. Mr. Pray also made plaster casts of many of the specimens while they were freshly caught, for use in preparing exhibits.

The most interesting catch, Mr. Weed states, was a young rose fish, one of the most gorgeously colored fishes of the Atlantic. This fish is shaped very much like a black bass, and is colored in various shades of red set off by markings of black, all in brilliantly pearly hues. Included in the collection also are lumpfish, eelpout, sculpins, sea ravens, flounders, mussels, barnacles, sea-anemones, starfishes, sea-urchins, sea-cucumbers, serpent-stars, boring clams, pollock, tomcod, cunners, and large quantities of beach materials for creating habitat group settings.

Distinguished Visitors

Mr. William Henry Clafin, Jr., Treasurer of the Museum of Fine Arts in Boston, and Curator of Southeastern Archaeology at the Peabody Museum of Harvard University, was a visitor at Field Museum on September 13.

Dr. Walter Robyns, Director of the Jardin Botanique de l'Etat in Brussels, Belgium, also visited the Museum recently.

BIRD LIFE OF MOUNT CAMEROON REGION, AFRICA, ILLUSTRATED IN HABITAT GROUP

BY RUDYERD BOULTON
Curator of Birds

In the African alcove in Hall 20 there has recently been placed on exhibition a habitat group of birds of the Mount Cameroon highland rain forests. The group was presented by Mrs. Oscar Straus, of New York, and collected by the writer and Mrs. Boulton during the Straus West African Expedition of Field Museum.

Mount Cameroon stands on the west coast of Africa in the corner of the Gulf of Guinea. The expedition attained the summit of the mountain where, at an altitude of 13,353 feet, it is possible to look down into the sea only eight miles distant. The peak of the mountain is devoid of vegetation. Only a little moss, nurtured by constant mist, finds a precarious living in the cracks in the lava and among the volcanic ash that spills down in long desolate tongues into the alpine grassland of the upper third of the mountain.

The mountain rain forest occupies the middle third of the massive pile of cliffs, ridges and peaks that comprise Mount Cameroon. It is this section, with its luxurious tangle of dracaena, lianas, ferns, amaryllis, orchids and wild figs, that is reproduced in the setting of the Museum group. In the background can be seen the giant interdigitations of mountain forest and alpine meadow. Where the ravines conserve moisture, the forest climbs up to 8,000 feet, and where the exposed ridges are desiccated by wind, the grassland descends as low as 6,000 feet. The site shown in the group is on the edge of a ravine at 5,000 feet. Below in the valley is shown the upper edge of the lowland rain forest that extends unbroken for a thousand miles through the low country of the Cameroons, the Gabon and the Congo.

The isolation of Mount Cameroon and the environmental conditions of its mountain

rain forest have enabled a number of unique kinds of birds to evolve. Twenty-one are endemic—found only on the mountain. Six of these species are shown in the group: a thrush, a sunbird, a babbler, an oriole-finch, a woodpecker, and a shrike. Mingled with these and, like them, attracted to the bounteous supply of fruit that the wild fig tree supplies, are three neighboring species that are widespread in the lowland rain forest. They include a green fruit pigeon, a fly-catcher and a flock of the red-tipped plantain-eaters.

In spite of the fact that seventeen specimens of nine species are shown in the group, only the plantain-eaters are conspicuous.



Birds of Mount Cameroon

African group, recently added to the Hall of Birds (Hall 20), showing a great variety of feathered inhabitants of the region, characteristically gathered around a wild fig tree. Specimens for this exhibit were collected by the Straus West African Expedition under the leadership of Curator Rudyerd Boulton.

Even though mountain rain forests support an abundance of species and individuals, it is difficult to see birds, much less collect them. The extreme density and luxuriance of the vegetation usually form an effective screen to their activities.

Contrary to the indication of their name, plantain-eaters never eat plantains. They are exceedingly fond of wild figs, and any fruiting tree in a suitable location is sure to be visited by plantain-eaters or touracos as they are often called.

Six of these gorgeous birds, which are distantly related to the cuckoo family are gathered about the fruits on a branch of the wild fig. One of them, in the immediate foreground of the group, is shown in flight, displaying its gorgeous carmine wing feathers. A discerning observer may see that there is a fleck of pale yellow in the red of one of these feathers. Touracos are especially notable for the characteristic red that generally is to be found

in the wings. This is caused by an organic pigment, turacin, that contains 7 per cent copper. It can be dissolved in slightly alkaline water. A slight amount of ammonia added to water in which these feathers are washed will cause the red to disappear. This curious state of affairs, to be found only in this family of birds, has given rise to many incorrect statements about turacin. The water that touracos normally encounter is not alkaline, therefore they do not lose their color. The Mount Cameroon birds live in one of the wettest places in the world, where as much as thirty feet of rain falls in a year, yet they stay red because the water is pure. The occasional non-pigmented feathers that are found in these birds are due probably to deficiency of pigment during the growth of the feathers, not to the fact that the bird has taken a bath and changed its color. When the color has once been lost, it cannot be regained.

The group was prepared by Staff Taxidermist Arthur G. Rueckert; accessories were made by Preparator Frank Letl, and the background was painted by Staff Artist Charles A. Corwin. This is the third habitat group of African birds recently installed.

PRIBILOF ISLAND EXPEDITION RETURNS WITH SEALS

With forty specimens of fur seals, of which it is planned to use thirty-five in a proposed habitat group in the Hall of Marine Mammals, and five of which will be added to the scientific reference collections, Staff Taxidermist C. J. Albrecht returned to Chicago about the middle of September. He has been on an expedition to the Pribilof Islands in the Bering Sea, off the coast of Alaska, since the first of June.

Mr. Albrecht obtained his collection of seals without firing a shot or lifting a har-

poon. During the breeding season, severe strife exists among the large bulls in their competition for cows to add to their harems (usually consisting of about twenty females), and in the combats not only many of the bulls themselves are killed, but also many of the females and young who as "innocent by-standers" frequently meet accidental death. Mr. Albrecht selected from those thus freshly slain the specimens he needed, made necessary plaster casts for taxidermic work, skinned the seals on the spot, and preserved the pelts for mounting.

The expedition was made possible by permits for collecting granted by the United

States Department of the Interior, and by the cooperation of the Bureau of Fisheries of that department which provided transportation from Seattle on its own survey ship, and whose representatives on the island assisted Mr. Albrecht in many ways.

In addition to the seals, Mr. Albrecht collected auklets and other birds found in the islands, and these will be mounted in the Museum group to complete the natural setting. The group will illustrate the "home life" of the seals, reproducing a rookery or breeding ground. The collection includes large bulls, cows of various ages, and pups or young seals.

SATURDAY AFTERNOON LECTURES

Nine lectures on science and travel, illustrated with motion pictures and stereopticon slides, will be given on Saturday afternoons during October and November in the James Simpson Theatre of Field Museum. This is the sixty-eighth free lecture course to be presented under the auspices of the Museum. Noted explorers, scientists and naturalists have been engaged for the series. All lectures begin at 3 P.M. Following is the complete schedule of dates, subjects, and speakers:

- October 2—Glimpses of American Wild Life
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
- November 6—Let's Consider the Heavens
Dr. Forest Ray Moulton, Washington, D. C.
- November 13—Snaring Bird Songs
Mr. Charles Crawford Gorst, Boston
- 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

No tickets are necessary for admission to these lectures. A section of the Theatre is reserved for Members of the Museum, each of whom is entitled to two reserved seats on request. Requests for these seats may be made by telephone or in writing to the Museum, in advance of the lecture, and seats will be held in the Member's name until 3 o'clock on the day of the lecture. Members may obtain seats in the reserved section also by presentation of their membership cards to the Theatre attendant before 3 o'clock on the lecture day, even though no advance reservation has been made. All reserved seats not claimed by 3 o'clock will be available to the general public.

RACES OF MANKIND FEATURED IN SUNDAY LECTURE TOURS

The innovation of Sunday afternoon lecture tours at Field Museum, announced in last month's NEWS, will begin on October 3, and continue each Sunday thereafter. "The Parade of the Races" is the title of the tours to be given on Sundays in October. It will consist of studies of the Races of Mankind sculptures by Malvina Hoffman in Chauncey Keep Memorial Hall (Hall 3). Conductor of the tours is Mr. P. G. Dallwig, layman lecturer and Member of the Museum, who is serving as a volunteer. Mr. Dallwig is an experienced and highly qualified lecturer.

Parties will assemble for the tours at 2 P.M. in the center of Stanley Field Hall. No charge is made, but all wishing to participate must register and receive an identification ticket, as the number that can be taken on each tour is limited. Reservations may be made in person by speaking to the Attendant at the North Entrance, or in

advance by telephoning the Museum, Wabash 9410.

Tours end at 4 P.M. There will be a half-hour intermission (2:45 to 3:15 P.M.) for relaxation, during which those members of the parties wishing to do so may obtain refreshments or smoke in the Museum Cafeteria where special tables will be reserved for the group.

On Sundays in November the topic of lectures will be "Nature's 'March of Time'" (touring the prehistoric animal exhibits in Ernest R. Graham Hall); and in December the subject of Sunday lectures will be "Digging Up Our Ancestral Skeleton" (touring the Hall of the Stone Age).

CHILDREN'S MOVING PICTURES

The James Nelson and Anna Louise Raymond Foundation's autumn series of free programs of motion pictures for children will be presented in the James Simpson Theatre of Field Museum on Saturday mornings during October and November. A total of thirty-two films, the majority with talking and other sound effects, will be shown on the nine programs. There will be two showings of the pictures on each program, one beginning at 10 A.M., and one at 11. No tickets are required for admission, and children from all parts of Chicago and suburbs are invited. The Museum is prepared to receive large groups from schools and other centers, as well as individual children coming alone or accompanied by parents or other adults. Teachers are urged to bring their classes. Following is the schedule showing the titles of the films to be presented on each date*:

- October 2—The Haunted House; Su-lin the Panda; Top o' the Morning; Cats and More Cats
- October 9—Ocean Currents; The 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; Aboard a Clipper Ship; How Nature Protects Animals
- 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; House-keeping 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

*As this NEWS goes to press, it appears that it may be necessary to cancel one or more of the earlier programs for children because of the current epidemic of infantile paralysis. The programs will begin only after the Chicago Board of Health approves the opening of the schools and the admittance of children to theatres.

Fur Coats for African Tribesmen

On the high veldt of South Africa, tribes of Bushmen and Hottentots require protection from the cold of the nights and early mornings. In Hall E (Case 25-B) are exhibited some excellent examples of their fur cloaks, called *karosses*.

OCTOBER GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M. except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for October:

- Friday, October 1—Habitat Groups.
Week beginning October 4: Monday—Prehistoric Life; Tuesday—The Cave Men of Europe; Wednesday—Hall of Plant Life; Thursday—General Tour; Friday—Crystals and Gems.
Week beginning October 11: Monday—Fish and Reptiles; Tuesday—American Indians; Wednesday—Cereals; Thursday—General Tour; Friday—Peoples of the South Seas.
Week beginning October 18: Monday—Animal Life of Asia; Tuesday—Geology Exhibits; Wednesday—Chinese Art; Thursday—General Tour; Friday—Fibers and Their Uses.
Week beginning October 25: Monday—The Story of Coal; Tuesday—Horses and Their Relatives; Wednesday—Modern Man; Thursday—General Tour; Friday—Plant Ecology.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturers' services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From F. O. Thompson—40 silver earrings, Toluca, Mexico; from Ernest G. Marsh, Jr.—165 herbarium specimens, Texas; from Professor A. O. Garrett—53 herbarium specimens, Utah; from School of Forestry, Yale University—42 herbarium specimens, Colombia; from University of Texas—256 herbarium specimens, Arkansas and Texas; from Dr. J. R. Johnston—156 herbarium specimens, Guatemala; from Bernardo Rosengurt—12 herbarium specimens, Uruguay; from O. A. Oakes—4 planks of New Zealand woods; from Dr. Earl E. Sherff—137 herbarium specimens; from Frank Von Drasek—27 specimens of minerals and ores, New Mexico; from Industrial and Agricultural Museum—23 specimens of economic minerals, Poland; from J. W. Jennings—a specimen of calcite concretion in Mexican onyx, Arkansas; from August Rassweiler—a cabochon-cut green aventurine, India; from A. F. Setterle—a septarium, Texas; from James J. Mooney—a weasel, Illinois; from Captain L. R. Wolfe—a loon skeleton, Canada; from Robert J. Allen—a brown bat, Illinois; from E. W. Andrews—a squirrel and 6 bats, Mexico; from Mrs. Laura H. Ryckman—a mountain beaver skeleton, Washington; from Mrs. G. Jones—an oven bird, Illinois; from John Erker—a lynx skull, California; from Dr. Henry Field—169 zoological specimens, including 76 salamanders and larvae, 77 frogs and tadpoles, 5 snakes, 10 bats, and a mole, England, and a male Arab skull, Iraq; from the Leslie Wheeler Fund—21 hawks and kites, and 8 owls, Colombia; from Chicago Zoological Society—25 zoological specimens, including 13 birds, 4 snakes, 2 monkeys, and a kangaroo; from Carnegie Institution of Washington, from Stanley Field, from William Gates, from Institut des Parcs Nationaux du Congo Belge, from Dr. E. E. Sherff, from Estate of Mrs. George T. Smith, and from Dr. Alexander Sushko—valuable books for the Library.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from August 16 to September 16:

Associate Members

Mrs. Robert O. Law, Mrs. Albert Cotter Levis, Erwin A. Meyers, Dr. J. William Parker, Cranston Spray.

Annual Members

Mrs. A. F. Buck, Meyer Dry, Holden K. Farrar, William S. Foster, Walter H. Gabel, Mortimer B. Harris, John C. Heavy, Dr. D. C. Hoyt, Mrs. Edward F. Kenyon, Henry Kloese, Frederick Kriz, Mrs. John P. Landreth, Abraham Lazerson, Charles G. Little, Mrs. William D. McNally, Charles W. Pollard, Nathan H. Rosenthal, Henry Strubel, Stow E. Symon, Mrs. Benjamin Weintroub.

Skulls of ground sloths, ranging in size from those of house cats to those of elephants, are on display in Ernest R. Graham Hall (Hall 38).

Field Museum News

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HARRIS SCHOOL EXTENSION COMPLETES 25TH YEAR OF SERVICE THIS MONTH

Department's Traveling Exhibits Now Take Field Museum to 700,000 Children Daily

By H. B. HARTE
Division of Public Relations

When—"a way back when"—this writer and his contemporaries were school children in Chicago, Field Museum was just a place (though, to be sure, a wonderful place!) out in Jackson Park. If you were lucky, your parents might take you there once or twice in three or four years, but unless you lived in the near-by section of the south side you were unlikely to visit the Museum more frequently than that.

More fortunate was the next generation of children. Due to the vision and generosity of one of Chicago's prominent civic leaders—the late Norman Wait Harris—Field Museum has been brought to them,

every day, right into their schools. For Mr. Harris established a foundation which keeps the Museum in daily contact with every public school in Chicago (and many other schools as well). In effect, this Department establishes a branch of the Museum in each school, by means of traveling exhibition cases. These are changed every two weeks, thus bringing a wide variety of subjects to the children during a school term.

This month the N. W. Harris Public School Extension, so named by the Museum's Trustees in recognition of Mr. Harris's benefaction in providing an endowment of \$250,000, will complete its first quarter century of service. The Department was organized with the appointment on December 1, 1912, of the late Stephen C. Simms as Curator. Preparations for its activities were immediately inaugurated. Mr. Simms, who had previously been on the staff of the Department of Anthropology, remained in charge during all the years of building up the Harris Extension to its present great development. He continued to supervise it, even after his appointment in 1928 as Director of the Museum, until his death in January, 1937. Museum and

school authorities agree that his devotion and skill insured the success which has crowned the Department's work.

Some statistics may be cited to measure this success. As early as 1913 the loaning of cases to the schools was well under way. The facilities of the Department were rapidly expanded and improved, until today there are more than 1,200 cases available, with additions constantly being made. In excess of 400 subjects are included, from one to ten duplicates being supplied of the more popular cases. These exhibits are now circulated among 434 schools with a total enrollment of close to 700,000 pupils.

Impressive as such statistics are, they convey inadequately the real value of the work, because figures cannot envision the vast scope of psychological and social influences implicit in an enterprise of this kind. It seems obvious, however, that this activity must have profound effects on the general culture of the children. It seems certain that when they become men and women they will be more alert to and better versed in the phenomena of nature, and more sympathetic to the needs for such movements as conservation of wild life resources. Founder Harris understood this—his central idea was that "beyond the teaching of natural history, an agency which increases the attractiveness of knowledge, and the ease of acquiring it, will promote better citizenship and more stability in civic conditions."

The Museum has been doubly fortunate in having not only such a far-seeing and magnanimous benefactor as the late Norman Wait Harris to found this Department, but

in having the founder's tradition carried on by his family. Mr. Albert W. Harris, son of the founder, and one of the Museum's present Trustees and Vice-presidents, continues in full measure his father's interest and generosity. He has made additions to the Department's endowment, and other contributions to provide for current needs, totaling nearly \$200,000. Other members of the Harris family have provided a further \$20,000 of endowment.

The type of exhibition case originally used, with minor improvements made in recent years, still meets all requirements for stability, portability, usefulness and attractive appearance. Cases are built of mahogany, are equipped with hangers for convenience in display, and have handles for easy carrying. At each end is a label, in large legible type, stating in simple language the most important facts about the contents.

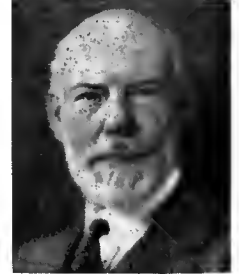
The largest series of cases is devoted to zoology, and includes mammals, birds, insects, fishes, and reptiles of species which the children are likely to encounter in and around Chicago. In most of them the habitat method of exhibition is used. Backgrounds are enlarged colored photographs, curved to give proper perspective, while the foregrounds are faithful reproductions of plants, rocks, water, sections of ground, and other ecological features. Another attractive series consists of realistically reproduced wild flowers and plants in similar settings.

There are many cases of economic character, showing successive steps in the preparation and manufacture of foods, clothing materials, glass, paper, chinaware, linoleum, and other products that come within the daily use or observation of the child. Some cases contain models of prehistoric animals, models of mines, and miscellaneous subjects. This material is all collected, prepared and installed by members of the Department staff.

(Continued on page 2)



The late N. W. Harris



Albert W. Harris



Sending Field Museum to Chicago Schools

One of the specially constructed motor trucks of the N. W. Harris Public School Extension, being loaded with traveling exhibits for display to 700,000 children in more than 400 schools. The Extension this month will complete its twenty-fifth year of this educational service which brings to city youngsters an intimacy with Nature most of them could not otherwise obtain. The material circulated illustrates a wide range of zoological, botanical, geological, economic and industrial subjects, presented in a vivid manner that stimulates children's interest.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

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H. B. HARTE.....	Managing Editor

Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

HARRIS EXTENSION COMPLETING ITS 25TH YEAR OF SERVICE

(Continued from page 1)

The 434 schools served include all the public elementary schools of the city, and also many high schools, practice, continuation, parochial, parental, private, and other classes of schools. At the beginning of each term two cases are delivered to each school. These are collected at the end of two weeks and delivered to other schools, while different cases are left in their place. A carefully prepared schedule alternates the types of subjects. By this means a school which has a zoology and a food case one fortnight, for example, may have a botany and a textile case the following fortnight, and a geology and a paper industry case after that. Thus constant variety of subjects is maintained. Also, once a particular case has been displayed, several years elapse before that case

thus loaned to Y.M.C.A.'s, Y.W.C.A.'s, social settlements, community clubs, employes' organizations in industrial and commercial firms, and other such bodies. Branches of the Chicago Public Library use the cases to stimulate interest in books on nature.

Deliveries and collections are made by two motor trucks with bodies especially designed for systematic loading and safe transportation of the cases. On their rounds of schools the trucks travel an average of 70 miles a day.

The Harris Extension enables the Museum to reach a larger number of children, and reach them oftener, than would otherwise be possible. It provides instruction in pleasant form, and it creates interest in and appreciation of nature. It constantly



Traveling Habitat Group

This exhibit, showing where and how the thirteen-lined ground squirrel lives, is typical of the more than 1,200 cases of natural history and economic material circulated among Chicago's schools by the N. W. Harris Public School Extension of Field Museum.

is scheduled for the same school, so during a pupil's entire school life he will be reached by cases always new to him. On requests of teachers, cases are sent to illustrate particular topics currently being studied.

Parents and other adults have opportunities to examine the cases at various social centers. Many are believed to obtain their first impulse to visit the Museum from cases

enlarges the number of the Museum's frequenters, and stimulates in them a spirit of inquiry and keen desire for the knowledge the Museum as a whole can make available. Its methods have the endorsement of progressive educators in general, from teachers to superintendents, who unite in stating that it simplifies teaching and opens wide new vistas to the children.

THE LATE MR. AND MRS. RYERSON ELECTED AS BENEFACTORS

In recognition of their various gifts to Field Museum during their lifetimes and the subsequent bequests left to the Museum at the time of their deaths, the Board of Trustees at its last meeting elected as Benefactors Mr. and Mrs. Martin A. Ryerson. The gifts of the Ryersons dated from the year 1895 and continued intermittently throughout their lives.

It is impossible to give a definite figure regarding the amounts of the bequests, as the estates are still in process of liquidation.

Change in Visiting Hours

Effective November 1, and continuing until February 28, winter visiting hours—9 A.M. to 4 P.M.—will be observed on weekdays at Field Museum; 9 A.M. to 5 P.M. on Sundays.

ELABORATE TRIBAL MASKS FROM BELGIAN CONGO

Field Museum has acquired by exchange from the Musées Royaux d'Art, Brussels, several objects from the Bapede and the Bakuba tribes of the southwest Belgian Congo. Included are large masks, worn by boys during tribal initiation ceremonies. They are elaborately decorated with imported beads and cowrie shells, such as are still used for money in some parts of Africa.

Two wooden statuettes, male and female, exceedingly well carved, were also received. These figures are not idols as is sometimes supposed. They are probably memorial figures of distinguished persons, now dead, yet believed by surviving relatives to be active through the visitations of their ghosts or spirits. Other items comprise raffia mats, skillfully woven and dyed, and hair combs that have great artistic merit.

AUTUMN COLORING

By JULIAN A. STEYERMARK
Assistant Curator of the Herbarium

One of the chief attractions of our countryside in autumn is the color of the woodlands. By most people this coloration is taken as a matter of course. Few perhaps realize that seasonal color change of foliage is not a uniform phenomenon the world over. A native of the tropics on his first trip during the autumn to the central United States, or to any other temperate section where broad-leaved trees predominate, might think he was in some strange wonderland, so impressed would he be with the brilliant scene surrounding him. A native of northern and eastern Europe or of the Pacific coast states might be almost equally impressed, for in certain parts of the United States, such as the Ozarks, the Allegheny plateau, and some regions of New England, autumn coloring is much more brilliant and diversified than in most other sections. This is due to the great variety of trees and shrubs, particularly oaks and hickories, in these areas.

The onset of color change in the autumn is coincident with the coming of cooler days and nights which results in the gradual dying of the leaves and their fall from the trees. The disintegration of the green coloring matter gives rise to yellow pigments and unmasks the reds, while the frost initiates a whole series of chemical changes which produce the kaleidoscopic display.

To a careful observer an autumn landscape is not just another scene for an artist to paint, nor is it just a motley and extraordinary conglomeration of tints—it will be found that each species of tree and shrub each fall assumes its own characteristic coloring. Of course, some trees have a variety of shades, and yet this very variety is quite characteristic of them. Hickories always have some shade of golden or russet-yellow, the flowering dogwood a deep rose-red, and the linden a pale lemon yellow. In the north and west the quaking aspen brightens the landscape with yellow or orange. Perhaps the acme of color is attained by the deep blood red or scarlet of the black or sour gum. Closely competing in brilliant red is the scarlet splash of the red maple as well as the scarlet oak, while rivaling these are the sumacs which exhibit gaudy shades of oranges and crimsons. With some practise the oaks can be distinguished by their color. The true white oak has a deep mauve or rose tint, while the northern red oak is usually green and yellow. The many species of oaks in the central and eastern states account for much of the varied coloring in those sections. Sassafras, which is common in northern Indiana, southern Illinois and Missouri, has a brilliant orange and yellow combination splashed with green. The sugar maple, so frequent in rich woods, and its cousin, the Norway maple, planted as a shade tree in the central states, have a gorgeous deep yellow lightened in places with green or bordered with shades of red, pink, or orange.

Among the common vines, the Virginia creeper and poison ivy display shades of red, while the bittersweet, whose crimson-red fruit is such a temptation to ornament-pickers, has only a pale green foliage. The honey locust, of pale lemon yellow throughout, contrasts with the black cherry whose dark green foliage gradually turns all the way from blood and rose red to pale and bright yellow. The persimmon, whose fruit is well-known to people of the southern and central portions of this country, always has a bright light yellow, while the papaw changes to a pale light yellow.

PALEONTOLOGICAL PUZZLES, AND HOW THEY ARE SOLVED

By BRYAN PATTERSON
Assistant Curator of Paleontology

The accompanying photograph illustrates a phase of Museum activity rarely seen by visitors—the preparation of fossil mammals. The specimens shown were collected by a Museum expedition of the past summer.

After a paleontological expedition returns from the field, its more important discoveries are usually announced in the daily press and FIELD MUSEUM NEWS. Visitors often expect to see the material on exhibition within the ensuing weeks, and are astonished upon learning that it may be months or even years before the specimens will be ready for public view. The illustration, a scene in the Museum's paleontology laboratories, graphically presents the reasons for this delay.

Although collecting a fossil vertebrate is in itself an operation requiring experience and skill, it is actually the easiest part of the work that must be done upon a specimen before it is ready for study or display. Bones that have lain in the ground from a few hundred thousand to many millions of years are as a rule badly broken and distorted, especially the older ones.

The field collector has to prevent the fossils from falling to pieces during excavation and shipment. This he does by bandaging them with strips of burlap soaked in plaster of paris. He also gathers all the pieces that have weathered out and broken up on the ground surface.

But it is when the collection reaches the Museum that the really difficult and tedious work begins. In the laboratory the plas-

ter that may fit onto one of the incomplete bones, or that may themselves fit together to form a bone that had completely weathered out before the collector found it.

A tray of such fragments appears in the foreground of the photograph. The worker, Mr. James H. Quinn, experienced both as a collector and a preparator, has assembled from these bits the lower jaw seen behind the tray, and has fitted many pieces to the skull under his hands. Laymen who see this part of the work usually remark that it is "just like a jig-saw puzzle." Actually the fitting of fragments is infinitely more difficult than any manufactured puzzle. A jig-saw fitter works in only two dimensions, has a picture to guide him, and can usually count on all the pieces of the puzzle being present. The fitter of bone fragments works in three dimensions, has no picture, and can be almost certain that many of the most important pieces *will* be missing.

After the bones are cleaned and mended, and as many fragments as possible fitted together, there remains the problem of distortion. Many specimens while in the ground are crushed and warped by pressure until the bones, as now preserved, bear little resemblance to the shape they had in life. Skulls are especially liable to such distortion. Usually distortion cannot be corrected, but in a few cases it is possible to reconstruct a skull with considerable accuracy. The three specimens on the table in the photograph are excellent examples. The one on the right has been cleaned and mended, but not restored. The skull upon which Mr.



Photograph courtesy of The Chicago Tribune

Piecing Together Fossil Fragments

In the reconstructed skeletons of prehistoric animals displayed in Ernest R. Graham Hall, often thousands of tiny bits of bone have to be fitted together. This picture shows Mr. James H. Quinn, one of the preparators, at work in the paleontological laboratory on a specimen of a rare extinct mammal collected by an expedition to Colorado last summer. The work requires the utmost skill and precision—complete coordination of eyes, fingers and mind.

tered sections are opened, the rock surrounding the specimen is carefully scraped or chipped away, and the innumerable cracks and breaks in the bone are cleaned and cemented. Each white line on the specimens in the illustration represents a break that has been mended with plaster.

The surface pieces are unpacked, spread out, and carefully inspected for fragments

Quinn is working had the top crushed downward, but it proved possible to lift the top off and replace it in its natural position, after adjusting the displaced bones on the side of the skull. In the black specimen on the stand the right side originally was almost undistorted, but the left side was crushed into it. Reconstruction of the left half gives an excellent idea of the entire skull.

LECTURES IN SIMPSON THEATRE ON SATURDAYS IN NOVEMBER

On Saturday afternoons in November the four final lectures for adults in the Museum's autumn course on science and travel will be given in the James Simpson Theatre. All begin at 3 P. M. Eminent explorers and naturalists have been engaged as lecturers, and they will illustrate their topics with motion pictures and stereopticon slides. Following are the dates, subjects and speakers:

November 6—Let's Consider the Heavens
Dr. Forest Ray Moulton, Washington, D. C.

November 13—Snaring Bird Songs
Mr. Charles Crawford Gorst, Boston

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

No tickets are necessary for admission to these lectures. A section of the Theatre is reserved for Members of the Museum, each of whom is entitled to two reserved seats on request. Requests for these seats may be made by telephone or in writing to the Museum, in advance of the lecture, and seats will be held in the Member's name until 3 o'clock on the day of the lecture. Members may obtain seats in the reserved section also by presentation of their *membership cards* to the Theatre attendant before 3 o'clock on the lecture day, even though no advance reservation has been made. All reserved seats not claimed by 3 o'clock will be available to the general public.

FOUR MORE CINEMA PROGRAMS FOR CHILDREN THIS MONTH

The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures will conclude its autumn series of entertainments for children with four more programs of motion pictures to be presented on Saturday mornings during November. There will be two showings of the films on each program, one beginning at 10 A. M., and one at 11, in the James Simpson Theatre of the Museum. Children from all parts of Chicago and suburbs are invited. Titles of the films to be shown on each date are noted in the following schedule:

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; House-keeping 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

Botanical Expedition Completed

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, has returned to the Museum after three months on an expedition in various parts of Missouri, during which 4,000 different botanical numbers were collected, totaling 11,000 sheets of herbarium specimens.

Dr. Steyermark for several years has been preparing a manual on the flora of Missouri

and the adjacent Ozark region, and the expedition was undertaken partly for research in connection with this work. Other objectives were the completion of an ecological survey of the national forests in the Missouri Ozarks, and the assemblage of more information concerning the range limitations of Missouri species.

Tropical Flower Pictures to be Shown

Members of Field Museum, and their guests, are invited to join with groups from garden clubs and universities in attendance at a special showing of colored motion pictures, still photographs, and water color paintings of flowers of Panama, on Monday, November 8, at 2 P. M., in the James Simpson Theatre. The pictures are the work of Mrs. H. H. Evans, of Balboa Heights, Canal Zone, who will give a lecture in connection with them.

PREHISTORIC ANIMALS FEATURED IN NOVEMBER SUNDAY TOURS

The Sunday afternoon lecture tours, inaugurated at Field Museum last month, have proved popular beyond expectations. Comfortable and efficient handling of tour parties has dictated that they be limited to fifty persons, and each week applications for reservations have far exceeded this number.

In November the subject of Sunday lectures will be "Nature's 'March of Time,'" presented in conjunction with a tour of the prehistoric animal exhibits in Ernest R. Graham Hall.

Mr. P. G. Dallwig, a Member of the Museum highly qualified and experienced as a Layman Lecturer, has volunteered his services as conductor of these tours. Parties assemble with him at 2 P. M. in the center of Stanley Field Hall. No charge is made, but all wishing to participate must register and receive identification badges. Reservations may be made in person by application to the Attendant at the North Entrance, or in advance by telephoning the Museum, Wabash 9410.

These tours end at 4 P. M. There is a half-hour intermission midway in the tour (2:45 to 3:15 P. M.) for relaxation, during which those members of the parties who wish to do so may obtain refreshments, or smoke, in the Museum Cafeteria where special tables are reserved for the group.

On Sundays in December the subject of lectures will be "Digging Up Our Ancestral Skeletons" (touring exhibits in the Hall of the Stone Age of the Old World).

Dr. Osgood Elected a Contributor

In recognition of his gift to the Museum of an expedition to French Indo-China, and of the excellent zoological collections resulting from it, the name of Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, was added to the list of the Museum's Contributors by action of the Board of Trustees at a meeting held October 18. Contributors constitute the membership classification for donors of from \$1,000 to \$100,000 in money or materials. Dr. Osgood personally conducted the expedition of several months duration, and its success is attested by the fact that more than 500 mammal, bird, and reptile specimens were obtained.

Ask for list of Field Museum's educational photogravure post card sets.

NOVEMBER GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P. M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for November:

Week beginning November 1: Monday—The Eskimos; Tuesday—Animal Life of Africa; Wednesday—Egyptian Hall; Thursday—General Tour; Friday—Plant and Animal Life of Long Ago.

Week beginning November 8: Monday—Horns, Antlers and Hoofs; Tuesday—Plants and Their Habits; Wednesday—Chinese Exhibits; Thursday—General Tour; Friday—Jades and Gems.

Week beginning November 15: Monday—Birds of Brilliant Plumage; Tuesday—Trees and Their Uses; Wednesday—Hall of Races of Mankind; Thursday—General Tour; Friday—Moon, Meteorites and Minerals.

Week beginning November 22: Monday—Exhibits of General Geologic Interest; Tuesday—American Plants Contributed to World Culture; Wednesday—Primitive Philippine Life; Thursday—Thanksgiving holiday, no tour; Friday—Mexico: Its Plants, Animals and People.

Monday, November 29—Amber, Turpentine, Lacquer, and Rubber; Tuesday—South America, Past and Present.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturer's services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

A *Sapindus* rosary, from Fred O. Thompson; 15 ethnological specimens of Hopi and Apache Indians, from Mrs. M. M. Caudill; collections of herbarium specimens, from Professor César Vargas, Professor J. Soukup, George Moore, Miss Caroline C. Haynes, Mrs. Julian A. Steyermark, and University of Texas; fossil apicemans, from Alfred A. Look, James H. Quinn, Myron A. Kaempfer, G. Bradley Harris, William B. Hilton, Hatton Egerly, Miss Hazel Deardorff, Gail Orr, Miss Julia Harris, Ray C. Grulke, Oliver Hilton, and Edwin B. Faber; geological specimens, from A. F. Setterle, Mr. and Mrs. Alexander L. H. Darragh, and J. R. Wharton; reptiles and amphibians, from Lincoln Park Zoo, Chicago Zoological Society, Fred Bromund, J. R. Slater, Brother Nicéphoro Maria, Ernest O'Byrne, John M. Schmidt, Dr. Georg Haas, and Gordon Grant; bird specimens, from Melvin Traylor; mammal specimens, from Chicago Zoological Society, Mrs. P. F. Fuller, and J. M. Schmidt; fish specimens, from Alfred C. Weed, John G. Shedd Aquarium, and Tarleton Smith; a large bryozoan, from C. N. Ackerman; insects and scorpions, reptiles and amphibians, and fishes from Dr. Henry Field; tusks, from Mrs. Edward E. Vincent; valuable books for the Library, from Ivan T. Sanderson, International Fisheries Commission, University of Alaska, Dr. E. E. Sherff, and Chicago Jewelers Association.

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from September 17 to October 15:

Associate Members

Mrs. Robert B. Gregory, Mrs. Leonard D. Karcher, Mrs. Gertrude L. Osborn, Miss Hattiemae Quick, Shepherd M. Roberts, Mrs. William A. Ryan.

Annual Members

Jens Agger, Mrs. John Angus, Mrs. Leonard Bloomfield, Mrs. Ralph Budd, William J. Cawley, Herbert Decker, M. Keith Dunham, E. W. Emery, Herbert Fleischhauer, Arthur A. Frank, Thomas B. Freeman, Samuel A. Harper, Mrs. Harriet E. Hibler, Mrs. Charles H. Ireland, Mrs. Bertha E. Jaques, Miss Esther Jensen, Mrs. Curtis N. Kimball, Miss Hattie C. Korten, Dr. Francis B. Krol, Mrs. Walter H. Mayer, Quinlan J. McNail, J. C. Murray, Leonard Peterson, Mrs. T. A. Potter, C. Leslie Rice, Mrs. Sophie S. Ross, Miss Elizabeth Ross-Lewin, Mrs. Edward J. Ryan, William F. Sloan, Mrs. Grace Dickinson Sperling, Lawrence Taradash, Everett A. Thornton.

The Museum is easily reached by Rapid Transit Lines (the "L"). Leave train at Roosevelt Road station and walk east.

Field Museum News

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JADES COLLECTED BY MRS. GEORGE T. SMITH ADDED TO EXHIBIT AT MUSEUM

By C. MARTIN WILRUR
Curator of Sinology

Three cases containing the Chinese jades recently bequeathed to Field Museum by Mrs. George T. (Frances Gaylord) Smith have just been installed in the Hall of Jades (Hall 30), which will be reopened to the public on Friday, December 3. The seventy-five specimens included, each a masterpiece of color and carving, notably augment the collection begun by the late Curator of Anthropology, Dr. Berthold Laufer, in 1908, and developed through more than a quarter of a century under his discriminating care. Mrs. Smith's decision to give her jades to the Museum was influenced by the strong friendship between herself and Dr. Laufer, who had assisted her in many ways while she was assembling her unique collection of Oriental art.

Most of the specimens in the new collection date from the Ch'ing period (1644-1912). Two great epochs dominate the art history of the Ch'ing dynasty—those of the K'ang-hsi (1662-1722) and the Ch'ien-lung (1736-1795) reigns. The jade carving of those periods fixed the standard and set the style for the work of succeeding generations of master craftsmen. Jades carved in the K'ang-hsi and Ch'ien-lung styles are richly represented in Mrs. Smith's collection.

During the Ch'ing dynasty, jade was carved primarily for ornamental purposes. The objects lack the ritualistic and mortuary significance so prominent in archaic jades. However, some pieces in the new collection have utilitarian as well as artistic value. The large green brush-holder, shown between circular screens in the accompanying

illustration, was for use on a scholar's desk. Carved all around it is a mountainous landscape of a genre most dear to the Chinese man of letters. In this rugged landscape one sees old scholar-recluses meditating on the wild grandeur of the scene, or gathered in a rustic meeting to drink wine and compose poetry. The two circular screens, decorated with garden scenes, might also find their place on a scholar's desk as pleasing ornaments.

Contrary to popular belief, jade appears in a startling variety of colors. The new collection is notable in this regard. Thus, case 8, in the center of the hall, contains five censers, each radically different in color. The largest is a beautiful snow white. Around it are grouped censers of emerald green, deep steel blue, rose, and spinach-green color. The jade snuff bottles in case 9

Besides being colorful, jade is a highly translucent stone, especially when cut thin. Case 7 is constructed in a design that emphasizes this translucency. A number of simple bowls are so installed that the light shines through them, revealing every detail of their remarkable structure. Two pale blue jade bowls, for example, display a grain which reminds one of cracked ice. In another pair, carved from a single boulder as shown by the identical semi-circular green markings, the bowls have a mottled structure like congealed lard.

Most visitors to the Hall of Jades will probably marvel at the extraordinary carving displayed on many of the new specimens. This wonder is fully justified. Jade is one of the toughest and hardest of semi-precious stones. Yet the Chinese patiently and skillfully carve it with very simple hand tools

which cut the stone by means of abrasives, such as sands of quartz, garnet, emery, and powdered ruby, all mixed with water. When, for example, the brush-holder was carved, it was probably first sawed into rough shape by drawing a twisted wire back and forth across the boulder, after which it was pared down with a revolving steel wheel. The abrasive mixture did the actual cutting. To hollow it a series of holes was bored with a drill pumped by hand; then these holes were connected by sawing,

and the core made free by undercutting. The decoration on the outside was carved with tiny wheels, saws, and drills used in conjunction with finer and finer abrasives. Lastly it was polished with wax and gum applied by whirling disks of soft wood or leather. Such a piece might require a year or two of work by both apprentices and master carvers.



Among Additions to Jade Collection

Excellent examples of Chinese perfection in high-relief carving on jade are the two disk-like screens and the brush-holder shown above. These are now on exhibition in the Hall of Jades (Hall 30) with many other outstanding pieces recently received by the Museum from the estate of Mrs. George T. Smith.

range in color through red, iron rust, the red-brown of autumn leaves, blue and white, many delicate shades of green, and pure white. In viewing Chinese jade it is worth observing that the carver has often cleverly planned his design to emphasize the natural variations of color which frequently occur hidden deep in the interior of the raw stone.

WHAT TO GIVE FOR CHRISTMAS SOLVED BY FIELD MUSEUM GIFT MEMBERSHIP PLAN

Field Museum presents a simple solution to your Christmas problem. You can send Christmas gifts to your friends and relatives without being jostled in shopping crowds, without wrapping a package, and without standing in long lines at the postoffice to get your parcels weighed, stamped and insured.

Give Field Museum memberships as Christmas gifts.

This is the simplest of all solutions. The Museum stands ready to help you by taking all the burden out of Christmas giving. Everything you need is enclosed with this issue of FIELD MUSEUM NEWS. Just write on the application form the name and address of the person to whom you wish to

present a membership, and your own name and address. Send it with your check to the Museum in the accompanying postage-prepaid addressed envelope. Your part is completed when you drop this envelope in the mailbox. The Museum will handle all other details for you.

To whomever you designate, the Museum will send an attractive card, conveying notification that a membership has been taken out in his or her name as a gift from you. It will also inform the recipient of the privileges of membership which are extended by the Museum. Incidentally, one of the attractive features of this type of gift is that it isn't a one-day remembrance. Each month the recipient will be reminded of

you as the monthly issues of FIELD MUSEUM NEWS are received. Each time he avails himself of reserved seats for the Museum lectures, and of the other privileges conferred by membership, he will again remember that he owes these things to your thoughtfulness. Furthermore, the fact that you select a Museum membership as a gift implies that you believe the recipient is appreciative of cultural and intellectual pleasures—a subtle compliment.

To assure delivery of the greeting and notification cards to the recipients by Christmas Day, it is advisable to send applications in before December 17. The best way is to sit down now, fill out the application form, and mail it at once.

Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

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FIELD MUSEUM NEWS

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WILFRED H. OSGOOD.....	Chief Curator of Zoology
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Field Museum is open every day of the year (except Christmas and New Year's Day) during the hours indicated below:

November, December, January, February	9 A.M. to 4 P.M.
March, April, September, October	9 A.M. to 5 P.M.
May, June, July, August	9 A.M. to 6 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in FIELD MUSEUM NEWS.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise \$100,000 or more. Contributors give or devise \$1,000 to \$100,000. Life Members give \$500; Non-Resident Life and Associate Members pay \$100; Non-Resident Associate Members pay \$50. All the above classes are exempt from dues. Sustaining Members contribute \$25 annually. After six years they become Associate Members. Annual Members contribute \$10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to FIELD MUSEUM NEWS is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

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, named by the giver.

Contributions made within the taxable year not exceeding 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 for life. These annuities are guaranteed against fluctuation in amount, and may reduce federal income taxes.

IMPORTANT FOSSILS COLLECTED BY COLORADO EXPEDITION

Among the specimens obtained by the recent Field Museum Paleontological Expedition to Colorado is a nearly complete skeleton of a member of the extinct mammalian order Amblypoda, which is of great scientific interest. This was excavated from an early Tertiary formation in the western part of the state.

Nearly one hundred years ago a fragment of a jaw was dredged up from the floor of the English Channel. The animal thus found was named *Coryphodon*, and since that time has become well known as a result of discoveries in America. Nevertheless, its ancestry had remained obscure, for no fossil that could be regarded certainly as structurally ancestral to it had been found. It is believed, however, that the skeleton collected by the Museum's Colorado expedition will yield important information regarding this ancestry and will thus aid in filling a major gap in the record.

Coryphodon and its newly found relative were stocky, heavily-built animals with massive bones, large heads, and projecting tusks. The Museum specimen was discovered by Mr. Alfred A. Look, of Grand Junction, Colorado.

Another important specimen collected is the skull of an early member of the extinct mammalian order Dinocerata. The later members of this group were large and grotesque creatures with projecting upper tusks and six horns. The new find lacks the horns, but has the tusks already developed.

Other fossils found by the expedition will aid in deciding the age of various geologic formations, and extend knowledge of important early faunas of the Age of Mammals. Of particular interest is a collection of fossil leaves that gives an accurate picture of the vegetation of the time. The expedition, which was in operation from May to September, was led by Mr. Bryan Patterson, Assistant Curator of Paleontology. He was accompanied by Mr. James H. Quinn, also of the Department of Geology, and had the cooperation of residents of the region.

MUSEUM TO CLOSE CHRISTMAS AND NEW YEAR'S DAY

In order to permit as many employes as possible to spend Christmas and New Year's Day with their families, Field Museum will be closed on those days.

REPORT SUMMARIZING WORK OF SOUTHWEST EXPEDITION

By PAUL S. MARTIN

Chief Curator, Department of Anthropology

In recent years (1930-1934) a large site known as Lowry Ruin, located in southwestern Colorado, was excavated by Field Museum. This ruin was especially interesting because it had been occupied, abandoned and reoccupied several times, and because it represented the merging of two different cultures.

Dates, obtained by studying tree rings in the old roof logs, showed that Lowry Ruin was occupied between the years A.D. 1050 and A.D. 1106. From the study of other ruins near-by, I felt sure that southwestern Colorado was abandoned shortly thereafter—probably about A.D. 1250 or A.D. 1300. Thus, Lowry Ruin represents one of the last pueblos to be built in that area.

From my work at Lowry Ruin, and from casual observations, it was plain that other and earlier cultures had existed in southwestern Colorado. Therefore, the Field Museum Archaeological Expedition to the Southwest concentrated its work in 1937 upon locating as many early ruins as possible, and digging into some of them.

The first few weeks of the summer were spent wholly in "archaeological reconnaissance" or survey work. This task was conducted by Assistant Carl T. Lloyd, a graduate student of Harvard, and was so planned as to cover intensively the greatest number of areas possible. This necessitated working over every square foot of ground, because early sites are never large nor high and therefore cannot be seen until one is literally on top of them.

A typical early site consists of an area about twenty-five feet square, which may be thickly or sparsely covered with small stones, broken pieces of pottery (potsherds), and sometimes with burned adobe. When such a site was found, the observer usually would pick up at least one hundred potsherds. These were put in a sack, and a few notes were made concerning the probable size of the site, and its location in the quarter section being surveyed. When a quarter section was finished, potsherds were classified, counted, and percentages computed.

The survey was continued all summer, and 180 sites were found in the sixteen square miles covered. The results of this reconnaissance have not yet been completely collated. It may be stated, however, that such thorough investigation has never before been carried on in southwestern Colorado. Never before was it realized that so many and such early houses existed. Furthermore, some previous theories concerning mixtures or associations of different pottery types have been exploded. With the information acquired during the past season it will be possible to substitute facts for guesses concerning the cultural history of the Southwest. The actual field technique also is a contribution to archaeology, because never before has a survey been conducted in such comprehensive fashion, nor has information acquired ever been previously handled in such scientific manner.

While the survey was proceeding, digging also was undertaken at four sites. This work was under the direction of Assistant Alexander Spoehr, who also did all the mapping. He is a graduate student at the University of Chicago. Both he and Mr. Lloyd have been engaged for several years in archaeological field work.

(To be continued in an early issue)

NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from October 16 to November 15:

Benefactors

Martin A. Ryerson,* Mrs. Martin A. Ryerson*

Contributors

Dr. Wilfred H. Osgood

Associate Members

Mrs. T. Kenneth Boyd, Henry J. Lalley, Walter A. Rogers, Mrs. Sylvia B. Wentworth.

Sustaining Members

Dennis J. O'Toole, Thomas Slader

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Mrs. H. E. Aldrich, Joho W. Blackburn, Miss Martha A. Brown, J. Roy Browning, Mrs. Ralph N. Burkhardt, George F. Campbell, Dr. W. D. Craske, Mrs. James H. Douglas, Paul E. Floyd, Harry M. Grabiner, Otto Gressens, Joseph B. Hawkes, John W. Hobbs, Mrs. C. F. Huth, Samuel M. Koplin, Rudolph J. Kotas, Dr. Joseph M. Leonard, F. C. Little, Mrs. Robert McDougal, Jr., Mrs. Thomas Charles Poulter, Miss Ella M. Salmansen, Mrs. Flora Schofield, Frederick H. Scott, Mrs. Charles D. Steele.

* Deceased

RARE REPTILES OBTAINED IN WESTERN TEXAS

In only three weeks of collecting in western Texas, a recent Field Museum expedition, led by Mr. Karl P. Schmidt, Curator of Reptiles, gathered more than 500 specimens of snakes, other reptiles, and amphibians, as well as 143 mammals, 150 fishes, and numerous insects, arachnids, and other invertebrates.

Mr. Schmidt was accompanied by Mr. D. Dwight Davis, Assistant Curator of Vertebrate Skeletons; Mr. Tarleton F. Smith, of the United States National Park Service; Mr. Walter L. Necker, of the Chicago Academy of Sciences, and Mr. F. E. Winter, of Hinsdale, Illinois, as volunteer photographer. The principal localities in which operations were conducted are the Chisos Mountains, and the extreme desert country between the Pecos and Rio Grande Rivers.

The reptile collections include specimens of a rare worm-snake, a species only twice before recorded from the United States; Baird's chicken snake, which is one of the little-known larger forms, and several species of rattlesnakes peculiar to the region. In all, examples of more than fifty-five known species native to the region were obtained.

The animal life of the river banks and canyons of the Rio Grande, and the contiguous high desert plains and forested mountains, is rich and abundant, especially the reptiles. These are largely related to species found in the southeastern United States and Mexico, but there are also in this region a number of species of good-sized snakes which are surprisingly unrelated to any other species, or to those of any special region. The latter rank among the most sharply characterized of North American snakes, and have always been among the rarest forms in museum collections.

Three species of rattlesnakes are found in the Chisos Mountains: the western diamond-back, the black-tailed, and the green rattlesnake, the last two being relatively rare forms. These rattlesnakes are examples of curious misnomers. The so-called "diamond-back" is so pale a gray that it is much better described by its scientific name, *Crotalus cinereus*. The "green rattlesnake" is definitely pink in color, exhibiting the discrepancy between scientific description and popular books, emphasized by the further complication in nomenclature whereby the species called "black-tailed rattlesnake" is decidedly green (the same species in Arizona, however, being usually yellowish or gray). These color and name anomalies have given rise to new popular names in the Chisos region, where the black-tail (*Crotalus molossus*) is called "green rattlesnake" and the so-called "green rattlesnake" of the books is called the "pink rattler." It is small comfort that the pink rattler's relatives in Arizona are green, as they should be.

Among the most interesting mammals of the southwestern Texas region are the skunks, of which there are three very distinct kinds: the little spotted skunk, the long-tailed skunk (allied to the common northern form), and the hog-nosed skunk. The hog-nosed species (*Conepatus mesoleucus*) has striking modifications of skeleton and nose due to its burrowing and rooting habits, which are more pronounced than in other skunks. Perhaps the most important mammal obtained by the party was the rare bat *Leptonycteris nivalis*.

A model of the original Rockefeller oil refinery at Cleveland is on exhibition in Hall 36.

AMONG TUAREGS OF AFRICAN DESERT THE MEN WEAR VEILS

By WILFRID D. HAMBLY
Curator of African Ethnology

As modernization progresses in Turkey and Egypt, and the women there are removing the veils with which their faces have been hidden for centuries, it is paradoxical to find currently that the women in America and Europe, dominated by the dictates of Paris, New York and Hollywood, are again adopting the fashion of wearing heavy veils with elaborate designs.

It is interesting to note further that among the primitive Tuareg people of the Sahara and Timbuktu, the women, traditionally veiled, are becoming lax in this respect, but the men wear veils, and are very careful never to reveal their faces.

Because these people are Mohammedans, it is a normal custom for the women to wear veils, and it is surprising that in recent years they have been so extraordinarily careless in observing this tenet of their religion. On the other hand the men, who even under Mohammedanism would not

along trade routes. The camel keepers are the aristocrats, and every man, however humble, looks forward to the day when he may own a camel. Even if he possesses only one animal he will join the great annual salt caravan in which thousands of camels take part for the journey to Bilma, whence cakes of salt are brought. These are traded all over West Africa.

Before French rule instituted efficient supervision by means of camel patrols, marauding bands of Tuaregs scouted everywhere, raiding peaceful villages in the hills, intercepting trading caravans, then dashing back to some remote and inaccessible base. The Tuaregs have been implacable fighters against Arabs and Europeans, but they have played a losing hand against the latter.

Like many other nomadic peoples the Tuaregs have not greatly developed their arts and industries, but their leather trappings for camels are artistically made. Woodcarving is confined to simple objects for domestic use—for example, wooden bowls,



Photograph by Straus West African Expedition of Field Museum

Veiled Men of the Sahara Desert

While their women, who should be veiled according to the tenets of their Mohammedan religion, are becoming lax in their observance of this rule, Tuareg men always cover their faces in accordance with a tribal custom of which the origin is unknown.

elsewhere be expected to veil themselves, adhere rigidly to the local custom requiring them to cover the lower part of their faces, leaving only the eyes visible. They lift their veils, but do not remove them, even while eating. Extensive research as to why these men of the desert veil themselves has failed to account for the origin of the custom.

The Tuaregs are not Negroes, but they have many Negro slaves imported from the Sudan, and with these serfs they have married rather freely. Yet there are many pure bred Tuaregs of high caste who are classified among the Northern Hamites, and their physique is distinct from that of Negroes. The body is tall and slender, the features are refined, with narrow noses and thin lips, and the skin color is as light as that of people of southern Europe, to whom the Tuaregs are remotely akin.

Socially, and for economic purposes, the Tuaregs form two divisions, the sedentary people who follow agriculture, and the camel keepers who make long desert journeys

spoons, and heavy mortars for pounding grain. Blacksmiths are responsible not only for iron work, but for woodcarving, and the making of silver ornaments worn by women.

The Tuaregs are an intelligent people, and some are able to write an ancient script of their own invention. Their songs and poems have merit, but dancing is not a major pastime as it is with Negroes. Musical instruments are not numerous, but they use a simple stringed instrument which has become widely distributed in north and west Africa, and a drum made of pottery in the form of a jar, over the wide neck of which a dressed hide is stretched.

The Tuaregs are a people of simple habits. Their life has called for harsh self-denial to cope with desert conditions, and the result has been remarkable physical endurance, combined with pride and aloofness.

The Tuaregs are represented at Field Museum by a collection of objects pertaining to their mode of living, and a series of photographs, in Hall E (case 12).

SUNDAY TOURS IN DECEMBER TO TRACE MAN'S ANCESTRY

"Digging Up Our Ancestral Skeletons" will be the subject of Sunday afternoon lecture tours at the Museum during December, to be conducted by the popular Layman-Lecturer, Mr. P. G. Dallwig, whose presentations of other subjects in October and November have attracted wide notice. So many persons have sought to participate in these tours that it has been necessary to extend the limits of the parties from fifty to sixty, and even then on several occasions it was not possible to accommodate all applicants. It is therefore more important than ever to make reservations for this service in advance. Registrations are accepted by the Attendant at the North Entrance, and advance reservations may be made by telephoning the Museum (Wabash 9410).

Mr. Dallwig, a Member of the Museum who has volunteered to conduct these tours, is a highly qualified speaker with the ability both to dramatize and make extremely lucid the subjects with which he deals. The new lecture covers the exhibits in the Hall of the Stone Age of the Old World, including the eight dioramas of prehistoric men, and the supplementary exhibits of artifacts.

Those registering for the lectures receive identification badges, and assemble with Mr. Dallwig at 2 P.M. in the center of Stanley Field Hall. The tours end at 4 P.M. There is a half-hour intermission midway in the tour (2:45 to 3:15 P.M.) for relaxation, during which those who wish to do so may obtain refreshments and smoke in the Museum Cafeteria where special tables are reserved for the group.

On Sundays in January the subject of Mr. Dallwig's lecture will be "Nature's 'March of Time.'"

Staff Notes

Mr. Karl P. Schmidt, Curator of Reptiles, has been elected Herpetological Editor of *Copeia*, quarterly journal of the American Society of Ichthyologists and Herpetologists. He will conduct this work in addition to his activities at the Museum, thus keeping in close contact with fellow scientists all over the world.

Mr. Rudyerd Boulton, Curator of Birds, attended the convention of the American Ornithologists' Union held at Charleston, South Carolina, last month.

REAL ESTATE SALE CONTRACT ON ANCIENT KISH TABLET

A house and lot—choice waterfront site with riparian rights—for \$1.75! This, apparently, was an average opportunity offered to the home-seeker of modest means in Babylonia about 4,000 years ago.

In sorting over a collection of ancient documents inscribed on clay tablets, from Kish, Iraq (excavated by the Field Museum-Oxford University Joint Expedition to Mesopotamia), Mr. Richard A. Martin, Curator of Near Eastern Archaeology, recently came upon one recording the purchase of real estate.

Translated, this tablet reveals that a house and lot on the bank of a canal was sold to a woman named Amtiia, by a woman called Shat-Numushda, for six and five-sixths shekels. A shekel was equivalent to about twenty-five cents in present-day American money, computed on the basis of its weight in silver. However, in buying power under the economic conditions prevailing in ancient Kish, it represented a value far more than this. Much time and

labor was required to earn it under the then existing wage scales. A shekel would buy almost two bushels of barley (worth about \$1.50 today); two shekels would buy a sheep such as is marketed today for \$7 to \$10.

Because of the scarcity of wood, the most valuable thing in a house was its door, states Mr. Martin, and in the transfer of a house the seller would always remove this feature, leaving the buyer either to obtain his own or do without.

The real estate contract now at the Museum is dated in the twelfth month (called "Addar") of the sixth year (1969 B.C.) in the reign of Sin-muballit, fifth king of Babylon who ruled from about 1975 to 1956 B.C. The land conveyed was small in area, about 729 square feet, as compared to the modern residence lot averaging 3,600 square feet or more.

Following is the translation of the tablet, as deciphered by Dr. Samuel I. Feigin, of the Oriental Institute, University of Chicago: "This document records the purchase by the woman Amtiia, daughter of _____ (name missing), of a house and plot of land



House and Lot Sold for \$1.75

It happened 4,000 years ago, Curator Richard A. Martin tells the Museum Auditor, Mr. Benjamin Bridge (right). Mr. Martin holds a clay tablet containing a real estate contract from ancient Kish. In the auditor's hand is a clay envelope with duplicate inscriptions.

for six and five-sixths shekels of silver from Shat-Numushda, the daughter of Sin-malik, and Unni-waqrat, her mother, the wife of Sin-malik. This land is located between the house of Munawirtum, the priestess, and the house of the sons of Idin-Adad. One front is on the canal, and the other faces the house of Sin-bani. The parties involved swore to the sanctity of this contract in the names of the gods Zababa and Marduk, and the king Sin-muballit, before fifteen witnesses whose names are attached."

At this point there follows a list of the witnesses, and the name of the scribe, who was probably the only one in the group able to write. On a case in which the tablet was enclosed appears another copy of the contract with impressions of cylinder seals of some of the witnesses.

An analytic exhibit of human skulls, skeletons, models of brains, color charts of skin and eyes, casts of hands and feet, and other features of physical anthropology, occupies the east end of Chauncey Keep Memorial Hall (Hall 3).

DECEMBER GUIDE-LECTURE TOURS

Conducted tours of exhibits, under the guidance of staff lecturers, are made every afternoon at 3 P.M., except Saturdays, Sundays, and certain holidays. Following is the schedule of subjects and dates for December:

Wednesday, December 1—Races of Mankind; Thursday—General Tour; Friday—Winter Birds of the Chicago Area.

Week beginning December 6: Monday—Prehistoric Plants and Animals; Tuesday—Plants of Unusual Habits; Wednesday—China; Thursday—General Tour; Friday—Story of Coal.

Week beginning December 13: Monday—Peoples and Animals of Cold Lands; Tuesday—Economic Plants; Wednesday—Ancient Burials; Thursday—General Tour; Friday—Masks of Many Lands.

Week beginning December 20: Monday—Fishes, Amphibians and Reptiles; Tuesday—Man Through the Ages; Wednesday—The Plant Family; Thursday—General Tour; Friday—Animal Exhibits.

Week beginning December 27: Monday—Egypt; Tuesday—Crystals and Gems; Wednesday—Animal Habitat Groups; Thursday—General Tour; Friday—North American Indians.

Persons wishing to participate should apply at North Entrance. Tours are free and no gratuities are to be proffered. A new schedule will appear each month in FIELD MUSEUM NEWS. Guide-lecturer's services for special tours by parties of ten or more are available free of charge by arrangement with the Director a week in advance.

Gifts to the Museum

Following is a list of some of the principal gifts received during the last month:

From Miss Mary I. Jones—23 specimens of Chinese jewelry; from Mrs. Edward E. Vincent—93 ethnological specimens, Greenland; from Richard A. Martin—275 potsberds, Turkey; from Professor A. C. Noé—fruiting spadix of American oil palm, Barro Colorado Island; from Dr. Maurice L. Zigmund—195 herbarium specimens, California; from Dr. Forrest Shreve—100 herbarium specimens, Mexico; from George L. Fisher—49 herbarium specimens, Texas and Mexico; from Dr. J. R. Johnston—43 herbarium specimens, Guatemala; from Rev. Brother Elias—60 herbarium specimens, Colombia; from School of Forestry, Yale University—68 herbarium specimens, Ecuador and Colombia; from Professor Bernardo Rosengurt—51 herbarium specimens, Uruguay; from Professor Adrian Ruiz Leal—81 herbarium specimens, Argentina; from Dr. Robert Hilgeman—a bunch of dates, Arizona; from University of Texas—359 herbarium specimens, Texas; from Frank Von Drasek—a joint in conglomerate pebble, a concretion, and seven mineral specimens, Arkansas and New Mexico; from Frank P. Reagan—a fossil leaf and 21 specimens copper ore, Pennsylvania and Utah; from American Museum of Natural History—cast of jaws of *Dryopithecus cautleyi*; from John W. Jennings—a specimen of Mexican onyx, Arkansas; from Ray C. Gruhke—a specimen of fossiliferous limestone, Washington; from Lloyd Cannon—a concretion, Illinois; from E. Wyllya Andrews—180 frogs, lizards, snakes, and turtles, Yucatan; from Bass Biological Laboratory—80 specimens of snake eels, Florida; from C. M. Barber—35 salamanders, toads, and lizards, Arkansas; from E. Ross Allen—2 Florida bullfrogs, and a jumping viper, Honduras; from Chicago Zoological Society—14 bird specimens; from Texas College of Arts and Industries—640 salamanders, frogs, toads, lizards, and snakes, Texas; from John G. Shedd Aquarium—21 fish specimens; from Wallace Campbell—5 snakes, Illinois; from C. E. Davis—2 snakes, Illinois; from Mrs. C. Siver—a bird specimen, Illinois; from Ben Cascard—3 bird specimens, Indiana; from J. C. Lindahl—an annulate salamander, Arkansas; from Henry Dybas—a Fowler's toad, Indiana; from University of Chicago—a ragfish head and photograph of entire specimen, near Queen Charlotte Islands; from Dr. Ventura Barnes—a frog, Venezuela; from W. J. Gerhard, Astley J. H. Goodwin, Jean-Pierre Lehman, Karl P. Schmidt, and Ray Lyman Wilbur—valuable books for the Library.

Distinguished Visitors

Among recent distinguished visitors received at Field Museum were Dr. Frederick P. Keppel, President of the Carnegie Corporation, New York, and M. Marcel Olivier, President of the Muséum National d'Histoire Naturelle, Paris.

A reproduction of a tobacco plant in flower is exhibited in Hall 28.