

# Field Museum News

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## NEW EXHIBIT SHOWS PREHISTORIC BIRDS RESTORED AS THEY APPEARED IN LIFE

BY RUDYERD BOULTON  
Curator of Birds

Present-day birds show in great detail the adaptations and specializations that have produced the 27,000-odd distinct kinds that are known now to inhabit the earth. The relationships of the various living groups could not be well determined without the evidence afforded by fossilized skeletons of birds long extinct. For this reason fossil birds present a field that is most tantalizing to the ornithologist.

While perfectly preserved and complete fossils of birds are extraordinarily rare, compared with fossils of other vertebrate groups, the total of the paleontological evidence is by no means inconsiderable. Six orders, thirty-one families, about 250 genera, and 1,000 species of extinct birds are known, and a great many birds still living have a record which goes back to the Pleistocene epoch, one or two million years ago. This is equal to considerably more than half the number of kinds of birds that now inhabit North America.

Two years ago plans were made to present some of this evidence of the past history of birds, and recently an exhibit showing reconstructions of eight of the most important types of fossil birds was placed on view in Hall 21. The restorations were made by the writer, and ably modeled in plaster, wax and composition by Messrs. Gus Schmidt and Frank Gino, Works Progress Administration sculptors assigned to the Museum. It is believed that there is no other exhibit similar to this in existence.

*Archaeopteryx lithographica* is by all odds the most famous fossil bird. It is known only from one specimen preserved in the British Museum. Its very close, almost indistinguishable, relative—*Archaeornis siemensi*—also known from only one specimen, in the Berlin Museum, is more perfectly preserved, and so, although less famous, it is the one that has been restored.

These birds were found in the lithographic stone of Bavaria. They lived during the Jurassic period (about 135,000,000 years ago), and are important because they fulfill

the requirements of "missing links" perfectly. They are halfway between reptiles and birds, but by reason of possessing feathers (the only definitive character that separates birds from all other living creatures) they are called birds.

*Archaeornis* had well developed teeth, free moving undifferentiated fingers at the bend of the wing, and a long jointed lizard-like tail with a pair of stiff feathers arising from each caudal vertebra. It had well

feet long, resembling a gigantic loon, was flightless but more perfectly adapted for life in the water than any other known bird, probably even more so than a penguin.

*Diatryma* and *Phororhacos* were large, flightless, predatory, crane-like birds that lived, respectively, in Wyoming during the Eocene period (50,000,000 years ago) and in Argentina during the Miocene (about 10,000,000 or 12,000,000 years ago). *Diatryma* was a formidable creature about

seven feet tall and more powerfully built than an ostrich. *Phororhacos* had many relatives. About sixteen genera and thirty-five species are known. At a single locality some fourteen kinds have been discovered, and while it may be that these were not all contemporaries, the plains of Patagonia undoubtedly teemed with large carnivorous flightless birds.

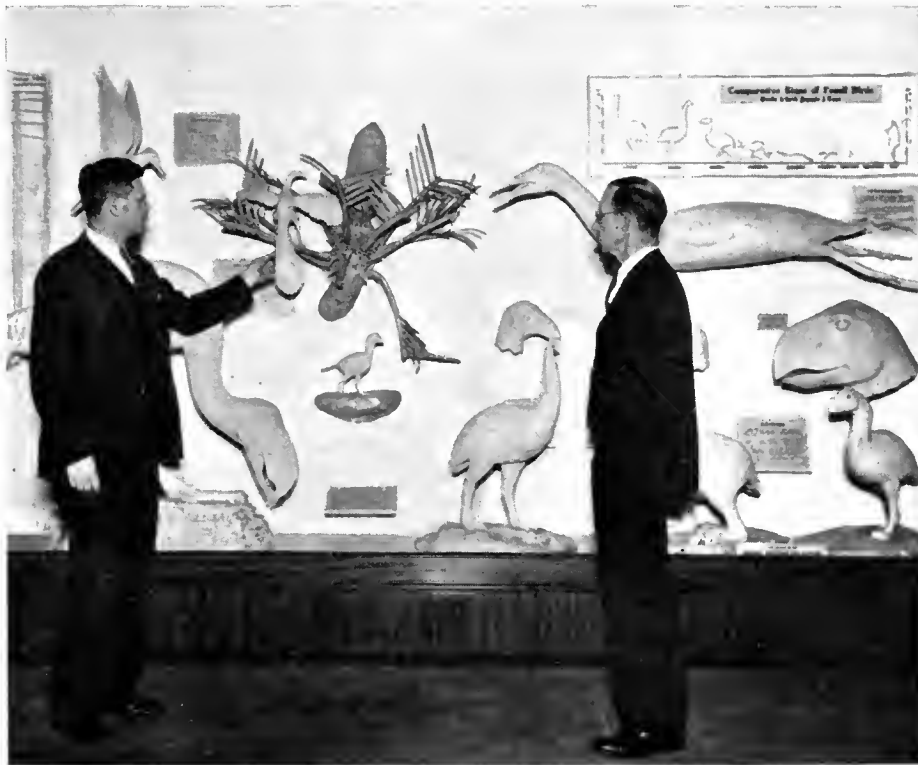
The moa of New Zealand (*Dinornis*), and the elephant-bird of Madagascar (*Aepyornis*) are interesting not only because they were the largest birds that ever existed, but because both of them were probably exterminated when their island retreats were first populated by man.

*Gallinuloides*, a very perfectly preserved but small and obscure, quail-like bird from the Eocene of Wyoming, completes the exhibit. It was probably the forerunner of the guans and curassows that now inhabit Central and South America.

The exhibit is accompanied by diagrams and drawings of the skeletons from which the restorations were made. These were prepared by Mr. John Janeczek.

### Contribution from Mrs. Raymond

Mrs. James Nelson Raymond made a gift of \$2,000 to the Museum in December, bringing to \$6,000 the total amount contributed during 1937. Her gifts are for the support of activities of the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures which she founded and endowed in 1925. She has made many additional contributions during the years since that time.



Fossil Birds

Exhibit "brings to life" some of the earth's earliest feathered inhabitants. Mr. Rudyerd Boulton, Curator of Birds, who is responsible for these restorations, is seen at left, making final check on installation with Dr. Wilfred H. Osgood, Chief Curator of Zoology. The birds are: (left to right, top row) *Ichthyornis*, *Archaeornis*, *Hesperornis*, and (lower row) *Phororhacos*, *Gallinuloides*, *Dinornis*, *Aepyornis*, and *Diatryma*. The last three named are represented also by the separate life-size models of heads at right. Descriptions of all of these species will be found in the accompanying article.

developed wings but no sternum, and consequently no "keeled breastbone" for the attachment of flight muscles. It could not flap its wings effectively and so could not fly in the true sense of the word. It probably lived on cliffs and among the cycad-like vegetation that flourished in its time, using its fingers to aid it in climbing upwards and then setting its wings and gliding downwards like a flying squirrel.

Next in importance are two other toothed birds, *Ichthyornis* and *Hesperornis*, which lived in what is now Kansas during the Cretaceous period (about 75,000,000 years ago). Both were obviously fish eaters, and *Ichthyornis*, about the size of a large tern, was powerful in flight. *Hesperornis*, five

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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.

## ACTING CURATOR APPOINTED FOR HARRIS EXTENSION

At a meeting held December 20, the Board of Trustees approved the appointment of Mr. John R. Millar as Acting Curator in charge of the Department of the N. W. Harris Public School Extension.

Mr. Millar has been a member of the Staff of the Museum since 1918. Previous to this appointment, he has been engaged in the Department of Botany in work of a type which, with his natural qualifications, especially fits him for important branches of the work in his new position. Techniques which he developed in preparation of botanical exhibits are applicable to use by his assistants in the creation of the traveling exhibits circulated by the Harris Extension among 434 Chicago schools with an enrollment of more than half a million pupils.

Mr. Millar was born and has lived most of his life in Chicago. He is a graduate of the Crane Technical High School, and furthered his education at the Armour Institute and the University of Chicago. He has been a member of three important botanical expeditions of the Museum: one to southern Florida in 1918-19; the Stanley Field Expedition to British Guiana in 1922, and the Marshall Field Expedition to Brazil in 1926.

The former Curator of the Harris Extension was the late Stephen C. Simms, who was in charge of the Department from its establishment in 1912 until his death last year, continuing to supervise it even after he became Director of the Museum in 1928.

### THINGS YOU MAY HAVE MISSED

(It has been the policy of FIELD MUSEUM NEWS to feature chiefly articles and photographs pertaining to large exhibits of current or recent installation. While this will be continued, there are many items high in interest which, either because they are not outstanding in size, or perhaps because they were installed years ago, may have failed in recent years to attract the attention they deserve. The series of which this article is the first has been begun, therefore, to bring to notice some of these "things you may have missed.")



The Duck-billed Web-footed Platypus, a Mammal That Lays Eggs

Definitely a mammal, although it has a bill like a duck, webbed feet, and lays eggs, the platypus (*Ornithorhynchus anatinus* Shaw), of eastern Australia and Tasmania, is indeed a curious animal. The only other egg-laying mammals are the echidnas, of Australia and New Guinea. These and the platypus form the order Monotremata.

The platypus lives in rivers, and digs burrows in the banks. It feeds on shellfish, water insects and their larvae, and other small aquatic creatures which it procures from the mud of the river bottoms. It is especially adapted to this mode of life by the duckbill-like development of its mouth, and by its broadly webbed feet.

The burrows are from twenty to thirty feet long, and have a nest chamber at the

end or at the side of the tunnel. In the nest, lined with grass or reeds, the female lays from one to three eggs, which she alone incubates. The young are not nursed for some days after hatching, but are held against the mother's abdomen by her tail.

The platypus was first described from a single specimen in 1799, but it was not until more specimens were secured that the existence of such a curious mammal was fully accepted. —C.C.S.

## VOLUNTEER WORKERS ASSIST MUSEUM STAFF

A great deal of important work currently is being done in the Museum by volunteer workers in co-operation with members of the Museum Staff. Mr. Clarence Mitchell, expert photographer, is engaged on a project of making color pictures of outstanding material in the collections. Mr. P. G. Dallwig, "the Layman Lecturer," is conducting large parties of visitors on Sunday lecture tours. Mrs. Edna Horn Mandel is working with Curator C. Martin Wilbur in studies of Chinese paintings, and she has designed a special storage system to facilitate the use of this collection by students. Miss Elizabeth Hambleton, who has a degree in anthropology from the University of Chicago, is assisting Dr. Paul S. Martin, Chief Curator of Anthropology, in classifying pottery collected by the 1937 Field Museum Archaeological Expedition to the Southwest, in editing manuscripts, and in proofreading. Miss Fanny Sibley, for several years an American resident of Turkey, is assisting Curator Richard A. Martin in cataloguing potsherds from the Near East. Mrs. Hermon Dunlap Smith is engaged in a research project on plumage variation in wood-warblers, working in co-operation with Curator Rudyard Boulton.

## ANCIENT HAIRNET

Hairnets such as were used by women in Egypt some 1,600 years ago are typified by one on exhibition in the hall of Egyptian archaeology (Hall J). Of Roman type, this net is estimated to have been fashioned between the third and fifth centuries after Christ. No attempt was made to achieve invisibility as in modern hairnets. This net is a heavy, knitted, ornamental cap-like item in bright red wool. According to archaeologists, the hair was swathed in linen veils until the head was about twice its natural size. Then the net was stretched over the wearer's already wrapped and covered hair. It was fastened by tying strings attached to it.

Displayed also are a bonnet and cap, both of linen, with plaid designs. In the bonnet, which resembles in cut what would today be termed a sunbonnet, there are embroidered lines in dark brown silk criss-crossing the tan linen. It is edged with blue-striped linen. The cap is interwoven with lines of blue silk. Both bonnet and cap consist of two halves stitched together, each half being lined with a coarser linen than that which showed when worn.

## Ferns of the Indiana Dunes

Mr. R. M. Tryon, Jr., published recently in the *Midland Naturalist* a list of twenty-six species of ferns from the Indiana Dunes at the southern end of Lake Michigan. In view of the fact that the Chicago region is considered rather poor in its fern flora, the number reported in this paper, based upon exploration extending over several years, is remarkably large. Mr. Tryon has presented to Field Museum a set of specimens.

## REPORT SUMMARIZING WORK OF SOUTHWEST EXPEDITION

BY PAUL S. MARTIN  
Chief Curator, Department of Anthropology  
(Continued from December, 1937 issue)

The sites excavated in 1937 by the Field Museum Archaeological Expedition to the Southwest were chosen because from surface indications they appeared to be of early dates. Toward the end of the season it was found, from the survey conducted by Mr. Lloyd (see December, 1937 FIELD MUSEUM NEWS) that there were some very much earlier ruins in the neighborhood—ruins which might go back to A.D. 500 or before. But it was impossible to probe into them at this time when the season was almost concluded. Therefore these earliest ruins have been reserved for investigation during another summer.

As was the case with the survey, all of the information acquired from the excavations has not yet been compiled. But it is safe to state that the expedition penetrated into

supplies was in small slab-lined, above-ground rooms.

At about the end of the eighth century after Christ, another group of Indians moved into this area. This penetration was probably peaceful, but nevertheless had far-reaching results. The Basket-Maker culture was modified. The new culture which developed from this contact of two peoples is called "Pueblo" and still flourishes to a certain extent in New Mexico and Arizona.

The houses which were excavated during the summer of 1937 were constructed immediately after this new group of Indians merged with the Basket-Maker Indians, and are representative of an interesting and little-known period. The astonishing changes wrought by this cultural meeting were reflected in the types of dwellings, for no two houses were the same, and none were exactly like those built in earlier or later

## NEANDERTHAL TOOTH EXHIBITED

BY HENRY FIELD  
Curator of Physical Anthropology

The second lower right molar tooth of a Neanderthal man has been placed on exhibition in the Hall of the Stone Age of the Old World (Hall C). This tooth, presented to the Museum by its discoverer, the late Dr. Henri Martin, was found in 1911 during excavations at La Quina in the Charente district of France. This site was excavated intermittently from 1905 to 1936.

The thick deposits at La Quina belong to the Middle Mousterian culture. In the lower levels bones of the horse occur more frequently than those of the reindeer. There is also abundant evidence of bison and fallow deer. Many animal bones show evidence of being flint-marked, particularly those which have served as chopping-blocks. A large series of flint and bone implements have come to light, showing the technical skill of the Neanderthal workmen.

In Hall C there are representative series of stone and bone implements from the various levels at La Quina. Dr. Martin also found seventy-six calcareous spheroids which may have been used as bolas by the ancient hunters of the Charente some fifty thousand years ago.

In 1911 Dr. Martin also found the skeleton of a young woman about twenty-five years of age. The teeth were well preserved and large in size. A slight deposit of tartar occurred, principally on the molars. According to Professor G. G. MacCurdy, of Yale University, traces of the habitual use of a toothpick were found between the first and second molars. In addition to this skeleton, fragments of about thirty Neanderthals have been unearthed during the past 30 years.

Dr. Martin believed that at La Quina cannibalism was not practised; also, that Neanderthal Man did not bury his dead. There is, however, evidence from other excavations to suggest that some five hundred centuries before the birth of Christ members of the Neanderthal race believed in a future life. For example, one Neanderthal's skeleton was found with a flint implement in his hand and the leg bone of a bison by his side—thus the weapon to protect him and the meat to sustain him on his voyage beyond the grave.

Since the turn of the century a number of Neanderthal skeletons have been found, associated with Mousterian cultures. Thus it was possible to make a reconstruction of a Neanderthal family at Gibraltar in the Hall of the Stone Age (see FIELD MUSEUM NEWS, September, 1933). These figures were modeled by Mr. Frederick Blaschke.

As prehistoric human remains are usually retained in the country of origin as national property, an original Neanderthal tooth comes as a welcome addition to the Museum's collections.

Field Museum is fortunate in also possessing two cranial fragments of a Neanderthal child from Le Moustier, Dordogne, France, and the world-famous Cap-Blanc skeleton of a young Magdalenian girl.

### Fluorescent Opal

A fluorescent mineral 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 with a dull red.



One of Sites Excavated by Archaeological Expedition

View from a photographic tower showing (in front) ruins of ancient corn storage bins, and (in rear) a kiva pit house of the prehistoric Indians who inhabited the extreme southwestern part of Colorado. The site covers an area of about 1,300 square feet. The measuring stick on the wall in the center is 10 feet long.

a period of southwestern history about which little is known.

To clarify this, I must explain that the earliest people in Colorado and northern Arizona about whom we know anything are called Basket-Makers. This is a misnomer, because the Basket-Maker Indians made pottery as well as baskets. Their culture flourished some three or four hundred years (approximately from the middle of the fifth century A.D. to the middle or end of the eighth century). During this time the culture of the Basket-Maker Indians underwent few changes. Briefly, it may be stated that the Basket-Maker Indian lived in a roundish or squarish subterranean house, the floor of which was seven or eight feet below the ground surface. The roof consisted of logs supported by forked upright posts. In the floor and near the center of such a house was a firepit. Entrance to the house was through a passageway which was always located on the south side. Pottery-making, textile-weaving, and agriculture (corn, and later, beans) were practised by these Indians. Storage of food

periods. It was observed also that the newcomers were about ready to enlarge the small, slab-lined, above-ground storage bins so as to make them suitable for habitation, and to transform the old underground chambers for use only in ceremonies.

These and other facts gleaned by the researches of the past summer are of great archaeological significance. The sites in which work was carried on represent a cultural period of flux and change which had never before been studied or even noted in southwestern Colorado. From the results obtained it will be possible to prove that kivas (underground ceremonial chambers) grew directly out of early underground houses. Pottery in an abundant variety of excellent types was carefully collected by levels. Thus if the types at the bottom of a refuse heap are different from those in the middle or top layers, the differences may be noted. When the broken specimens of pottery are mended, they will add immeasurably to the Museum's collections, which have lacked the types found by this expedition.

## SUNDAY LECTURE-TOURS COVER BILLION YEARS OF LIFE

The story of one billion years of life will be presented in Sunday tours conducted by Mr. P. G. Dallwig, the Layman Lecturer, during the first quarter of 1938. In January his subject will be "Nature's 'March of Time'" in which he will trace animal and plant life from its beginning about one billion years ago, down to the dawn of the era of man, approximately a million years ago. This lecture will be illustrated by a tour of Ernest R. Graham Hall of Historical Geology. On Sundays in February the subject will be "Digging Up Our Ancestral Skeletons," following the course of human life from its beginning to the advent of recorded history, the narrative being accompanied by a tour of the Hall of the Stone Age. In March, under the title "Parade of the Races," Mr. Dallwig will acquaint his listeners with the principal living races of mankind, touring Chauncey Keep Memorial Hall which contains the extensive series of racial sculptures by Miss Malvina Hoffman.

Attendance one Sunday in each of the three months, to derive the benefit of the entire series in consecutive and connected form, is suggested. The Sunday lectures, inaugurated last October, have proved extremely popular week after week, and to be sure of accommodations it is advisable to make reservations in advance. This may be done either by mail or by telephone (Wabash 9410). Only if advance reservations do not exceed the number to which the party is limited, will additional registrations be permitted for other Sunday visitors at the Museum.

The lectures begin promptly at 2 P.M. and end at 4:15; midway there is an intermission for relaxation. Special tables are reserved in the Cafeteria for those who wish to obtain refreshments or smoke during this interval.

To avoid delay and inconvenience to themselves and others, those participating are requested to arrive at the Museum a few minutes before 2 o'clock so that registrations may be completed, and wraps checked.

Mr. Dallwig is a Chicago business man, and a Member of the Museum, whose deep interest in scientific subjects has led him to volunteer his services for this work without cost to those participating, or to the Museum. He is an impressive and dramatic speaker, whose command of his subjects has brought many favorable comments from those attending his previous lecture-tours.

### Staff Notes

Dr. Paul S. Martin, Chief Curator of Anthropology, attended the meetings of the American Anthropological Association held at Yale University December 28-31, and presented a report on the 1937 Field Museum Archaeological Expedition to the Southwest, of which he was leader.

Mr. Rudyerd Boulton, Curator of Birds, has gone east for several weeks of special research under co-operative arrangements with the American Museum of Natural History, New York, and the Carnegie Museum of Pittsburgh. He is working on the taxonomy and distribution of the birds of Angola (Portuguese West Africa). These institutions, like Field Museum, have large collections resulting from expeditions he conducted.

Mr. Elmer S. Riggs, Curator of Paleontology, attended conferences of the Geological Society of America, and the Paleontological Society of America, at Washington, D. C., December 28-30.

Mr. Colin C. Sanborn, Curator of Mammals, recently gave a radio talk over station WLS (*The Prairie Farmer*), addressed especially to American farm youth. His story of Field Museum's animal groups, and how specimens are collected, brought many letters to the Museum from listeners.

Dr. Wilfred H. Osgood, Chief Curator of Zoology, and Staff Taxidermist C. J. Albrecht both appeared as lecturers before the Campfire Club of Chicago on December 2. Dr. Osgood related experiences on his 1937 expedition to Indo-China, and Mr. Albrecht told of his expedition to the Pribilof Islands to collect seals last summer. Mr. Albrecht repeated his lecture before the University Club on December 18.

## FIELD MUSEUM SPECIMEN FILLS GAP IN HISTORY

A limestone slab in the Egyptian collection of Field Museum is now helping to fill a gap in the history of Old Kingdom sculpture. Recently noticed by Mr. W. Smith of the Harvard-Boston Museum Expedition to Egypt, this piece, with others in the Metropolitan Museum, New York, the Louvre, Paris, and the Cairo Museum, is an important aid in completing a reconstruction of a tomb of the Fifth Dynasty (circa 2500 B.C.).

The sculpture in the Museum is a section of the doorframe from the mastaba tomb of Meri, "overseer of the treasury." As this dates to long before the days of coinage, and the "funds" consisted largely of agricultural products and commodities, a great many treasury officials were necessary. Meri, as director, must have been an important man.

### Distinguished Visitors

Among the persons of distinction in various fields who have been visitors at Field Museum recently are: Mr. Gilbert Archey, Director of the Auckland Institute and Museum in New Zealand; Mr. J. R. Kinghorn, zoologist of the Australian Museum in Sydney; Dr. J. M. Menzies, head of the department of archaeology at Cheeloo University, Shantung Province, China; Mrs. Franklin Delano Roosevelt, wife of the President of the United States; Mr. J. O. Brew, specialist in archaeology of the American Southwest, on the staff of the Peabody Museum, Harvard University; Mr. Earl Morris of the staff of the Carnegie Institution of Washington, D. C., and Dr. Harold S. Colton of the Museum of Northern Arizona at Flagstaff.

Dr. Menzies spent several days at the Museum conducting research, in collaboration with Curator C. Martin Wilbur, on Chinese jades and bronzes of the important Shang Dynasty (1400-1100 B. C.) upon which he is a leading authority. Mrs. Roosevelt wrote an article about the Museum in her column, "My Day," which is syndicated to many newspapers.

### 1,350 Four-H Club Boys and Girls on Tours of Field Museum

During the International Live Stock Exposition held in Chicago in December, 610 girls and 742 boys from American farms, delegates to the National Four-H Club Congress, were brought to Field Museum. They were conducted on tours of the exhibits by members of the staff of the James Nelson and Anna Louise Raymond Foundation.

A reproduction of a tea bush in flower and fruit is exhibited in Hall 25.

## 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:

Week beginning January 3: Monday—Plants and Animals of Long Ago; Tuesday—Systematic Animal Hall; Wednesday—Hall of Races of Mankind; Thursday—General Tour; Friday—Earth Forces and Their Work.

Week beginning January 10: Monday—American Archaeology; Tuesday—Palms and Cereals; Wednesday—Egyptian Hall; Thursday—General Tour; Friday—Bird Habitat Groups.

Week beginning January 17: Monday—The Story of Plant Life; Tuesday—Jades; Wednesday—Chinese and Tibetan Exhibits; Thursday—General Tour; Friday—Animal Life of the Chicago Area.

Week beginning January 24: Monday—Men of the Old Stone Age; Tuesday—Minerals of the United States and Its Possessions; Wednesday—Plants Native to the Americas; Thursday—General Tour; Friday—Skeletons.

Monday, January 31—The Eskimos.

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 Hammermill Paper Company—paper pulp and paper machine stock; from George Moore—266 herbarium specimens, Missouri; from Professor Manuel Valerio—115 herbarium specimens, Costa Rica; from University of Texas—86 herbarium specimens, Texas; from Jardim Botânico de Bello Horizonte—175 herbarium specimens, Brazil; from Yale University—126 herbarium specimens, Africa and Fiji; from Carleton College—134 herbarium specimens, Costa Rica; from Dr. Earl E. Sherff—109 herbarium specimens and 54 negatives of plants; from M. Vonsen—2 specimens of bakerite, California; from Rev. Dr. Hugo Bren—a specimen of cephalopod, showing siphuncle, Illinois; from Robert R. Sovey—a specimen of stigmara, Illinois; from K. E. Lofquist—fossil frond and fossil crustacean, Illinois; from Miss Nancy Woodson—a specimen of limestone, Switzerland; from G. B. Calhoun—a specimen of chalcidoid pseudomorph after root, Wyoming; from Dr. H. H. Nininger—a stone meteorite, South Australia; from Captain John D. Craig—2 clips of motion picture film (positive) showing portions of a whale shark, off Mexico; from Chicago Zoological Society—7 mammal and 2 bird specimens; from Zoological Society of London—5 hedgehogs, England; from Dr. Alfred E. Emerson—a five-lined skink, New York; from Karl P. Schmidt—54 small mammal skins with 53 skulls, Illinois, Minnesota, and Wisconsin; from Booth Fisheries Corporation—7 specimens of rosefish, New England coast; from Henry Dybas—80 beetles, bugs, grasshoppers, and crickets, Indiana, Illinois, and Wisconsin; from Miss Adeline Rose Krause—a hornless cow skull; from R. Castang—a chimpanzee; from Dr. A. E. Borell—7 lizards and 5 snakes, Texas; from United States National Park Service—184 frogs, lizards, snakes, and turtles, Texas; from Dr. J. C. Cross—a Texas indigo snake; from Lincoln Park Zoo—a South American snake; from Dr. Henry Field—86 grasshoppers, roaches, mantids, and katydids, Iraq; from Edward J. Brundage—6 crustaceans and 449 insects and allies, United States, Panama, and Colombia; from Bertil Hartelius—335 insects, Arkansas and Texas.

### NEW MEMBERS

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

#### Associate Members

Robert C. Borwell, Robert William Elich, Oscar Fineman, Mrs. Gerhard Foreman, Edmund C. Henschel, Joseph F. Hejna, Miss Laura E. Jackson, Edward B. McGuinn, Mrs. Margaret Yorkey.

#### Annual Members

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A collection of albino birds and mammals is on view in an alcove adjoining Hall 21.

# Field Museum News

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No. 2

## LAYSAN—TINY MID-PACIFIC ISLAND WHERE MYRIADS OF OCEANIC BIRDS GATHER

BY WILFRED H. OSGOOD

Chief Curator, Department of Zoology

An important addition to the habitat groups of birds in Hall 20 is an exhibit showing a stretch of shore with many of the myriads of oceanic birds which resort to Laysan Island (of the Hawaiian archipelago) to breed. The group is an enlargement and reinstallation of a former exhibit previously shown in a floor case. Staff Taxidermist Leon L. Pray, who prepared the original group, has painted a new and more comprehensive background, added new birds, re-assembled others, and installed new plant accessories prepared under the direction of Mr. Frank Letl. The result is a very attractive and exceedingly appropriate feature for Hall 20, which is devoted to the exhibition of birds representative of widely varying habits throughout the world.

The birds of the open sea, among which the albatrosses are best known, come to land only at certain seasons to lay their eggs and rear their young. For this purpose they choose isolated, uninhabited islands where there is freedom from molestation by man and most other enemies. Laysan Island, lying about 800 miles northwest of Honolulu,

is one of the most famous of such places. Although having an area of scarcely two square miles, it supports an incredibly large population, estimated in 1902 to be two millions. This figure is probably high, but gives some indication of the vast numbers.

The few naturalists fortunate enough to have visited Laysan report that it presents one of the most fascinating displays of bird life to be found in the whole world. This is not only because of the number of birds, but because of their unusually interesting habits and their complete lack of fear of man. As a man walks among them, they scarcely step aside to let him pass, or they peck at his trousers as if to ask who he is and what his business. This is especially true of the albatrosses, which are the predominating birds. There are two species of these, the Laysan albatross, which is snowy white with dark brown back and wings; and the black-footed albatross, wholly sooty in color.

The Laysan albatross spends much of its time in going through a series of stately, dignified performances described by ornithologists as a "dance," although, as one

observer has said, it is in many respects more suggestive of a "cake-walk." This consists of a series of bowings and antics executed by two birds facing each other. It nearly always follows a definite sequence, and always ends with both birds pointing their beaks directly upward in the pose shown by a pair near the center of the Museum's group. From a point of vantage, an observer may often see twenty-five or thirty couples all engaged in this performance at once. Doubtless it has some

relation to the nuptial activities so well known in certain other birds, but in this case it continues long beyond the actual mating season and seems to have become a pastime.

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action, but through their introduction of domestic rabbits the island was almost denuded of vegetation, with well nigh fatal consequences to the land birds. In 1923, a government party, under the leadership of Dr. Alexander Wetmore, succeeded in exterminating the rabbits and it is now hoped that original conditions have been restored. A visit to Laysan evidently leaves a lasting impression. Dr. Walter K. Fisher, whose accounts are the best recorded, concludes one of them as follows: "Thus, in attempting to indicate something of the life of the albatross, I have wholly failed to include the subtle charm which reaches one through the soft

tropical sky, the salty breeze, the sparkling lights on waves, now green now purplish, as they break on the coral reef; and the wilder scenes in the tossing surges that assail the eastern shore with booming roars and clouds of flying spray; and the darting, screaming multitude of sea fowl gleaning their living prey from the tumult of waters, or winging their certain way to the expectant nestlings."

### HALL IN MUSEUM NAMED FOR R. T. CRANE, JR.

In honor of the late Richard T. Crane, Jr., Benefactor of the Museum, and former member of the Board of Trustees, a resolution to name Hall 16 (the Hall of American Mammal Habitat Groups) "Richard T. Crane, Jr., Hall" was adopted by the Trustees at a meeting held January 17. This action was taken in recognition of the deep interest Mr. Crane manifested in the Museum's work for more than twenty-five years, the many important services he rendered the institution, and his generous contributions totaling in excess of \$229,000.



Natural Sanctuary

Bird life of Laysan Island in the Hawaiian archipelago, as depicted by habitat group in Hall 20. Note albatrosses (just left of center) with their beaks lifted vertically, demonstrating a phase of their characteristic "dance." Birds and background were prepared by Staff Taxidermist L. L. Pray.

relation to the nuptial activities so well known in certain other birds, but in this case it continues long beyond the actual mating season and seems to have become a pastime.

Besides the albatrosses, the group includes two species of gannets or boobies, and many frigates or man o'war birds. These last, perhaps the most powerful and graceful fliers of all birds, build a bulky nest of sticks on the semi-procumbent bushes. Before the eggs are laid, the male sits on the nest and inflates a peculiar naked gular pouch, apparently as a display before the female which flies overhead. This pouch is deep red in color and when fully inflated has nearly the size and very much the appearance of a child's toy balloon. Other species shown are the red-tailed tropic bird, which sailors call the "bo'sun bird," on account of its shrill whistle, and several petrels and shearwaters which nest in burrows in the sandy ground. Four species of terns add their graceful forms to the scene.

Land birds are few and now nearly or quite extinct in this locality. Five peculiar species formerly existed, a teal, a flightless

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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 5 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.

## CURIOUS AFRICAN ORNAMENTS

BY WILFRID D. HAMBLBY  
Curator of African Ethnology

Negroes, both men and women, are noted for the strange mutilations performed on their bodies, and the heavy ornaments they wear for supposed beautification. Scars are made on the skin, ears are distended, plugs are inserted in the lips, and in several large tribes heavy wire ornaments are wound around the arms and legs. Coiled spirals of thick wire are worn by the Akikuyu women of Kenya in northeast Africa. The same type of ornament, worn by Munshi women of Nigeria, west Africa, is represented by an example on exhibition in Hall E (Case 28-A).

The wire may be made of iron or of brass. The former is made by Negro blacksmiths who melt scrap iron in charcoal fires. The brass wire is imported from Europe, and may be purchased at most traders' stores. The ornament is adjusted in the form of a well coiled spiral, and a woman who has acquired the decoration wears it through life, as removal would entirely spoil the symmetry of the coil. Frequently such heavy ornaments cause distressing sores by friction, but even so, pride prevents the removal of the decoration. In Hall D (Case 12) are samples of brass collars worn by women living near the mouth of the Congo River. The examples shown are small, but similar collars weighing as much as twenty-eight pounds are worn.

### THINGS YOU MAY HAVE MISSED

#### Shrunken Human Heads

Four human heads, slashed from the bodies of victims by head hunters among the aborigines of Peru and Ecuador, and shrunk to the size of oranges for preservation as trophies, are on exhibition in Case No. 5 in the Hall of South American Archaeology and Ethnology (Hall 9).

A field for speculation is opened by the possibility that one of these heads is that of a white or partly white woman—at least, the features are marked by a European cast. Who she was, and how she got into the



Reduced to Size of Oranges

Examples of a gruesome art practised by South American Indians. The head on left is that of a typical Indian, but the one on right may be that of a European woman. These and two other specimens are exhibited in Hall 9.

hands of the savages to meet this tragic fate will, no doubt, always remain a mystery. Another of the heads appears to be that of a man who also may have had European blood in his veins; the remaining two are typically Indian.

Shrunken heads of this type are products of a gruesome art known for hundreds of years to several Indian tribes, prominent among whom are the Jivaro, who dwell in

little-explored regions of the upper Amazon, at the base of the Andes. The heads are usually those of enemies killed in battle. By a laborious process the Indians reduce them to about one-fourth of their original size, at the same time preserving them perfectly. The shape and proportions of the features are in no way affected.

Although head hunting is quite common among primitive peoples in various parts of the world, this method of squeezing the heads is unique to the Indians of South America. Specimens today are exceedingly rare, due to governmental bans on the practice.

Many explorers have entered the Jivaro territory seeking to discover how these heads are prepared, but only in a very few cases have they met with any success. However, a few details of the process have been learned. Long slits are cut in the decapitated head, and all of the skull and facial bones are carefully removed, but in such a way as not to disturb the features. The head is then boiled in water containing some astringent herb. After this, hot stones, of gradually decreasing size, are placed successively inside the head, causing the flesh slowly to contract to smaller and smaller sizes. Finally the last stone is removed and the slits are carefully sewn together. In most cases the lips are also sewn up, a precaution arising from the native belief in magic, and intended to prevent the victim from causing any harm to his slayer.

#### J. R. Millar Confirmed as Curator of Harris School Extension

Effective February 1, Mr. John R. Millar will become Curator of the Department of the N. W. Harris Public School Extension of Field Museum. Mr. Millar was placed in temporary charge of this Department last November 8. At their January 17 meeting, the Trustees, on recommendation of Director Clifford C. Gregg who reported upon the success with which Mr. Millar has taken over the work, appointed him Curator.

Curator Millar has been a member of the Museum Staff since February 1, 1918, beginning his service as a preparator in the Department of Botany. Thus his promotion to his present position falls upon the twentieth anniversary of his connection with the Museum.

#### ROBERT B. HARSHE

Field Museum extends to its sister institution, the Art Institute of Chicago, sincerest sympathy in the latter's great loss by the death, on January 11, of its director, Dr. Robert B. Harshe—a loss that will be felt throughout cultural circles of the city and the nation.

Dr. Harshe's brilliant administration of the Art Institute, which had been under his direction since 1921, was a large factor in the steady and rapid rise of that institution to its present important position in the world of art. His influence manifested itself not only in the growth of the museum's collections of paintings and sculpture, but also in the expansion of the great School of the Art Institute which has been so prominent in developing the talents of native artists of this country. Notable also was Dr. Harshe's assistance to the art of the drama, which he fostered through the Goodman Theatre established in the Art Institute. Through his fine spirit of cooperation, various relationships existing between the Art Institute and Field Museum were maintained on the most cordial and satisfactory plane.

### ATTENDANCE IN 1937: 1,292,023; EXCEEDS 1936 BY 100,000

Field Museum received 1,292,023 visitors during 1937, an increase of 100,586 over the 1936 attendance of 1,191,437. This was the first large gain since 1933, first year of A Century of Progress exposition. In 1934 and 1935 there were declines; the 1936 attendance was only 9,088 above that of the preceding year.

Of the 1937 attendance, 1,197,806 were admitted free, either due to coming on the free days (Thursdays, Saturdays, and Sundays), or because as children, students, teachers, or Members of the Museum, they were entitled to free admission any day of the week. Thus the 25-cent admission fee was paid by only 94,217 persons, or approximately 7 per cent of the total. This compares with about 6 per cent in 1936, and less than 5 per cent in 1935. It is encouraging, therefore, to find not only an increase in total attendance, but an increase also in the proportion of persons sufficiently interested in what the Museum has to offer to pay for the privilege of admission.

Apart from those actually coming into the building, the influence of the Museum was carried to many others by extra-mural activities. Lecturers sent out to the schools by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures spoke, and showed stereopticon slides, in classrooms and assembly halls before 469 audiences aggregating 169,337 children. Traveling natural history exhibits circulated among more than 400 schools and other institutions by the N. W. Harris Public School Extension, were repeatedly brought to the attention of more than 500,000 children, exhibits at each institution being changed every two weeks. An audience of incalculable proportions, but undoubtedly numbering millions, was reached by the series of thirteen dramatic radio programs, "From the Ends of the Earth," broadcast under the joint auspices of Field Museum and the University Broadcasting Council. Other radio programs in which the Museum participated, publications issued by Field Museum Press, releases of news articles and photographs, and other methods of transmitting information, brought millions of others into indirect contact with the Museum's activities.

In addition to its work outside the Museum, the Raymond Foundation presented 19 free motion picture programs for children in the James Simpson Theatre in its spring, autumn and special series, with an attendance of 27,775 children; and also conducted 975 groups aggregating 33,564 children on guide-lecture tours of the exhibits. Similar lecture tours for adults numbered 409 with a total of 8,115 individuals. The Sunday afternoon lecture-tours conducted by Mr. P. G. Dallwig, the Layman Lecturer, inaugurated in October, were given for 13 groups comprising 905 persons. Audiences totaling 16,494 persons were drawn to the Simpson Theatre by the 17 lectures, illustrated with motion pictures and slides, given in the annual spring and autumn courses. Large numbers of persons, chiefly students, teachers, visiting scientists, and others engaged in research, were served by the Library of the Museum, and the study collections maintained in each of the scientific Departments.

A large specimen of lodestone, weighing 400 pounds, is exhibited in Clarence Buckingham Hall (Hall 35). It possesses magnetic power, which is illustrated by attached metal objects.

### PREPARING EXHIBIT OF MOUNTAIN MEGATHERIUM SKELETON

By ELMER S. RIGGS  
Curator of Paleontology

A fossil skeleton of the mountain species of ground-sloth, *Megatherium lundii*, is now being prepared for exhibition by Mr. Phil C. Orr, Assistant in Paleontology, who has reconstructed many other specimens of the sloth tribe.

This skeleton was collected by the Marshall Field Paleontological Expedition to Argentina and Bolivia in 1927. Twenty specimens of the genus were collected, and it is planned to mount skeletons of two different species for the exhibits in Ernest R. Graham Hall (Hall 38).

The specimen currently in preparation was buried in a bank of clay for perhaps a million years. Moisture of the earth had leached out the glue, and the process of decay had weakened the original hard texture of the bone. Weight of earth lying above had compressed and distorted many of the bones. Later, the clays which had

had entered and further damaged the specimen. Nevertheless it was a practically complete skeleton with all parts more or less in place, and lacking only a few joints of the toes. As fossils go, this is a good specimen, since it makes possible a mounted skeleton all of one individual, and with but little replacement of missing parts.

Before the accompanying photograph was taken the bones had gone through hardening, fitting, and mending processes, and had been reinforced with iron rods. They are now being assembled on temporary supports. When the pose to be given the skeleton has been determined, permanent supports will be installed, and the specimen will be transferred to the exhibition hall.

This is the first skeleton of this species to be mounted anywhere, and the second skeleton of *Megatherium* to be mounted in a North American Museum. The first was the great skeleton of *Megatherium americanum*, also in Field Museum, mounted in



Assembling Rare Specimen

Only known complete specimen of a mountain type of South American prehistoric ground sloth (*Megatherium lundii*) now being prepared for exhibition by Mr. Phil C. Orr in Field Museum's paleontological laboratories.

covered it were washed away until the skeleton was exposed at the surface. Softened by rains, the clays had "crept" or slid on a sloping surface after the manner of a glacier moving down its valley course. In this process vertebrae were broken and displaced, the flat bones of the pelvis were cracked into many pieces, and plant roots

1935. It is from the Pampean formation of Argentina and is of a heavier, lowland species. Remains of ground sloths of this genus have been found in Florida, Georgia, and South Carolina, but for the most part they are known from South America. There they were apparently quite numerous during Pliocene and Pleistocene times.

### LINCOLN AND WASHINGTON FILMS FOR CHILDREN

The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures will present programs of commemorative motion pictures for children this month, on the birthdays of Abraham Lincoln and George Washington. These will be given in the James Simpson Theatre of the Museum, and children from all parts of Chicago and suburbs are invited. There will be two showings of the films on each day, one at 10 A.M., and one at 11.

The Lincoln program, on Saturday, February 12, will include the films "My Father," "My First Jury," and "Native State."

"Washington, the Boy and the Man," a multiple-reel feature, will be presented on Tuesday, February 22.

### Museum Technique Mystifies Many

Many visitors to the Museum have been observed stooping, bending, standing on their toes, and assuming other unusual positions in endeavors to discover how the Florida manatee, exhibited in a habitat group in the Hall of Marine Mammals (Hall N), is suspended to produce its lifelike floating appearance. They look for "invisible wires" and other devices, but seldom guess the correct solution, which is actually very simple. Go and see for yourself.

## PREHISTORIC MAN IS SUBJECT OF SUNDAY LECTURE TOURS

On Sunday afternoons in February the subject of the lecture-tours conducted by Mr. P. G. Dallwig, the Layman Lecturer, will be "Digging Up Our Ancestral Skeletons." Mr. Dallwig will trace the physical evolution of man, from the earliest fossil finds, and illustrate his cultural development through the Old and New Stone Ages, with special attention to the art of prehistoric times. He will lead his hearers through the Hall of the Stone Age of the Old World, dramatizing the stories of the principal dioramas and other exhibits in that hall.

It is necessary to register for the Sunday tours and receive an identification ticket, as the number that can be accommodated is limited. Reservations may be made in advance by mail or telephone (Wabash 9410). Only if advance reservations do not exceed the number to which the party is limited will additional registrations be permitted for other Sunday visitors at the Museum. Attendance is restricted to adults.

The lectures are given each Sunday, and begin promptly at 2 P.M. They end at 4:15, and are broken midway by an intermission for relaxation, during which members of the party may obtain refreshments and smoke in the Cafeteria where special tables are reserved for the group.

Those participating are requested to arrive at the Museum a few minutes before 2 o'clock so that registrations may be completed, and wraps checked, without delay or inconvenience to themselves and others.

## TRUSTEES RE-ELECT OFFICERS

At the Annual Meeting of the Board of Trustees, held January 17, all Officers of the Museum who served in 1937 were re-elected for 1938. Mr. Stanley Field now begins his thirtieth year as President, having held that office continuously since 1909.

The other re-elected officers are: Colonel Albert A. Sprague, First Vice-President; Mr. James Simpson, Second Vice-President; Mr. Albert W. Harris, Third Vice-President; Mr. Clifford C. Gregg, Director and Secretary; and Mr. Solomon A. Smith, Treasurer and Assistant Secretary.

## Staff Notes

Mr. Emmet R. Blake, Assistant Curator of Birds, returned from an expedition of more than a year's duration in British Guiana and Brazil, just as this issue of FIELD MUSEUM NEWS went to press. A detailed account of his work will appear in a succeeding issue.

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, attended the meetings of the American Association for the Advancement of Science recently held at Indianapolis, Indiana.

Dr. Henry Field, Curator of Physical Anthropology, lectured on the work of his several expeditions in the Near East and contiguous regions before an audience at the Colorado Fine Arts Center on January 19.

Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, gave a lecture on Chinese jades in Field Museum before an invited gathering at the Casino in Chicago on January 20. Colored stereopticon slides prepared by Mr. Clarence B. Mitchell were shown. The program was sponsored by Mrs. Ogden Armour, Mrs. Stanley Field, Miss Malvina Hoffman, Mrs. John Payne Kellogg, Mrs. Charles G. King,

Mrs. John J. Mitchell, Mrs. Donald M. Ryerson, Mrs. P. A. Valentine, and Mrs. John Paul Welling.

Mr. John W. Moyer, Staff Taxidermist, spoke on radio station WCFL January 1 on "The Art of Taxidermy" for the Chicago Educational Forum. He lectured also before a group of Chicago club women at Fullerton Hall in the Art Institute January 20 on "Behind the Scenes at Field Museum."

The Staff of the Museum will greatly miss the familiar figure of Thomas ("Tommy") W. Warke, a faithful member of the maintenance force, who died January 16. He was one of the institution's oldest employes in point of years of service, having worked here steadily since 1894.

## U. S. APPROVES CONTINUATION OF WPA WORK AT MUSEUM

Word has been received from Washington that the Works Progress Administration project requested by Field Museum for 1938 has been approved by federal government authorities. This project will employ about 200 persons, and is practically a continuation of that which was in force at the Museum during 1937.

Last year the number of men and women employed by WPA at this institution ranged from 167 to 199; their aggregate working time amounted to 240,000 hours, and the total amount of wages paid to them was \$174,200.

The project is highly regarded by government officials as outstanding in the production of results that are of real use and value. It has been efficiently conducted, and has made it possible for the Museum to advance in many directions.

Although the efforts of the WPA workers have been utilized chiefly in routine tasks such as cataloguing, typing, filing, cleaning specimens, and mounting photographs, there has also been a surprising number of workers who have proved capable of scientific research undertakings, artistic work, and other activities calling for knowledge, training, skill, and talent. Some were thus qualified by past experience, while others, possessing native ability, were trained at the Museum. This group has contributed to the Museum's scientific publications, to the preparation of new exhibits, the making of maps and charts, and the binding of books in the Library. Heavy production of publications and other printed matter was made possible by workers assigned to the Division of Printing.

Field Museum's cooperation with state and federal agencies for the relief of unemployment began in 1933. In the earlier years the workers were assigned by various commissions, but since the latter part of 1935 all assignments have been consolidated in the WPA.

That there may be no misunderstanding of the situation, it is considered advisable to emphasize here that no regular employes on the Museum's own payroll have been displaced by the employment of WPA workers. The relief workers are assigned solely to tasks which the Museum could not undertake if it were dependent upon its own personnel alone.

—CLIFFORD C. GREGG, *Director*

The life history of the tomato worm moth is illustrated by an exhibit in Albert W. Harris Hall (Hall 18).

Wood and foliage of the three principal species of mahogany are exhibited in Stanley Field Hall.

## 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 January 31: Monday—The Eskimos; Tuesday—Animal Life of South America; Wednesday—Plant Ecology; Thursday—General Tour; Friday—Moon, Meteorites, and Minerals.

Week beginning February 7: Monday—The Etruscans and Romans; Tuesday—Horned and Hoofed Animals; Wednesday—The Story of Coal and Oil; Thursday—General Tour; Friday—Indians of the Southwest.

Week beginning February 14: Monday—Systematic Bird Hall; Tuesday—American Trees; Wednesday—Races of Mankind; Thursday—General Tour; Friday—The Dinosaurs and Other Early Animals.

Week beginning February 21: Monday—Egyptian Exhibits; Tuesday—Crystals and Gems; Wednesday—Primitive Hunting Peoples; Thursday—General Tour; Friday—Marine Life.

Monday, February 28—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-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 S. M. Le Barron—5 planks of Mexican hardwoods; from Jardim Botânico de Bello Horizonte—340 herbarium specimens, Brazil; from McCrillis Butler—315 herbarium specimens; from Museo Nacional—40 herbarium specimens, Costa Rica; from Miss Una Feowick—50 herbarium specimens, England and Austria; from Dr. Forrest Shreve—133 herbarium specimens, Mexico and United States; from James Zetek—45 herbarium specimens, Paoama; from Dr. John R. Johnston—140 herbarium specimens, Guatemala; from John W. Jennings—2 specimens whetstones, Arkansas; from James Anthony Garretson—2 specimens cephalopods, Colorado; from Frank Von Drasek—a rutile crystal, Arkansas; from Michael Lerner—a record-sized specimen of blue marlin, Bahama Islands; from Bass Biological Laboratory—3 specimens of worm eels, Florida; from Robert H. Becker—a lake trout, Canada; from Gordon Grant—389 insects, California; from Karl K. Kaempfer—72 insects, Colorado; from Andrew R. Park—10 parasitic wasps, United States; from Chicago Zoological Park—19 birds and 6 mammal specimens; from A. E. Borrell—a big-eared fire-tailed bat and 12 specimens of snakes, lizards, turtles, and toads, Texas; from Clarence Shockley—2 wood frogs, Indiana; from E. B. Curtis—a Florida worm lizard; from Dr. H. M. Smith—2 bats, Mexico; from Stanley Field—2 valuable books for the Library.

## NEW MEMBERS

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

### Contributors

Alfred A. Look, William N. Rumely\*

### Life Members

Mrs. C. Morse Ely

### Associate Members

George A. Basta, Edward W. Emery, Mrs. William B. Goltra, Mrs. C. R. Morrison, Mrs. Wallace Patterson, C. Galen Sedgwick, Edwin A. Seipp, Jr., Dr. Leonard F. Skleba.

### Non-Resident Associate Members

Carl Colby

### Sustaining Members

Miss Ruth E. Chinlund

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\*Deceased



# Field Museum News

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No. 3

## ANTARCTIC SEALS, COLLECTED BY ADMIRAL BYRD'S EXPEDITION, IN NEW GROUP

By WILFRED H. OSGOOD  
Chief Curator, Department of Zoology

A group of Weddell's seals, just completed at Field Museum, is the second representation of Antarctic life produced in Chicago as a result of the Second Byrd Antarctic Expedition of 1934-35. The first was the group of emperor penguins, described in these pages in August, 1936.

Anyone who has seen the motion pictures taken by Admiral Byrd's party must have realized that penguins and seals are the most conspicuous animals to be found in the Antarctic, and in fact almost the only animals. In regions around the North Pole, if not actually at the Pole, there are polar bears, foxes, ermine, hares, musk-oxen, and wild reindeer, as well as various land birds. About the South Pole, on the other hand, there are no land mammals whatever, and no birds unable to swim in the icy seas. This is the case notwithstanding the fact that the Arctic ice-cap has only water directly beneath it, while that of the Antarctic surmounts an extensive solid continent. Obviously the present distribution and the history of the animals have been influenced by the history of the continents and seas surrounding them.

Although the only mammals of the Antarctic are seals and whales, there are various species of these, and among the seals the one called Weddell's has proved of greatest interest. Extensive additions to knowledge of the life history and habits of this animal have been made by the naturalists of the Byrd expeditions, especially by Messrs. Paul Siple and Alton A. Lindsey.

Weddell's seal is a large species, reaching a length of about nine feet, and a weight of somewhat more than nine hundred pounds. It belongs to the group (Phocidae) known as true seals or hair seals in distinction from

the fur seals and sea lions which have greater freedom of movement of the hind limbs. It progresses on land or ice with some difficulty, moving forward by heaving and undulating its bulky body much after the manner of some worms and caterpillars. Nevertheless, it goes inland for long distances, especially during the Antarctic summer when its young are born. At this time the heavy females work their way as much as eight or ten miles from open water, taking advantage of pressure cracks and temporary water-

protected bays more than other species, such as the crab-eating seal, and the leopard seal, which are commonly seen in the moving pack ice. Thus it gets some protection from its chief enemy, the killer whale. This voracious animal is not satisfied to confine itself to its natural element, but when conditions are favorable, it will project itself nearly out of water to snatch an unwary seal lying too near the edge of the ice.

The young, when born, have their eyes open. They are nearly five feet in length,

and their weight at this time is about 65 pounds. Although nourished only by the mother's milk, they gain weight at the rate of seven pounds daily. Their first coat is soft and woolly, and dull-colored, but this is soon changed for a fresh, spotted coat of considerable beauty. There is much variation in color—some animals have grayish, and others brownish coats, but all are heavily spotted and blotched with irregular markings. Weddell's seal does not migrate, but remains near the coastline of the Antarctic continent through the winter, although occasionally a few individuals may be carried on floating ice northward as far as New Zealand and southern South America.

The Museum's group was prepared by Staff Taxidermist

C. J. Albrecht, with the co-operation of Mr. Arthur G. Rueckert who painted the background. Their combined efforts in solving the unusually difficult problems encountered in merging foreground with background have been conspicuously successful, and the result bids fair to find high rank among groups of this kind. It takes an important place in the Hall of Marine Life (Hall N), where it shares space with the walrus of the Arctic region, the sea elephant and manatee of warmer waters, the sea lions of the California coast, and Pacific harbor seals.



The Antarctic Brought to Chicago

Group of Weddell's seals added to exhibits in Hall of Marine Mammals. It is composed of specimens collected by the second expedition to the Antarctic under the leadership of Rear-Admiral Richard E. Byrd. Animals mounted by Staff Taxidermist C. J. Albrecht; background prepared by Mr. Arthur G. Rueckert.

ways which they keep open by sawing out newly formed ice with their teeth. Finally they take stations, a few hundred yards apart over a wide area, as indicated in the Museum's group. Each female has one young which stays by her side some three weeks. Then the loosely organized rookery breaks up, the young begin to shift for themselves, and the adults return to the sea. Actual weaning of the young, however, may not take place for six or seven weeks.

In general, the Weddell's seal seems to frequent the land ice and the waters of

### Brazilian Plants Added to Herbarium

Recently the Museum acquired more than 5,000 specimens of Brazilian plants for the Herbarium. Two collections, numbering more than 2,000 specimens, were purchased. Two lots, of greater importance, were received, one from the Natural History Museum of Vienna, through the Director of the Botanical Section, Dr. Karl Keissler, and

the other from the Conservatoire Botanique, Geneva, through its Director, Dr. B. P. G. Hochreutiner. These last two sendings consist largely of type or otherwise historical material, and will be invaluable for systematic studies of the South American flora.

Examples of beautiful textiles from India are displayed in Stanley Field Hall.

### Hopewell Mound Exhibit Enlarged

A collection of approximately 8,000 flint discs from the famous Hopewell Mounds of Ohio was added to the North American archaeological exhibits in Hall B last month. These round out the extensive and varied display of other material from these mounds. A feature of the exhibits is a miniature model of the winding Serpent Mound.

**Field Museum of Natural History**

Founded by Marshall Field, 1893

Roosevelt Road and Field Drive, 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 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.

**CHARLES ABEL CORWIN**

1857-1938

Field Museum has suffered a great loss by the death, on January 27, of its veteran Staff Artist, Charles Abel Corwin.

Mr. Corwin was 81 years old, and had been ill for some time past. He had been associated with the Museum for thirty-five years. Prior to joining the staff he had a long and noteworthy career both as an independent artist, and on commissions for other institutions.

Charles Abel Corwin created a whole world within the walls of the Museum. He prepared nearly all the painted backgrounds used as settings for habitat groups of modern mammals and birds, and for restorations of prehistoric peoples and animals. The exhibits he thus embellished line the walls of several entire halls. His work includes scenes from every continent—landscapes and seascapes of the earth as it is today, and as it was many thousands and even millions of years ago. In addition to more than eighty backgrounds for groups, he painted a series of large mural paintings of exotic plants and trees for the Museum's Hall of Plant Life (Hall 29).



Charles A. Corwin

In his work he developed a technique which produced remarkably realistic results. A special problem in perspectives arose from the fact that most of the exhibition cases for habitat groups have elliptically curved backgrounds. Upon these the artist must so create his scenes that illusions of reality, depth, and great stretches of distance shall be felt regardless of the angle from which the completed exhibit may be viewed, and whether from a point close to it or several feet away.

A striking feature of Mr. Corwin's work is the skill with which he merged his painted backgrounds into the built-up foregrounds composed of actual or reproduced rocks, trees, and other accessories representing environmental features.

Mr. Corwin was born on January 6, 1857, at Newburgh-on-Hudson, New York. He began his art studies in New York in 1875, and continued with several years at the Royal Academy of Munich, and under the tutelage of Italian masters. Returning to this country, he became an instructor at the School of the Art Institute of Chicago in 1883. At the same time he continued his own painting and was a contributor to many exhibits. He won various honors and prizes in Chicago and elsewhere. While the larger part of his work in the realm of natural history is to be found at Field Museum, he is also represented by backgrounds for habitat groups in the American Museum of Natural History, New York, the Los Angeles Museum, and the California Academy of Sciences in San Francisco.

Mr. Corwin's accomplishments at Field Museum have been, and remain, a source of constant wonderment and favorable comment on the part of visitors. Countless and unceasing are the remarks of astonishment called forth by the realistic living qualities of the scenes he has created. It is as though his hand had been guided by

Nature herself, so truly has his brush depicted her phenomena. Withal, there is something more—something that was expressed by a critic who said: "He paints not only realism, but romance—his sensitivity is unsurpassed."

**SOME DISCOVERIES IN THE FLORA OF CHICAGO DRINKING WATER**

About a year ago the Department of Botany of Field Museum collected, by use of a filter, a small amount of sediment from ordinary Chicago tap water. This was done at the request of Dr. B. V. Skvortzow of Harbin, Manchukuo, who is engaged in studying the fresh-water diatoms of the world. The sample was forwarded to him for study, and he recently sent to the Museum a report on some of the first results of his examination.

From the specimen received by him, which was collected in winter, he selected for description seventeen kinds of diatoms, some of which were previously unknown to science. Diatoms are minute aquatic plants, visible only under a microscope of fairly high power. They possess a siliceous external skeleton or covering which is the part ordinarily studied. This is variable in form, but of a general pill box construction, and frequently marked with elegant sculpturing or intricate patterns of dots and lines. Consequently diatoms are favorite test objects for the microscope.

Diatoms constitute a part of the microscopic flora which contributes to the "fishy" taste that sometimes characterizes the water. To obtain a complete list of the kinds of diatoms occurring in the lake, sediment, and scrapings from submerged objects, would have to be collected at frequent intervals throughout the year. Such an investigation would show the number of diatoms occurring in Lake Michigan to be many times greater than those in the winter sample examined by Dr. Skvortzow.

Accumulations of diatom skeletons which are found in various places formerly covered by the sea form kieselguhr, an unusually white and fine powder used as an absorbent in the making of dynamite. Diatom remains are also a large component part of diatomaceous or "fuller's" earth, a substance sometimes used for water filtering, and one which, strangely enough, is an effective agent for filtering the diatoms themselves out of water.

On exhibition in the Hall of Plant Life (Hall 29) are glass models of some species of diatoms and other minute water plants, shown as they appear under a microscope.

**LAUREL**

The laurel of the ancients, among whom it was dedicated to Apollo, is a small tree of western Asia and the Mediterranean region. It is often cultivated as an ornamental plant, especially in southern Europe, for the sake of its evergreen foliage which, with the berries, is employed as a traditional symbol of achievement and glory—hence, "baccalaureate," from *baccæ* and *laureatus* (crowned with laurel berries). In the modern Greek church laurel branches take the place of palm leaves on Palm Sunday. As a sacred tree it long enjoyed the reputation of being immune from harm by lightning. It is said that the emperor Tiberius would call for his laurel wreath whenever a thunderstorm threatened.

Laurel leaves contain an essential oil, and are commonly used as a spice. A branch is included in the exhibit of spices and condiments in Hall 25.

## ORNITHOLOGICAL EXPEDITION COMPLETES ITS WORK

By EMMET R. BLAKE  
Assistant Curator of Birds

In January, 1937, the writer embarked upon an extended expedition to South America to collect material with which to complete the Museum's representation of tropical American bird life. The first field of operation was British Guiana, in northern South America, where lives one of the most remarkable birds in the world today—the hoactzin, which was a principal objective of the expedition.

This unique species is famous for certain definite anatomical features which indicate the reptilian ancestry of all birds. The wings of young hoactzins are equipped with functional, lizard-like fingers which are homologous to similar organs in certain reptiles. These parts are altered in later life, but permit the flightless juveniles to clamber about freely and in safety. In fact, if one



Work in Camp

Assistant Curator Emmet R. Blake, leader of South American expedition, prepares to skin a macaw collected earlier in the day. Headnets such as cover his face are frequently worn in jungle camps for protection against insect pests.

disturbs a hoactzin nest, the precocious chicks unhesitatingly dive into the water beneath and climb back unassisted when danger has passed.

Hoactzins live in isolated colonies found only in impenetrable mangrove and thorn thickets along inundated tropical river banks. After considerable search, a satisfactory nesting colony was discovered on Canje Creek, about eighty miles east of Georgetown, capital of British Guiana. Native assistants were employed and several weeks were spent making detailed studies, and obtaining the birds, nests, plant accessories and other material required for making reproductions in the Museum laboratories.

After the acquisition of hoactzin habitat material, several additional months were devoted to general collecting in the interior. Camps were established in turn on the banks of the Essequibo River, in the primeval forests of the Oko Mountains near the Cuyuni River, and in the vast coastal marsh-lands. Important collections of birds, mammals, reptiles, and fishes, numbering more than 2,000 specimens, were thus gathered.

With the advent of the annual rainy season in June, continued field work in British Guiana became impracticable. All specimens were shipped to Chicago, and the expedition, supplemented by new supplies stored in Trinidad, proceeded to Rio de

Janeiro, Brazil. Of particular interest in Brazil was the rhea, or South American ostrich, specimens of which were needed for a habitat group representing the bird life of the vast South American campo or pampas.

Rheas are fairly generally distributed south of the Amazonian forests, but are nowhere more numerous than on the plains of Matto Grosso. In due time, therefore, the expedition reached the Fazenda Capão Bonito, an enormous cattle ranch on the headwaters of the Vaccaria River, more than a thousand miles west of Rio de Janeiro, and began the search for nesting rheas.

These, the largest of American birds, roam the campo in small flocks consisting of one male and several females. During September and October the females may deposit from twenty-five to fifty one-and-a-half-pound eggs in a single nest. There are few landmarks on the plains, so discovering a rhea nest becomes a major problem. About two months were spent in the saddle roaming the endless plains, often in company with the picturesque Guarani Indians, before all of the material desired was finally obtained.

As in British Guiana, large general zoological collections were made in Matto Grosso, and later in Paraná, a heavily forested, mountainous state of southern Brazil. Specimens from the latter region are of particular value because many represent species new to the Museum's study collections. December rains marked the end of field work in Brazil. The expedition returned to Chicago January 24 after a year in the field and a journey of 16,000 miles by rail, steamer, canoe, ox-cart, horseback and afoot.

## METAMORPHISM OF ROCKS SHOWN IN EXHIBIT

By HENRY W. NICHOLS  
Chief Curator, Department of Geology

The transformation, by a process of metamorphism, of the earth's surface rocks to rocks of an entirely different character, is illustrated by a new exhibit in Clarence Buckingham Hall (Hall 35). The specimens shown were collected by expeditions to Dutchess County, New York, and to mountainous regions of Colorado, conducted during the past two years by Curator Sharat K. Roy.

Stratified and other surface rocks often are slowly buried by the action of various geological agencies. Sinking in the course of thousands of years to depths several miles below the surface, they are subjected to conditions of heat and pressure unlike those in which they were formed. They are changed by these forces into new forms which have more stability under the altered conditions. Original structures disappear and are replaced by new ones, and minerals recrystallize in new forms. "Load metamorphism," due to the severe heat from the earth's interior and the great pressure from the huge weight of the overlying rock, frequently is intensified by "dynamic metamorphism," caused by powerful thrusts accompanying rock folding and dislocation. The rocks resulting from these changes, called metamorphic rocks, are so different in structure and mineral composition that they bear no resemblance to their parent forms. Rocks may be metamorphosed also, without being deeply buried, by "contact metamorphism" or the heat and emanations of neighboring masses of igneous rock, as well as by some other causes.

It is impossible to illustrate within the confines of a museum case all the metamor-

phoses rocks undergo, but five common types are shown in the new exhibit. Numerous other metamorphic rocks, of varieties dependent on the nature of the parent rock and the kind and strength of metamorphism, appear in collections elsewhere in the same hall. The most prominent feature of most metamorphic rocks is a laminated structure best shown in slates and schists, but absent in marbles. The change most fully illustrated in the exhibit is that from clay to shale to slate to mica schist, a rock as unlike clay as can well be imagined. Other changes shown include common limestone to marble, quartz to quartzite, and granite to gneiss.

## Descriptions of Plants

During the past few months there have been added to the Herbarium many thousands of typewritten descriptions of new species of plants. Many of these are taken from books not represented in the Museum Library, and some have been received in exchange from the United States National Museum. Such typewritten copies when inserted in the Herbarium save a great deal of time in making determinations of current collections, and also obviate the borrowing of books from other libraries. The copying has been done by employes furnished by the Works Progress Administration.

## THINGS YOU MAY HAVE MISSED

### "The Savage Strikes Back!"

The typical American or European traveler in far-off or little-known lands is inclined to regard the so-called primitive peoples he encounters as something almost apart from his conception of the human race, and usually designates them loosely by the term "natives" (not recalling that he himself is, after all, a native of some country). He regards the physical appearance, clothing, customs, and habits of these "natives" as quaint, if not acutely queer or "savage." It seldom occurs to him that in their eyes he could possibly seem equally strange and ridiculous, but a small wooden statue in Field Museum's ethnological collection from Madagascar might chasten his pride.



"European Beauty"

Malagasy artist's satirical sculpture of a white woman, wife of a colonial official disliked by the native tribes.

On exhibition in Case 17 of Hall E, this figure, made by a member of the Bara tribe, reveals the artist's impressions of a white woman. Haughty in bearing, she is shown wearing a tropical sun helmet, a short but very prim white dress, and red high-heeled shoes. Raised over her head is a purple-topped parasol. Her facial features have been painted, and hair has been attached to the head and eyebrows to add realism.

The figure is a deliberate and amusing caricature of the wife of a European official who was disliked by the natives. Their feelings are strikingly reflected by the satirical qualities of the portraiture.

### SPRING LECTURE COURSE OPENS MARCH 5

Field Museum's sixty-ninth course of lectures on science and travel, illustrated with motion pictures and stereopticon slides, will be presented on Saturday afternoons during March and April. There will be nine lectures in all. They are given in the James Simpson Theatre of the museum, and begin promptly at 3 P.M. Well-known explorers, scientists and naturalists have been engaged for the series.

Following is the complete schedule of dates, subjects, and speakers:

**March 5**—The Last Stand of the Great Ice Age

Mr. Bradford Washburn, Harvard University

**March 12**—Wings Over Utah

Mr. Alfred M. Bailey, Colorado Museum of Natural History

**March 19**—Adventures with Insects

Mr. Brayton Eddy, Providence, Rhode Island

**March 26**—Primeval Stone Monuments: The Mystery of the Megaliths

Dr. Freiherr Robert von Heine-Geldern, Vienna, Austria

**April 2**—The Search for the Congo Peacock

Dr. James P. Chapin, American Museum of Natural History

**April 9**—Home Life of the Gibbon: A Manlike Ape

Professor C. R. Carpenter, Columbia University

**April 16**—The Picture Book of a Canadian Naturalist

Mr. Dan McCowan, Banff, Canada

**April 23**—An Expedition to Prehistoric Pueblos

Dr. Paul S. Martin, Field Museum of Natural History

**April 30**—From London to the South Seas (*in natural colors*).

Mr. William B. Holmes, Evanston, Illinois

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 made available to the general public.

### "PARADE OF THE RACES" SUNDAY TOUR SUBJECT

The subject of the Sunday afternoon lecture tours conducted by Mr. P. G. Dallwig, the Layman Lecturer, during March will be "Parade of the Races." In connection with this lecture the party will tour Chauncey Keep Memorial Hall in which all the principal races of mankind are represented in life-size figures, busts, and heads by the noted sculptor, Miss Malvina Hoffman.

It is necessary to register for the Sunday tours and receive an identification ticket, as the number that can be accommodated is limited. Reservations may be made in advance by mail or telephone (Wabash 9410). Only if advance reservations do not exceed the number to which the party is limited will additional registrations be permitted for other Sunday visitors at the Museum. Parties are restricted to adults.

The lectures are given each Sunday, and begin promptly at 2 P.M. They end at 4:15, and are broken midway by an intermission for relaxation, during which members of the party may obtain refreshments and smoke in the Cafeteria where special tables are reserved for the group.

Those participating are requested to arrive at the Museum a few minutes before 2 o'clock so that registrations may be completed, and wraps checked, without inconvenience to themselves and others.

### RAYMOND FOUNDATION PRESENTS PROGRAMS FOR CHILDREN

Nine free programs of motion pictures for children will be presented in the James Simpson Theatre of Field Museum on Saturday mornings during March and April. These are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. Thirty-four films, many of them with talking and other sound effects, will be included. There will be two showings of the pictures on each program, one beginning at 10 A.M., and one at 11. Children from all parts of Chicago and suburbs are invited, and no tickets are required for admission. 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 adults. Teachers are urged to bring their classes.

A schedule showing the titles of the films to be presented on each date follows:

**March 5**—The Circus City; Dances of the Nations; The Sea Horse.

**March 12**—Trailmates:—Wrongstart; Fun with a Bear Cub; The Porcupine Family; Shivers!

**March 19**—Travels of a Postage Stamp; Souvenirs of Singapore; The Battak of Sumatra; Paws and Claws.

**March 26**—In the Land of the Harmonica; Water Folks; The Black Giant (volcano); The Navajo Demon.

**April 2**—The Settlement of Jamestown:—Life Within the Stockade; The Village of Powhatan; The Capture of Pocahontas; The Spanish Spy; The Marriage of Pocahontas and John Rolfe.

**April 9**—The Farmer's Friend; Peculiar Pets; Cairo to the Pyramids; The Veldt.

**April 16**—Gold Mining in the Klondike; Animals of the Salton Sea; The World of Paper; The Art of the Caveman.

**April 23**—From Red Earth to Steel Girder; A Visit to Czechoslovakia.

**April 30**—Magic Myxies; Hindu Holiday; The Bittern; 200 Fathoms Deep.

### Visiting Hours Change March 1

Beginning March 1, spring visiting hours, 9 A.M. to 5 P.M., will replace the winter schedule of 9 to 4. The new hours will continue in effect until April 30, after which the Museum will be open from 9 A.M. to 6 P.M. until September 5 (Labor Day).

### Distinguished Visitors

Among recent distinguished visitors received at Field Museum of Natural History were Professor Langdon Warner, of the Fogg Museum at Harvard University; Dr. John L. Myres, Professor of Ancient History at New College, Oxford, England, and Dr. Robert T. Hatt of the Cranbrook Institute of Sciences, Bloomfield Hills, Michigan.

### 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 February 28: Monday—Plant Life; Tuesday—Minerals; Wednesday—Egyptian Art; Thursday—General Tour; Friday—Prehistoric Hall.

Week beginning March 7: Monday—African Animal Life; Tuesday—Fibers and Their Uses; Wednesday—Races of Mankind; Thursday—General Tour; Friday—Plant Life.

Week beginning March 14: Monday—Birds and Their Habitats; Tuesday—China and Tibet; Wednesday—Trees; Thursday—General Tour; Friday—Desert Indians.

Week beginning March 21: Monday—Marine Life; Tuesday—Story of Writing; Wednesday—Primitive Peoples of Africa; Thursday—General Tour; Friday—Systematic Collection of Animals.

Week beginning March 28: Monday—Life in the Far North; Tuesday—Plants of Unusual Interest; Wednesday—Crystals and Gems; Thursday—General 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-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 Universidad del Cuzco—125 herbarium specimens, Peru; from Professor L. A. Kenoyer—210 herbarium specimens, Mexico; from Howard Scott Gentry—166 herbarium specimens, Mexico; from Professor J. Soukup—20 herbarium specimens, Peru; from Jardim Botânico de Belo Horizonte—139 herbarium specimens, Brazil; from School of Forestry, Yale University—28 herbarium specimens, Ecuador; from Adrián Ruiz Leal—32 herbarium specimens, Argentina; from Morria G. Morrison—4 specimens of building stones and one of basalt, Palestine; from John W. Jennings—2 specimens of lithographic limestone and 2 of feldspathic shale, Arkansas; from E. C. Galbreath—4 lizards, California; from Dr. J. F. W. Pearson—5 snakes, Bahamas; from Lincoln Park Zoo—3 snakes and a leopard tortoise; from Louis Ruhe, Inc.—a Barbary ape; from Chicago Zoological Park—a monkey, a gibbon, and 2 cobras; from Robert L. Flemming—5 bat skins with akulla, India; from H. B. Conover—valuable books for the Library.

### NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from January 17 to February 15:

#### Associate Members

Joseph F. Darlington, Mervyn C. Phillips, Ivan Racheff, Miss Mary Walsh, George A. Worka.

#### Annual Members

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### Staff Notes

Curator C. Martin Wilbur recently visited the Museum of the University of Michigan, to make a study of a notable collection of Chinese ceramics, excavated in the Philippines.

A lecture on "Adaptive Radiation in Snakes" was given by Curator Karl P. Schmidt on February 16 before the Zoological Club of the University of Chicago.

Curator Henry Field spent several weeks at Harvard University last month, completing a research project on the physical anthropology of the modern peoples of Iran.

# Field Museum News

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No. 4

## ABOVE THE TIMBERLINE, WHERE SPRING, SUMMER AND AUTUMN FLOWERS MEET

By JULIAN A. STEYERMARK  
Assistant Curator of the Herbarium

A habitat group of Rocky Mountain alpine plants, just completed, marks the appearance in the botanical halls of the large panoramic type of exhibit long employed successfully in other Departments of the Museum. It is the first in a series of such groups designed to show characteristic plant formations.

Representing the vegetation above timberline, this diorama forms a striking addition

The conditions which produce this stunted plant life include low temperatures, a short growing season with intense sunlight, and a great amount of wind and consequently high evaporation—conditions typically arctic, and common alike to circumpolar regions and high altitudes of mountainous areas. The vegetation of the latter differs so little from that generally prevailing in the frigid zone that it must be considered only a special type of the arctic flora. As such it was chosen for representation here because

brief period of existence. Usually these have large and brightly colored flowers conducive to ready insect-pollination.

The thirty-odd kinds of plants shown produce a veritable flower bed. The profusion, proximity, and mass effect portray without exaggeration conditions normally found in spots favored by suitable drainage, exposure and moisture conditions. Over the flatter, drier and more windswept portions of the alpine meadow, however, more of the sward would probably be taken over by the



Garden Beside the Snow

The curious profusion of flowers, ranging from spring through summer to autumn types growing almost side by side, as found under arctic-alpine conditions, is represented in this habitat group of a scene above the timberline in the Rocky Mountains of Wyoming. This, the first in a series of botanical habitat groups, has just been completed in the Hall of Plant Life. It was prepared under the supervision of Mr. Emil Sells, who also made necessary field studies and collected required material.

to the Hall of Plant Life (Hall 29). Against a background of snow-covered mountains is shown a bit of alpine plant life as it exists during the summer months in the Medicine Bow Range of southeastern Wyoming. The exact locality is at an elevation of about 12,000 feet, not far from the University of Wyoming summer camp near Laramie. The exhibit presents an open vista, facing northeast over a field of alpine wild flowers at the edge of a mountain snow bank, as it appears about two o'clock in the afternoon. Everywhere at this elevation or higher, the scene assumes a similar and continuous aspect—a green sward interspersed with brightly colored flowers, a formation having the effect of a plains area and often referred to as an "alpine meadow." The absence of trees is more keenly felt because of their presence in abundance in the valley below. At this level appear only the dwarf juniper, seen in the upper left foreground, and the prostrate spruce at the right.

of its widespread occurrence in the United States and ready accessibility in western national parks.

To such unfavorable environmental conditions the alpine-arctic plants show characteristic growth responses. The necessary growth and production of fruit must be accomplished in the course of a few months. The cold temperatures and high winds necessitate protective structures and habits, and many of the plants have developed leaves which are either very small or needle-like as in the grass sandworts, fleshy-succulent as in the red and yellow stonecrop, or thick and leathery as in the bearberry or mountain cranberry. Similar protection is afforded by the dense matted turf or tufts of interlacing stems and root systems of the moss campion and alpine phlox.

Other plants such as the adder's-tongue, Parry primrose, snow buttercup, or marsh marigold, with more exposed surface, and thinner, more delicate leaves, have a very

growth of grasses, sedges, rushes and mosses.

The brief growing season of the alpine flora and its retardation in spots by lingering snowbanks makes it possible to find spring, summer and autumn types growing almost side by side. The whole seasonal progression compressed within a few yards is seen to advantage in the diorama. Beginning at the left almost in contact with the snow are the early spring types, such as yellow-flowered adder's-tongue, pink spring beauty, purple Parry primrose, and white marsh marigold, followed closely by pink lewisia, yellow snow buttercup, white-flowered anemone, grass sandwort, rock cress, and lilac-colored pasque flowers. The parade of the flowers advances toward summer with yellow-flowered sieversia, deep pink moss campion, lilac alpine phlox, blue alpine speedwell, bluebell, and white sandwort. These are followed by the purplish violet, white and purple daisy fleabane, white-

(Continued on page 2)

## Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Field Drive, Chicago

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### FIELD MUSEUM NEWS

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

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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 6 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, 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.

## ABOVE THE TIMBERLINE

(Continued from page 1)

flowered mouse-ear chickweed, yellow and red stonecrop, and the prominent single-stemmed white bistort overtopping its lower-growing alpine associates. The delicate nodding harebell appears here and there, while an occasional white and blue Rocky Mountain columbine is seen hugging the side of the prostrate spruce.

Passing on to the late summer and autumn flowers, the principal types farthest removed from the snow are the deep blue-violet Rocky Mountain gentian, its cream and purple cousin—the arctic gentian, the showy yellow, sunflower-like Rydbergia, masses of the golden yellow ragwort, and pale greenish-yellow and brilliant red paint brush or painted cups. Various grasses, sedges, rushes, and mosses play a prominent part in the composition of the flora.

The drainage lines which normally occur on a slope next to a glacier, are shown throughout the foreground, and make one feel as if he were standing on the edge of an escarpment which gullies down into the alpine lake and forested valley below. The granite, schist and gneiss rocks are covered with various types of crustose lichens, and studded with tufts of rock cress, alpine phlox, and snow buttercup. In the upper left of the foreground, a Rocky Mountain cony peers out upon the scene, as characteristic an inhabitant of the alpine zone as any of the plants mentioned.

The preparation of the group has been materially aided by the skillful assistance of various Works Progress Administration artisans assigned to the Museum working under the supervision of Mr. Emil Sella, chief preparator, who also made the field studies and collected the material. Aid and advice were given him in that task by Professor Aven Nelson of the University of Wyoming. The background was painted by Mr. Arthur G. Rueckert from photographs and a preliminary sketch made by the late Charles A. Corwin, former Staff Artist.

### STONE AGE MUSICAL INSTRUMENTS

By HENRY FIELD

Curator of Physical Anthropology

In Europe about 30,000 years ago prehistoric man made whistles and flutes from leg bones of geese, swans, eagles, chamois, and reindeer. These musical instruments, the oldest yet discovered, were fashioned with sharp, flint graters, and were probably derived from pierced animal bones worn by the ancient hunters as trophies of the chase. Inevitably it was discovered that by blowing across a perforated tubular bone different sounds could be made.

In all probability Paleolithic Man could whistle, as even primitive modern peoples such as the Hottentots of South Africa do this extremely well. In New Guinea flutes became objects of an erotic cult. Other primitive groups use whistles for attracting attention, and particularly for communication during warfare or hunting. In Ashanti there is a veritable whistling language. Among the Hamibs four short blasts mean that an attack is imminent, while one shrill note indicates the discovery of water.

George Catlin, famous artist and traveler (1796-1872), found a war whistle among the American Indians. Whale teeth were made into whistles in New Zealand, a splendid analogy with the flute prepared from a lion's tooth, excavated from Aurignacian deposits at Wistonice in Czechoslovakia by Dr. Karl Absolon, archaeologist in charge of prehistoric sites in Moravia. At the invitation of Dr. Absolon, Dr. H. Kaslik, Czech musi-

cian, has studied the tones produced by prehistoric whistles and flutes, one of which gave the first four sounds of the diatonic scale.

On exhibition in the Hall of the Stone Age of the Old World (Hall C) is a Magdalenian perforated bone, which probably once served as a whistle. It was excavated at Sergeac near St. Léon-sur-Vézère, Dordogne, France.

### AMERICAN ORIENTAL SOCIETY MEETS AT MUSEUM

The Midwest Branch of the American Oriental Society, one of the oldest learned societies of the United States, founded in 1842, will hold its annual meeting in Chicago on April 1 and 2. On April 1 the members will have luncheon at Field Museum, and will hold their afternoon session in the small lecture hall of this institution; other sessions will be held at the Oriental Institute.

Three members of the Staff of the Museum will speak before the delegates. Director Clifford C. Gregg will give an address of welcome; Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, will present a paper on "Legal Aspects of Slavery in the Han Period of China"; and Mr. Richard A. Martin, Curator of Near Eastern Archaeology, will speak on the Museum's collection from Kish (Iraq) and conduct the members on a tour of the hall now in course of preparation for the display of this collection. Professor Sheldon H. Blank, of Hebrew Union College, Cincinnati, President of the Midwest Branch, will be chairman of the meeting. Professor Leroy Waterman, of the University of Michigan, National President of the Society, will also attend.

### HENRY JAY PATTEN

1863-1938

Henry Jay Patten, advisor, supporter and friend of institutions and researchers working in the field of Near Eastern archaeology, died in Chicago on February 25. A Life Member of Field Museum, he contributed some of the Coptic textiles in the Egyptian Hall, as well as cuneiform tablets from ancient Mesopotamia (now Iraq). He was the donor also of funds to enable the Field Museum-Oxford University Joint Expedition to Mesopotamia to continue excavations during 1928 at the site of Jemdet Nasr, near Kish, and to cover the expenses involved in publishing the Kish Sasanian sculptures in a forthcoming book entitled *A Survey of Persian Art*. His generous gifts resulted in his election by the Trustees to the membership classification designated as Contributors. His enthusiasm and interest in following the work of archaeologists engaged in filling in the missing pages of man's cultural history will long serve as inspiration for those who reconstruct the life of the ancient Near East.—H. F.

### Myrrh

Myrrh is a resin exuding spontaneously as light colored drops or "tears" from the bark of several species of trees (*Commiphora*) of the torchwood family. Its native habitat includes Ethiopia, Somaliland, and southern Arabia. From earliest times myrrh has been burned as incense, and it is employed in the Near and Far East in religious ceremonies. It contains a volatile or essential oil which is distilled and used in perfumes and for scenting soap.

This and other unusual resins such as dragon's blood, frankincense, asafetida, etc., obtained from various parts of the world, are on display in the northwest section of Hall 28 in the Department of Botany.

## FOUR MORE RAYMOND PROGRAMS OFFERED FOR CHILDREN

The spring 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 continue on Saturday mornings in April. Two showings are offered of the films on each program, one beginning at 10 A.M., and one at 11. Children from all parts of Chicago and suburbs are invited, and no tickets are required for admission. Children may come alone, accompanied by parents or other adults, or in groups from schools and other centers. Titles of the films to be presented on each date are as follows:

**April 2**—The Settlement of Jamestown:—Life Within the Stockade; The Village of Powhatan; The Capture of Pocahontas; The Spanish Spy; The Marriage of Pocahontas and John Rolfe.

**April 9**—The Farmer's Friend; Peculiar Pets; Cairo to the Pyramids; The Veldt.

**April 16**—Gold Mining in the Klondike; Animals of the Salton Sea; The World of Paper; The Art of the Caveman.

**April 23**—From Red Earth to Steel Girder; A Visit to Czechoslovakia.

**April 30**—Magic Myxies; Hindu Holiday; The Bittern; 200 Fathoms Deep.

## SIANG JADES EXHIBITED

By C. MARTIN WILBUR

Curator of Chinese Archaeology and Ethnology

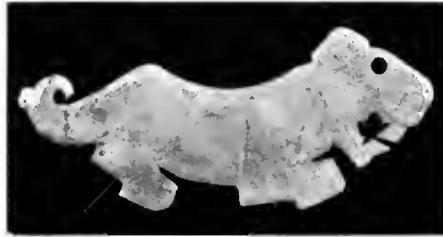
Important archaeological excavations at An-yang in north China during the past ten years have thrown a flood-light of information on China's earliest historical epoch—the Shang period. Modern scientists now know many things about China from 1400–1100 B. C. unknown even to Confucius, who lived only a few centuries later. Many of the finest jades in Field Museum come from An-yang. They were carved during the Shang period, and were buried in the tombs of Shang noblemen.

Who were the Shang? A generation ago no one really knew. Today, because of the deciphering of Shang writing on oracle bones, and due to the excavations of the past decade, it is established that the people of the Shang state possessed a mature civilization, the earliest true Chinese civilization known. They were city dwellers and agriculturists with a full Bronze Age culture. In their society were kings and nobles, priests and scribes, soldiers, traders, workmen and slaves. They worshipped their ancestors, as have the Chinese ever since. Their written language, the predecessor of modern Chinese, was already very complex. In the arts they excelled in bronze casting, pottery making, and bone, ivory, and jade carving—to mention only those things which still remain.

Shang jade, exhibited in Cases 1 and 2 of the Hall of Jade (Hall 30) is admirable for its vigorous portrayal of animals. In Case 2 are both naturalistic and conventionalized forms representing tigers, oxen, hares, deer, alligators, mythical dragons, fishes and birds. Some of the finest pieces are prominently displayed in the front of the case. There are also ritual jades, copies of bronze weapons, and ornaments for clothing.

The Shang jades in Field Museum were among the first shown in any American museum. Brought from China to America by Mr. A. W. Bahr, a well known collector,

several years before the first scientific excavations at An-yang, their true antiquity was hardly suspected. Dr. Berthold Laufer, late Curator of Anthropology, realizing their importance as documents of the past, persuaded a group of far-sighted citizens to present the collection to Field Museum. The group included Mrs. George T. (Frances Gaylord) Smith, Mrs. John J. Borland, Miss Kate S. Buckingham, and Messrs. Martin A. Ryerson, Julius Rosenwald, Otto C. Doering, and Martin C.



Ancient Artist's Conception of a Tiger  
Chinese jade carving of the Shang period (1400–1100 B.C.), on exhibition in Hall 30.

Schwab. Other Chicago citizens who contributed Shang or early Chou jades were Messrs. Richard T. Crane, Jr., and Charles B. Goodspeed. The foundation of the jade collection was laid by the Blackstone Expedition (1908–10), and the Marshall Field Expedition to China (1923), both conducted by Dr. Laufer.

Recently, with the collaboration of Dr. James M. Menzies, one of China's leading archaeologists, who discovered the site of An-yang, Case 2 in Hall 30 was reinstalled. Through his help many jades were definitely established as belonging to the Shang period. A few Shang bronzes, and oracle bones inscribed with early Chinese writing, are also exhibited, in George T. and Frances Gaylord Smith Hall (Hall 24), Cases 1 and 2.

## 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. A post card for this purpose is enclosed with this issue.

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

## MRS. RAYMOND CONTRIBUTES \$2,000 TO FOUNDATION

The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures was the recipient last month of another gift of \$2,000 from its founder, Mrs. James Nelson Raymond. This, like the many previous contributions Mrs. Raymond has made throughout the years since she established the Foundation with a \$500,000 endowment in 1925, will be used in meeting current operating expenses of the Foundation's manifold activities on behalf of Chicago's school children. At present the Foundation is giving its annual spring series of free motion picture programs in the James Simpson Theatre, as announced elsewhere in FIELD MUSEUM NEWS. A recent innovation in connection with these is the preparation of special exhibits of material relevant to the subjects of some of the films shown.

## NEW FOSSIL VERTEBRATES IN TEMPORARY EXHIBIT

By BRYAN PATTERSON  
Assistant Curator of Paleontology

The Field Museum Paleontological Expedition of 1937 obtained many interesting and important specimens from the upper Paleocene and lower Eocene formations of Colorado. The difficulties of preparing these specimens for study and exhibition were described in FIELD MUSEUM NEWS (November, 1937). Preparation by Mr. James H. Quinn, of the Department of Geology staff, is now far enough advanced, however, to permit the installation of a temporary exhibit of the more complete finds in Case 80 of Ernest R. Graham Hall (Hall 38).

Among the specimens exhibited is a partial skeleton of a member of the archaic order of hoofed mammals known as Pantodonta. It is closely related to *Barylambda*, an animal of which a skeleton was collected by a Museum expedition in 1933. A skull of *Barylambda* is also included in this exhibit. Likewise shown is a skull of one of the largest specimens of *Coryphodon* yet found, as well as the skull of a hitherto unknown animal which appears to be closer to *Coryphodon* than any other known form. The mammalian portion of the exhibit also includes a skull of the earliest known member of the extinct order Dinocerata. The later members of this order (specimens of which are shown elsewhere in the hall) were grotesque creatures with great six-horned heads. The new find represents an earlier, hornless stage in the evolution of the group.

The reptiles are represented by turtles and crocodiles. One of the crocodiles has short horn-like growths on the back of its skull. Such "horns" have never before been known in the order Crocodylia. This extraordinary feature went unnoticed in the field, and was only discovered recently in the laboratory during the preparation of the specimen.

## Staff Notes

Mr. Llewelyn Williams, Curator of Economic Botany, has been granted a two years leave of absence to accept an appointment to engage in special work for the Ministry of Agriculture of Venezuela. Making his headquarters at Caracas, Mr. Williams will assist Dr. Henry F. Pittier, the famous Swiss botanist (formerly connected with the United States Department of Agriculture) in a botanical survey and study of the various resources of Venezuela.

Curator Karl P. Schmidt made a field trip last month to southwestern Arkansas to collect salamanders and other reptiles and amphibians. He was assisted by Mr. C. M. Barbour, a former member of the Museum's Staff. Recently Mr. Schmidt was honored by election to membership in the American Society of Zoologists.

Curator Rudyerd Boulton has returned to Field Museum after several weeks in the east where he was engaged in special research on the birds of Angola (Portuguese West Africa). His studies were made principally at the American Museum of Natural History, New York.

Curator C. Martin Wilbur recently lectured on Chinese archaeology before the Fortnightly Club of Chicago, and on Chinese jades before the Hoosier Art Patrons Association.

An American alligator, with nest and eggs, is shown in Albert W. Harris Hall (Hall 18).

## SATURDAY LECTURES CONTINUE

Four lectures in the Museum's spring course for adults remain to be given on Saturday afternoons during April. All will begin at 3 P.M., and will be given in the James Simpson Theatre of the Museum. The lecturers are well-known explorers, scientists and naturalists, and their subjects are illustrated with motion pictures and stereopticon slides. Following are the dates, titles, and speakers:

**April 2**—The Search for the Congo Peacock

Dr. James P. Chapin, American Museum of Natural History

**April 9**—Home Life of the Gibbon: A Manlike Ape

Professor C. R. Carpenter, Columbia University

**April 16**—The Picture Book of a Canadian Naturalist

Mr. Dan McCowan, Banff, Canada

**April 23**—An Expedition to Prehistoric Pueblos

Dr. Paul S. Martin, Field Museum of Natural History

**April 30**—From London to the South Seas (in natural colors).

Mr. William B. Holmes, Evanston, Illinois

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 made available to the general public.

SUNDAY TOURS TO FEATURE  
STONE AGE EXHIBITS

"Digging Up Our Ancestral Skeletons" is the subject of the Sunday afternoon lecture tours to be conducted during April by Mr. Paul G. Dallwig, the Layman Lecturer. The party will inspect the exhibits in the Hall of the Stone Age of the Old World, which contains eight dioramas restoring types of prehistoric man, as well as vast collections of artifacts. Mr. Dallwig's lecture, illustrated with these exhibits, will trace the physical evolution of man from the earliest fossil finds down to the dawn of recorded history.

It is necessary to register for the Sunday tours and receive an identification ticket, as the number that can be accommodated is limited. Reservations may be made in advance by mail or telephone (Wabash 9410). Only if advance reservations do not exceed the number to which the party is limited will additional registrations be permitted for other Sunday visitors at the Museum. Parties are restricted to adults.

The lectures are given each Sunday, and begin promptly at 2 P.M. They end at 4:15, and are broken midway by an intermission for relaxation, during which members of the party may obtain refreshments and smoke in the Cafeteria where special tables are reserved for the group.

Those participating are requested to arrive at the Museum a few minutes before 2 o'clock so that registrations may be completed, and wraps checked, without inconvenience to themselves and others.

## THINGS YOU MAY HAVE MISSED

Silver That Changed the Course  
of World Civilization

A large specimen of ore from a mine whose yield of silver, about 500 years before the Christian era, changed the entire course of civilization by preventing a world-wide Asiatic supremacy which might have lasted to the present day, is on exhibition in Frederick J. V. Skiff Hall (Hall 37) of the Department of Geology.

The ore is from the mines of Laurium (Plaka), Greece. From these mines the great Athenian general and statesman, Themistocles, obtained the silver that paid for the building and equipping of a great Greek fleet which decisively triumphed over the Persians under Xerxes in the epochal battle of Salamis, states Mr. Henry W. Nichols, Chief Curator of Geology. With-



## Ore That Built a Fleet

Chief Curator Henry W. Nichols inspects rock from ancient Grecian mines for traces of the silver which turned the tide of war and prevented the establishment of Asiatic world domination about 500 B.C.

out this fleet, most historians are agreed, the Persians would have been victorious, and the Greek civilization which was the father of European culture would have fallen. Asia would probably have dominated the world, and its grip might have remained unshaken to our own times.

In these days, when the cost of a great war runs into many billions of dollars, it is interesting to note how little, comparatively, it cost to stem a tide of aggression in Themistocles' day. Records show that the amount of silver obtained from the state revenues yielded by the Laurium mines for the fleet was only 100 talents, or a sum in the ancient Greek coinage equivalent to about \$144,600 today. Yet, in the opinion of many authorities, this fleet was of more importance in world history than the fleets of the great naval powers today, and its victory had a more profound effect on the course of past and modern events than the result of the world war of 1914-1918.

## 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:

Friday, April 1—Spring Birds.

Week beginning April 4: Monday—Races of Mankind; Tuesday—Habitat Groups; Wednesday—Strange Trap Plants; Thursday—General Tour; Friday—Moon and Meteorites.

Week beginning April 11: Monday—Asiatic Animal Life; Tuesday—Makers of Totem Poles; Wednesday—The World's Yesterdays; Thursday—General Tour; Friday—The Story of Plant Life.

Week beginning April 18: Monday—South Sea Islands; Tuesday—Palms and Cereals; Wednesday—Skeletons, Past and Present; Thursday—General Tour; Friday—Amphibians and Reptiles.

Week beginning April 25: Monday—Foods of Primitive Peoples; Tuesday—Mexico; Wednesday—Rocks, Rivers and Riches; Thursday—General Tour; Friday—South America.

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 Abraham Cohen—a beaded jacket of the Brule Sioux Indians; from University of Texas—492 herbarium specimens, Mexico; from Dr. Earl E. Sherff—71 herbarium specimens, Hawaii; from Mrs. Anna M. Kummer—33 herbarium specimens, Penang; from Professor L. A. Kenoyer—333 specimens of plants, Mexico; from Professor Bernardo Rosengurt—29 herbarium specimens, Uruguay; from John C. Pape—a specimen of hornblendite and 6 of massive hornblendite, California; from Tokumatsu Ito—10 specimens of coal and five of oil shale, Manchukuo; from Dr. Henry Field—2 lizards, 8 snakes, and 13 mammals, Iraq; from Louis Ruhe, Inc.—2 Barbary apes; from Chicago Zoological Society—5 mammals; from Captain L. R. Wolfe—a golden eagle, Korea; from Mrs. H. D. Smith—50 bird skins of 35 species, Mt. Mero and Mt. Kilimanjaro; from Dr. W. P. Kennedy—4 lizards, 2 snakes, and 2 turtle eggs, Iraq; from Carnegie Institution of Washington, from Dr. Fay Cooper-Cole, and from Henri Gadeau de Kerville—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

Clarence L. Coleman, Jr., Mrs. James R. Getz, Miss Bertie E. Miller, John W. Ruettinger, G. Leland Seaton.

## Annual Members

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## Distinguished Visitors

Among distinguished visitors recently received at Field Museum were Colonel Theodore Roosevelt, of New York, collector of many of the animals displayed in the Museum's exhibits; Miss Malvina Hoffman, of New York, the noted sculptor, creator of the Races of Mankind series in Chauncey Keep Memorial Hall; Dr. A. E. Douglass, of the University of Arizona, Tucson, famed as the originator of the tree ring method of tracing ancient dates; and Dr. Olov Janse, professor at the University of Paris, and Corresponding Member of l'Ecole Francaise d'Extrême-Orient, Hanoi (Tonkin), Indo-China. Dr. Janse spent several days at Field Museum to study this institution's Chinese, Melanesian, and Filipino collections.



# Field Museum News

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## BABOONS—MONKEYS WHICH HAVE ABANDONED TREES FOR LIFE ON THE GROUND

By COLIN CAMPBELL SANBORN  
Curator of Mammals

Baboons may well be called terrestrial monkeys, for they have given up life in the trees almost entirely and returned to a life on the ground. Africa is the only continent on which they are found, and there they inhabit the open plains, the mountainous and rocky country, and the ground of the forests of the western regions.

Baboons have changed physically in many ways from their arboreal relatives, and are well adapted to their terrestrial habitat. The chest in these animals is compressed laterally, and the arms and legs are

the chest that becomes especially brilliant at certain seasons of the year. In others the colors are confined to the naked areas of the buttocks.

Fine colors, however, do not always make fine animals. Baboons are largely vegetarian in taste, and in cultivated regions do considerable damage to crops. In spite of the numbers that are killed they manage to hold their own and remain plentiful over large parts of Africa.

They have learned to respect a man with a gun, but in South Africa have no fear of the unarmed natives. It has been reported that in some remote regions, for protection

six to a dozen. An adult male mandrill is a really handsome animal.

Baboons have often been kept as pets, and many stories have been written about their behavior. The most extraordinary is that of a signalman on a South African railroad. He had lost both his legs and used a small hand-propelled car for locomotion. His pet baboon not only pushed him on this car, but pumped water, swept the floor, and performed many other helpful tasks for more than nine years.

The Celebes black ape, although not a true baboon, is a very close relative. It is a link between the baboons and the old



Seven Species of Baboon

Group on exhibition in Hall 15, showing the principal varieties of baboons. From left to right: young Guinea baboon, Celebes black ape, drill, mandrill, another kind of drill, gelada baboon, yellow baboon, and (behind the last) dog-faced baboon. Prepared by Assistant Taxidermist W. E. Eigsti.

almost uniform in length, facilitating their mode of travel, which is on all fours like most other mammals living on the ground. The muzzle is greatly elongated, and an overhanging ridge above the eyes protects them from the bright sun.

As mammals living on the ground in open country, these monkeys have been forced to develop an outlook on life different from that of the tree dwellers. They are fiercer, better fighters, and have a much keener sense of smell.

Baboons are characterized by naked areas on the body which are marked by highly developed bright colors. In the mandrill the face is bright blue and red. In the gelada baboon of Ethiopia there is a red patch on

against baboons, the women are accompanied by an armed guard when they venture away from the villages.

The fruit of the prickly-pear cactus, which was introduced into South Africa from Mexico, is a favorite food of the baboons. The seeds of the fruit are not digested or harmed, and consequently baboons have been the cause of spreading this undesirable plant. Baboons also feed on insects, and have been a help in combating plagues of locusts, on which they gorge themselves.

Baboons live together in large groups and often travel long distances in search of food or water. The mandrill of West Africa is usually found in groups of only

world monkeys. The black ape is found only in the island of Celebes where it lives in trees and feeds mainly on fruit. At low tide it often comes to the beach where it varies its diet with a taste of sea food.

A case of baboons has recently been reinstalled in the systematic collection of mammals in Hall 15. The new installation shows the animals on a base simulating natural ground. Three new species have been added to the exhibit—a dog-faced baboon, and a drill, gifts of the Chicago Zoological Society, and a Celebes black ape, collected by the Cornelius Crane Pacific Expedition of Field Museum. The taxidermy and installation are the work of Assistant Taxidermist W. E. Eigsti.

### Museum and Chicago Daily News Co-operate for Conservation

During the week of April 17-23, proclaimed as Conservation Week in Illinois by Governor Henry Horner, Field Museum enlisted the co-operation of the *Chicago Daily News* and was enabled to publish in the latter a series of six daily articles on

various phases of conservation. The opening article presented views of Director Clifford C. Gregg and Dr. Wilfred H. Osgood, Chief Curator of Zoology. This was followed by an article on conservation of plant life by Curator Paul C. Standley; one on mammals by Curator Colin Campbell Sanborn; one on birds by Curator Rudyerd Boulton; one on reptiles by Curator Karl

P. Schmidt, and one on preservation of geological features by Curator Sharat K. Roy. The series attracted much favorable comment from other organizations and individuals interested in conservation.

A single crystal of beryl weighing 1,000 pounds is exhibited in Stanley Field Hall.

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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.

## THE ORIGIN OF CORN

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

The corn plant, as known in cultivation, has never been found in the wild state. Its place of origin has long remained a subject for speculation. Podcorn, in which each kernel has a separate small husk, occasionally appears spontaneously in northern cornfields and is often spoken of as a reversion. Nevertheless it is generally denied that it has anything to do with the ancestral form, as has been suggested by some botanists.

At the time of the discovery of America, corn was domesticated in many separate areas from what is now Argentina to Canada. Columbus saw it in Cuba. Charred corn has been discovered in the ancient mounds of the middle western Mound Builders. Dried corn is preserved in prehistoric pueblos of the southwest and in ancient tombs of Peru. It was evidently of great importance as food in many places, especially among the most advanced indigenes who had come to depend for sustenance on agriculture rather than hunting animals or collecting miscellaneous wild fruits and roots.

In the areas inhabited by the agricultural Incas of Peru, and the Aztecs and Mayas of southern Mexico and Guatemala, one would most naturally search for some sign of the origin of corn or the beginnings of its cultivation. Both these areas have their advocates, but Nicaragua and Paraguay have also been suggested.

At present most of those especially interested in the question, and qualified to judge, seem to accord in ascribing the origin of corn to southern Mexico. In the Mexican highlands and in adjacent Guatemala is found the related teosinte, "the most corn-like of all wild grasses," growing as a tall weed in corn fields and hybridizing naturally with the planted corn.

The hypothesis of a Mexican-Guatemalan origin has recently been emphasized on that basis by the well-known Russian botanist, Dr. N. I. Vavilov, whose brilliant work on the history of Old World cultivated plants gives his opinions great weight. This hypothesis appeals particularly to students of the prehistoric remains which litter the ground in southern Mexico and adjacent Maya regions. It furnishes a simple, ready-made explanation of how the pre-Columbian civilizations, to which the archaeological material bears witness, were made possible through the convenient presence of an indispensable food plant. The Mexican-Guatemalan theory is thus attractive, seems plausible, and may prove correct in part. However, as it rests on several assumptions, chief of which concerns the nature and significance of teosinte, it is unsatisfactory in other respects and at best only provisional.

The other area with a strong claim to consideration as the original home of cultivated corn is Peru. There corn is the staff of life of the present-day Indian population, as it must have been even before the days of the Incas.

Field Museum's botanical collections include excellent and characteristic specimens of corn from Peru, some of considerable antiquity, as well as fine examples of ancient pottery with corn decorations. These were recently studied by Mr. R. C. Mangelsdorf, of Texas Experimental Station, a diligent investigator of the subject, now working at Harvard Biological Laboratories. Mr. Mangelsdorf considers that the botanical and genetic evidence he has in hand points to the Peruvian area rather than the Mexican as the place of original domestication of the corn plant. As to the ancestor of this, he thinks

it likely to be represented by the now despised podcorn which the Indians found wild in South America as far south as Paraguay.

Mr. Mangelsdorf finds teosinte to be a natural hybrid of corn and the only other corn-like grass, *Tripsacum*, and that certain types of cultivated corn, such as the pointed popcorn, eight-rowed flint, and flour corn also show the influence of *Tripsacum*. Of these he finds no evidence in the Peruvian area and thinks it probable that they originated somewhat north of the teosinte area of southern Mexico, whence they have spread northward.

## INDIANS OF CALIFORNIA RETAIN OLD CULTURE

By PAUL S. MARTIN  
Chief Curator, Department of Anthropology

California, progressive in modern business and thought, is one of the most conservative places on the globe so far as the remnants of its aboriginal population of Indians is concerned. There are few places where basic ideas have, over many centuries, undergone so few changes, he states. As far back as 2,000 or 3,000 years the natives traded the same materials, ate the same food, and sewed skins and rush mats and coiled their baskets in the same ways as do their modern descendants today. The fundamentals of their cultures have remained immutable.

A collection representing these Indians is on exhibition in the Hall of North American Archaeology (Hall B). An implement known as a "slave-killer" is one of the few things representing a change in customs, since the modern California Indians would scarcely use it as their ancestors did and as its name implies. It is a double-pointed hatchet which in the old days was used by the chiefs to slay victims of sacrifice on occasions such as mourning over the death of an important personage. The points of this instrument were driven with a quick blow into the skull of the slave.

Also exhibited are tubular tobacco-pipes of a type believed to be the oldest ever used. From their shape and construction, archaeologists have been unable to deduce how they could possibly be used unless the smoker rested on his back and gazed skyward. It is believed that the shamans or medicine-men employed these for drawing evil spirits from the bodies of disease sufferers, in accordance with tribal superstitions.

The exhibit includes necklaces of abalone, clam and olivella shells; ornaments of limpet shell; shell fish hooks; shell dishes; whalebone wedges and chisels; bone implements for weaving sea grass into garments and mats; bone clubs for killing seals; whistles of bird-bone; pestles for crushing acorns, which were the people's principal food; various kinds of charms; some cog-wheel-like carved stones of unknown purpose, and many other problematical objects.

The aboriginal inhabitants of California, never developed a trace of native architecture. They used no metals, and made no axes or chisels of stone. They made no pottery except in restricted regions of the extreme south. They practised no agriculture. Shell and bone were the principal materials from which they fashioned their tools and other needed objects. Stone, when used, was principally for ornamental objects and for amulets employed as hunting and fishing charms. The permanence of this California culture is the most important single contribution to the history of civilization that studies of the California aboriginals have yielded.

## LOTUS SEEDS CENTURIES OLD GERMINATE AT MUSEUM

Recently there were received at Field Museum, through the kindness of Professor C. F. Chamberlain (University of Chicago), some seeds of the pink lotus of the Orient (*Nelumbium Nelumbo*) estimated to be three to five hundred years old. Their history was supplied by Professor Charles A. Shull, of the department of botany of the university, and by Dr. Nougouchi who brought them from Japan.

The seeds came originally from a locality in southern Manchuria found by Mr. U. Lin, a banker, who communicated his information to Professor Ichiro Ohga. The latter discovered the seeds under several feet of soil accumulated on top of an ancient peat bed which had once been the bottom of a lake, now long filled in. Judging from the topography, depth, and all other conditions, including the size of trees growing on top, he estimated the age of the seeds to be at least two hundred and fifty and probably three to five hundred years. A willow tree growing on the site measured four feet in diameter. A smaller one, which was cut down, showed 125 annual rings.

To Professor Ohga's surprise the ancient seeds were still capable of germination. Their glassy hard seed coat had proved sufficiently impervious to provide perfect protection for centuries, a hermetic seal preventing the fossilization of the embryo and cotyledons. When the seeds were brought to the University of Chicago about twelve years ago, Professor Shull found that they would germinate readily providing the external covering was first softened with sulphuric acid.

On receipt of some of these seeds at the Museum, a few were tested for present viability, which was found still unimpaired. Two of the seeds were placed in water after some filing of the hard covering in order to facilitate penetration of the water, a practice usual in planting lotus seeds. A third one was immersed for an hour in sulphuric acid, at the suggestion of Professor Shull, and then was washed and placed in a glass

of water. The first two swelled rapidly and showed signs of germination, developing a small green plumule, but were eventually attacked by fungal algae and decomposed. The third seed germinated within a week, and within three weeks presented a growing shoot seven and a half inches in length. It was photographed, and then transferred to Garfield Park Conservatory for further care.

Newspaper accounts of the germination of the ancient seed brought many inquiries, and requests for seeds as well. There were also various reminders of the long exploded but persistent story of the germination of wheat from Egyptian tombs. From a European weekly, came a radioed request for photographs of the development of the plant in all its stages, including flowers and fruit, but lotus plants do not flower until the second or third year after storing up a reserve of food in their underground root-stalks. It should be explained that the Oriental lotus is a very different plant from the so-called Egyptian lotus, the latter being a water lily with floating leaves. The large leaves of the Oriental or pink lotus, like those of the native yellow lotus of North America, are borne on stiff leaf stems, mostly raised well above the water surface.

The pink (sometimes red or white) flowered plant is not found in the United States, except as occasionally cultivated, and then generally under glass. It is closely related to the North American yellow lotus, recorded from Canada and the North Atlantic states, but most abundant in various localities from the Mississippi Valley to Texas, notably at Grass Lake near Chicago, and at Memphis, Tennessee.

Seeds of the American lotus are known to retain their vitality for a long time. It is not unusual to have them germinate after thirty or forty years. Older seeds are seldom offered for experiment.

The question of the longevity of seeds is of perpetual interest. One is reminded of Guppy's dictum that theoretically seeds should live forever, and that there are some that seem fitted to withstand even the conditions prevailing on the surface of the moon.—B.E.D.

## Important Polish Minerals

Examples of minerals of economic value mined in Poland, recently added to the economic geology collection in Halls 36 and 37, have greatly enlarged the exhibit of useful minerals from that country. The recent additions include various salts of potash from the important potash mines around Boryslaw, salt from the famous Wieliczka salt mine, the more important Polish marbles, the mineral wax called ozocerite, and a peat from which wrapping paper, yarn, woven fabrics, and other products are made.

## Huge Prehistoric Camel

In Case No. 72 of Ernest R. Graham Hall (Hall 38) is a leg bone of a camel as long as the leg bone of a giraffe. From New Mexico there have recently been reported heads of fossil camels a yard in length. Why the camel, that had such a favorable home in North America, died out here while it survived in the Old World, is a worthy subject for speculation.

## Marble from Jerusalem

Several of the more important marbles used in Jerusalem, collected for the Museum by Mr. Maurice G. Morrison, of Evanston, Illinois, have been added to the marble collection in Frederick J. V. Skiff Hall (Hall 37).

## SARGASSUM

By ALFRED C. WEED  
Curator of Fishes

Passengers on vessels crossing tropical parts of the Atlantic often observe floating masses of sargassum or gulf weed. Tales are told about the "Sargassum Sea," an area in mid-ocean where the currents mass these sea-weeds in such quantities they are said to stop ships. Whether these stories are true or not, the weed itself is most interesting. No one really knows whence it comes or where it goes. Some species of the botanical genus *Sargassum* grow on rocks in the surf on tropical shores. Perhaps the weed seen floating in steamer lanes comes from such places, and continues to live and grow as it floats along. Storms may break it into smaller pieces that grow into large masses and break up again.

Each of these floating masses is a little world with barnacles, sea worms, and moss-like animals living on its branches. Fishes, with fins developed like feet, climb around through it or take short swimming excursions outside. Crabs, with their sidling movements, explore it in search of food, or by standing still hide in it to keep from being eaten themselves. Shrimps likewise dart about in it, concealing themselves from their enemies when necessary.

Snails cling to the branches, along with queer relatives whose bodies are covered by strange growths projecting like the legs of some almost formless monster. These projections are the same size, shape and color as the "leaves" of the gulf weed.

All of the creatures that live in the sargassum are branded with its mark. Pipe-fishes that look like brownish straws lie along the branches. The crabs and sea slugs are colored like the plant in shades of yellow, brown and sepia forming irregular patterns in the shape of the "leaves."

The sargassum fish, one of the great group of angler-fishes, spends its whole life in this little world. Hatched at the surface of the warm sea, it swims freely for a few days or weeks, and then seeks shelter and food in these bushy plants. It climbs among the branches, using its fins like hands, and never swims away except to go to another plant, where the hunting may be better. It is almost as formless as the slugs, but its keen eyes detect the slightest motion of other animals. Its mouth and stomach are big and elastic enough for it to devour creatures almost as large as itself. It is almost impossible to see it among the branches where its color pattern and the fleshy tags on its skin look like sargassum "leaves."

Beneath the floating community of sargassum is an underworld that travels with but not in it. Small fishes of many kinds stay in this shelter, watching for any creature that may stray from its leafy home overhead. In this lower group will be found small jacks, butter-fishes, trumpet-fishes, and sometimes even barracudas or small groupers.

A specimen of sargassum fish in a branch of gulf weed, reproduced in celluloid, is on exhibition in Albert W. Harris Hall (Hall 18).

Not long ago Mr. Leon Mandel presented to Field Museum a collection of typical tenants of a mass of sargassum. Included are one hundred and twenty-five crabs (some with eggs) and shrimps, four of the sea slugs, four worms, sixty-two snails, five sargassum fish, and a mass of eggs that may belong to one of the slugs. These were collected during a voyage from the Bahamas to Bermuda aboard Mr. Mandel's yacht *Buccaneer*.



Photograph courtesy of Chicago Evening American

## Ancient Lotus Seed Germinates

From seed estimated to be between 300 and 500 years old the young Oriental lotus plant shown above was grown in Field Museum's botanical laboratories. It is believed to represent the longest duration of delayed germination on record.

## SUNDAY LECTURE TOURS IN MAY FEATURE HOFFMAN SCULPTURES

On Sunday afternoons during May, Mr. Paul G. Dallwig, the Layman Lecturer, will present his final series of lecture-tours for the current season. From June to the end of September, Sunday tours will be discontinued, but will be resumed beginning October 2, when a new series will be announced.

For May, Mr. Dallwig's subject will be "Parade of the Races," covering the Races of Mankind sculptures by Miss Malvina Hoffman in Chauncey Keep Memorial Hall. This subject, presented during several previous months, is being repeated in response to many requests from persons who were unable to obtain reservations on previous occasions.

It is necessary to register for the Sunday tours and receive an identification ticket, as the number that can be accommodated is limited. Reservations may be made in advance by mail or telephone (Wabash 9410). Only if advance reservations do not exceed the number to which the party is limited will additional registrations be permitted for other Sunday visitors at the Museum. Parties are restricted to adults.

The lectures are given each Sunday, and begin promptly at 2 P.M. They end at 4:15, and are broken midway by an intermission for relaxation, during which members of the party may obtain refreshments and smoke in the Cafeteria where special tables are reserved for the group.

Those participating are requested to arrive at the Museum a few minutes before 2 o'clock so that registrations may be completed, and wraps checked, without inconvenience to themselves and others.

### Staff Notes

Mr. Colin Campbell Sanborn, Curator of Mammals, has been appointed a Fellow of the John Simon Guggenheim Memorial Foundation for the year 1938. Under the fellowship Mr. Sanborn will study material in the British Museum and other European museums in order to complete the first part of work on a catalogue of the world's bats. Later Mr. Sanborn will spend some time in Central America studying the habits of bats and collecting specimens for future examination.

Mr. Paul C. Standley, Curator of the Herbarium, attended the recent dedication of the Fairchild Tropical Garden at Coral Gables, Florida. This garden, adjacent to the well known Matheson Hammock, in which is preserved an area of natural Florida vegetation, is to be developed as a botanical garden, and, because of the favorable climate, should be highly successful. It is named for Dr. David G. Fairchild, formerly of the United States Department of Agriculture.

### Distinguished Visitors

Recent distinguished visitors to Field Museum included Dr. John Beattie, Conservator, Museum of the Royal College of Surgeons, London; Dr. Barnum Brown, Curator of Fossil Reptiles at the American Museum of Natural History, New York; Miss Malvina Hoffman, noted New York sculptor and creator of the Races of Mankind bronzes in Field Museum; Dr. W. R. B. Oliver, Director of the Dominion Museum, Wellington, New Zealand; Mrs. Eric Scott, Education Department, Tasmania; Mr. E. O. G. Scott, Assistant Curator, Queen Victoria Museum and Art Gallery, Launceston, Tasmania; Mr. Thomas R. Adam, of

the American Association for Adult Education, New York, and Dr. Franz Weidenreich, Honorary Director of the Cenozoic Research Laboratory, Geological Survey of China, Peiping. Mr. Adam is connected with the Department of Political Science, Occidental College, Los Angeles, California, and is the author of *Civic Value of Museums* published by the American Association of Museums. Dr. Weidenreich, who is a visiting professor of Peiping Union Medical College, is noted for his anatomical researches on *Sinanthropus* (the "Peking Man").

## THINGS YOU MAY HAVE MISSED

### A Miniature Sumerian Head

Portraits of the rulers of ancient Mesopotamia, now the kingdom of Iraq, have rarely come to light.



Front View of Tiny Sumerian Head  
Magnified about 7 times actual size of object.



Profile  
Such portraits of ancient Kish inhabitants are extremely rare.

meters in height, or about the size of a small bead. Upon close examination it was discovered to be a portrait sculpture showing clearly the round head, large eyebrows, and aquiline nose characteristic of Sumerian art. It is probably a contemporary portrait of a prominent citizen who lived some 4,500 years ago at Kish, which according to legend was "the first city founded after the Flood."

This rare masterpiece, now on exhibition in Case 11 on the east side of Stanley Field Hall, shows the remarkable artistic attainments of the Sumerian craftsmen. The head was found by one of the youngest workmen, a seven-year-old Arab boy, who received the customary *bakhshish* of a small local coin. In addition to the older basket-boys, who removed the earth from the lowest levels, four sharp-eyed lads were employed to search for archaeological specimens on the dump. Thus, even the smallest beads were recovered.—H. F.

### Museum Hours Extended for Summer Period

Summer visiting hours, 9 A.M. to 6 P.M. daily, including Sundays and holidays, will go into effect at Field Museum on May 1. These hours will be observed throughout the period up to and including September 5 (Labor Day).

Stages in the manufacture of lead pencils are illustrated by an exhibit in the graphite collection in Hall 36.

## 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 2: Monday—Aaiatic Animal Life; Tuesday—Plants and Their Habitats; Wednesday—In the Land of the Great Pyramids; Thursday—General Tour; Friday—The Story of Coal.

Week beginning May 9: Monday—Animal Life of the Chicago Area; Tuesday—The Shepherd Indians and Their Neighbors; Wednesday—Trees and Their Uses; Thursday—General Tour; Friday—Races of Mankind.

Week beginning May 16: Monday—Earth Forces and Their Work; Tuesday—Fishes; Wednesday—The Dinosaurs and Other Reptiles; Thursday—General Tour; Friday—Jades of Many Lands.

Week beginning May 23: Monday—Melanesia; Tuesday—Akele Animal Groups; Wednesday—Life in the Far North; Thursday—General Tour; Friday—Plants Native to the Americas.

Monday, May 30—Memorial Day holiday, no tour; Tuesday—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 Miss Edith K. Hammill—a clay pot, New Mexico(?); from Homer E. Sargent—6 American Indian and Algerian blankets; from Eacuela Nacional de Agricultura—100 plants, Guatemala; from Museo Nacional—53 plants, Costa Rica; from Richard Stillinger—85 plants, Idaho; from Professor Orland E. White—70 plants, Mexico; from University of Texas—228 plants, Mexico; from Professor L. A. Kenoyer—102 plants, Mexico; from Harvey Sconce—3 planks of Mexican woods; from Dr. Earl E. Sherff—62 plants, Hawaii; from Tokumatsu Ito—15 specimens of oil shale and coal, Manchukuo; from E. M. Brigham—7 blue agates, and two concretions, Michigan and New Mexico; from C. H. McPherson—skeleton of badger, Illinois; from C. A. Quinn—one land gastropod, Colorado; from Mrs. M. Don Clawson—24 bird skins, Iraq; from Dominion Museum—plant accessories and photographs for kiwi group, New Zealand; from Mrs. Hermon Dunlap Smith—50 birds, Kilimanjaro and Mero; from Robert L. Fleming—7 birds, India; from Hermano Niceforo Maria—13 snakes, Colombia; from Dr. James M. Nisbett—4 reptiles, Arkansas; from G. S. Deming—25 snakes, Illinois; from W. H. Foster—20 wasps, Texas; from E. Fred Bromund—12 insects, Michigan; from Dr. J. C. Cross—3 reptiles, Texas; from C. M. Barber—13 reptiles, Arkansas; from Boardman Conover—5 birds, Iceland and Alaska; from Dr. Henry Field—320 fishes, Scotland and Florida; from Dr. W. P. Kennedy—2 fishes, Iraq; from John G. Shedd Aquarium—an albino axolotl and 11 fishes; from J. T. Crowell and Sharat K. Roy—113 marine invertebrates, Maine; from Knox College, Wheat Flour Institute, Paul C. Standley, Karl P. Schmidt, and Dr. A. B. Lewis—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  
Dr. Philip Fox

Annual Members

Kenneth E. Armstrong, Albert Arndt, Mrs. Warren W. Brown, R. Edward Davis, Mrs. August Gatzert, Robert B. Harbison, Dr. Edwin M. Harrison, C. C. Hasely, H. M. Hood, Alan H. Horwich, Newton Jenkins, K. V. Janovsky Johns, W. A. Kephlinger, Joseph M. King, Leo Kraemer, W. H. Kurth, Miss Grace M. Merchants, Mrs. M. G. Paulus, Mrs. J. A. O. Preus, Frederick A. Pullman, Mrs. F. A. Ross, J. F. Stiles, Jr., William F. Weber.

### Amber in Coal

Some coal specimens from the Fushun mine near Mukden, Manchukuo, recently added to the exhibits in Hall 36, are of unusual interest. The coal is impregnated with numerous small specks of amber.

# Field Museum News

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## FIELD MUSEUM OPENS A BOOK SHOP TO SERVE ITS MEMBERS AND THE PUBLIC

To provide the Members and other friends of Field Museum with a reliable source of supply for authoritative books in the many fields of science within the scope of the institution, a Book Shop has been opened at the east side of the north entrance to Stanley Field Hall.

Through this Book Shop there are available at one location books by reputable authors on anthropological, botanical, geological, and zoological subjects, as well as on exploration and other phases of activity properly related to the work of the Museum.

Many requests made to this institution, both by visitors in person, and in letters, for the names of recommended books on fish or birds, on Indians or precious gems, and a host of other subjects, impressed Museum authorities with the need for organization of a special service in this field. As the Library of the Museum is entirely for reference purposes, and its books cannot be loaned to individuals for reading at home, it could not meet the demand. The requests for recommendations in many cases have been followed by requests for suggestions as to where the books might be obtained. Therefore, it was decided something more was needed in order to give all possible assistance to those who desired to study more deeply in their chosen branches of science. Establishment of the Book Shop offered the most practical solution to this problem.

Especially featured are entertaining, but authentic, books on travel and exploration. Likewise, endeavor is being made to keep in stock a large selection of books suitable for children—books which are amusing as well as educational. These include books for reading to the youngest children, books for reading by children of various ages, picture books, books with outline drawings to be colored, attractively prepared atlases, etc. There are books which you will want in your

seum Press and of other publishers. All of the books kept regularly in stock have been passed upon by qualified members of the Museum's scientific staff. While this does not necessarily imply that such books are recommended, or even approved from cover to cover, it does indicate that they have been selected as the best available in their fields, and is a voucher that they do not rank among the thoroughly impossible and completely untrustworthy works with which the market is

sometimes burdened. Purchasers of books at the Museum may feel assured that every effort is being made to supply them with something of real value—that the object is not merely to sell books.

However, as an added service, the Museum Book Shop, in fulfillment of special orders from Members or Museum visitors, will obtain for them practically any book they may desire which is available from any publisher or dealer in the entire world. Books may be purchased on mail orders, but it is necessary to require payment, plus postage, in advance, as the Museum cannot carry accounts.

In addition to books, there are on sale miniature representations of various animals in bronze and other materials, suitable as souvenirs, library decorations, and toys. Some of the larger figures are designed to serve as book

ends. Also on sale are illuminated globes bearing maps of the world. Management of the shop is in charge of Mr. Noble Stephens.

—CLIFFORD C. GREGG, *Director*



View of Part of Field Museum's New Book Shop

A convenient place for Museum Members and the general public to obtain authentic books on science, exploration, and allied subjects. Books of value and interest to children, as well as adults, are especially featured. The shop is located on the east side of the north entrance to the building.

own library, books which you will want in your children's library, and books appropriate as gifts for either adults or children.

Included are the products of Field Mu-

### EXCAVATIONS IN SOUTHWEST SOON TO BE RESUMED

Archaeology may be likened to a picture-puzzle. Each archaeologist contributes his bit of information which forms a part of the solution. As soon as the history of any region is deciphered, that corner of the puzzle will be completely filled in.

The special corner upon which Field Museum has been working, through expeditions under the direction of Dr. Paul S. Martin, Chief Curator of Anthropology, is southwestern Colorado. From 1930 to 1934 Dr. Martin excavated Lowry Ruin, once

the pueblo-metropolis of that region, which flourished around the year A.D. 1100, after William the Conqueror had invaded England. Lowry Pueblo was a fine large three-storied apartment house with about one hundred rooms.

Last summer the Museum expedition worked on four earlier sites in the "suburbs" of Lowry, each consisting of one house with from one to four rooms, and dating from about A.D. 800-1000, a period corresponding to that after Charlemagne.

In a few weeks Dr. Martin will start on another expedition to Colorado to dig in the so-called "Basket-Maker" villages, which

probably dated from about A.D. 500-800, the time of the Dark Ages in Europe. Dr. Martin expects to find that the houses of this Basket Maker Period were partly sunk in the ground. Such dwellings are designated as pit houses. The walls up to the surface of the ground may be lined with stone slabs, while the part above ground consisted probably of upright wooden poles with brush and mud plaster laid against them.

In 1938, as in 1937, the necessary funds for the expedition were contributed by President Stanley Field. Dr. Martin and his associates expect to remain in the field for about three months.

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, Chicago

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### FIELD MUSEUM NEWS

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

### CONTRIBUTING EDITORS

PAUL S. MARTIN	.....	Chief Curator of Anthropology
B. E. DAHLGREN	.....	Chief Curator of Botany
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.

## THEODORE ROOSEVELT ELECTED TO MUSEUM TRUSTEESHIP

Colonel Theodore Roosevelt, of New York, was elected as a Trustee of Field Museum at a meeting of the Board held on May 23. Colonel Roosevelt's interest in and association with the institution dates back to 1925 when, with Mr. Kermit Roosevelt, he led the James Simpson-Roosevelts Asiatic Expedition of Field Museum. This expedition obtained magnificent collections of mammals, of which many are now exhibited in habitat groups or as single mounts. Outstanding are the groups of Marco Polo's sheep (*Ovis poli*), and Asiatic ibex, obtained in the Thian Shan Mountains of Turkestan and on the Pamir plateau. In 1928 Colonel Roosevelt and his brother again collected for the Museum, as joint leaders of the William V. Kelley-Roosevelts Expedition to Eastern Asia. This expedition, working in three divisions in remote parts of French Indo-China and southern China, brought back more than 15,000 zoological specimens. The most noteworthy single result was the collecting of the giant panda specimens now exhibited in a habitat group. One specimen of this rare animal was shot by the Roosevelts themselves, and they thus attained the distinction of being the first white men to trail the giant panda successfully.

### SPEAKING OF PANDAS—

Inaugurating a new series of picture post cards of Field Museum exhibits, printed in four colors, Field Museum Press has just issued cards showing the Roosevelts' giant panda group in William V. Kelley Hall (Hall 17), and the klipspringer group in Carl E. Akeley Memorial Hall (Hall 22). Other subjects will follow in the near future. The colored cards are sold at 5 cents each.

For Members of the Museum, a copy of the panda post card is enclosed with this issue of FIELD MUSEUM NEWS.

Incidentally, in a few weeks Field Museum will have another giant panda exhibit. Su-Lin, famous and well-loved young giant panda which recently died at the Chicago Zoological Society's park at Brookfield, is being prepared for exhibition at the Museum.

### LEON MANDEL GIVES MUSEUM SPECIMENS OF MAKO SHARK

A specimen of mako shark, about eight feet long and weighing 274 pounds, was presented to Field Museum last month by Mr. Leon Mandel, of Chicago. Mr. Mandel caught this large shark on sail-fish tackle, during a recent cruise in Cuban waters aboard his yacht *Buccaneer*.

Mr. Mandel's gift is the first specimen of this species of shark to reach Field Museum. It will be used for exhibition in a new hall of fishes now in preparation.

### Director's Annual Report Published

Delayed by the fact that Field Museum Press has been taxed to capacity by other publications, the 1937 Annual Report of Director Clifford C. Gregg, to the Museum's Board of Trustees, has just come off the press. It is a book of 156 pages with ten full-page collotype illustrations, and surveys in detail all of the institution's activities of the year. Distribution will begin immediately, a copy being sent to every Member of the Museum, as well as to other institutions all over the world.

## THINGS YOU MAY HAVE MISSED

### The Panda

So much attention has been given to the large black and white "giant" panda that its smaller relative, the little or ordinary panda, has been accorded scant recognition.

The small panda is really more colorful than the giant panda. Its upper coat and its tail are varying shades of red and brownish red with indistinct rings in the tail. The legs are black, and the white face has red or black markings on it.

The panda has a much wider range than its larger cousin, which is confined to a limited area in the province of Szechwan, China. The panda is found from the higher parts of the Himalayas north through Yunnan and western Szechwan. It feeds almost wholly on vegetable matter, such as fruits, acorns, bamboo sprouts, grass and roots. It also eats eggs, and sometimes insects and larvae, but never fresh meat. It is arboreal and lives in holes in trees, although sometimes it burrows in the ground. One litter of two young is said to be born each year.

Both this panda and the giant panda are closely related to the American raccoons and their allies. A specimen of the panda may now be seen in Hall 15. —C.C.S.



### Panda, but No Giant

In the vast publicity the giant panda has received since the Roosevelt brothers (Theodore and Kermit) first bagged one for Field Museum in 1928, and due to the subsequent arrivals of Su-Lin and Mei Mei at Brookfield Zoo, the little ordinary panda has become "the forgotten animal." You can make his acquaintance through this specimen in Hall 15.

### Distinguished Visitors

Among distinguished visitors recently received at Field Museum are: Mr. Ludwig Glauert, Curator of the Western Australia Museum, at Perth; Dr. Ales Hrdlicka, of the United States National Museum, Washington, D. C.; Dr. Vladimir Fewkes, archaeologist of Savannah, Georgia; Dr. F. F. Koumans, Leiden Museum, Leiden, Netherlands.

### Staff Notes

Mr. Bryan Patterson, Assistant Curator of Paleontology, has received one of the grants-in-aid made by the American Association of Museums, from a fund provided by the Carnegie Corporation of New York, to members of the staffs of various museums for foreign travel in connection with research during 1938. Mr. Patterson will sail for Europe about June 22, and will spend most of the summer at museums in Paris and London making studies of specimens of South American fossil mammals and birds.

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, recently made a collecting trip in southern Missouri, gathering specimens of plants in connection with his forthcoming book on the spring flora of Missouri. A thousand specimens were collected for the Museum Herbarium.

## BEE-SWARM ORCHID

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

More than 17,000 species of orchids are known to botanists. Most are from the tropics and sub-tropics. The relatively few northern forms are mostly small, terrestrial herbs of which the inconspicuous lady's tresses are a fair example. However, they include also a few larger species with flowers sufficiently showy to attract attention, such as the lady slipper or moccasin flower.

In the Gulf states, and especially in Florida, are found orchids with aerial roots that adhere to the trunks and branches of trees and shrubs. As these generally have no connection with the soil, they are commonly considered as parasites on the supposition that they somehow live at the expense of the tree or branch on which they grow. This assumption is so widespread that in the whole of Latin America, where most American species of orchids are native, the common generic name for them is "parasitas."

It is doubtful, however, whether among all the thousands of species there exists a single parasitic orchid. Some live on decayed vegetation, and a few are vines or climbers, such as the vanillas. The latter may begin their career in contact with the ground, but most are simply perching plants, or so-called "epiphytes," as to their habit of residence. As to mode of existence they are air-plants, which derive their water from rain and dew, and elaborate their own nourishment from the air.

As air-plants, exposed to occasional or periodic drought, many orchids have characteristics resembling those of desert plants—thick leaves, impervious epidermis, mucilaginous sap, and swollen storage organs. Often, the storage organs are bulbous or bottle-shaped for the conservation of the moisture absorbed and the food material elaborated during the most favorable growing season. Generally these organs are formed by enlargement of the lower parts of vegetative shoots, as illustrated by the Schomburgkia among the orchid exhibits in the Hall of Plant Life (Hall 29).

In one of the largest of American orchid plants, the bee-swarm orchid (*Cyrtopodium punctatum*) recently added to the Museum's botanical exhibits, the vegetative shoots are large, thick, erect green stems, bearing palm-like or maize-like foliage. In time of drought the leaves may be shed, reducing evaporation, while the green shoots, when leafless, continue to function as storage organs.

The common name of this orchid refers to the spots on its flowers, which appear like a swarm of small bees covering the otherwise yellow to yellowish green petals and speckled bracts of the flower stem.

The bee-swarm orchid, and other species of the genus to which it belongs, are common to the more temperate parts of tropical America from Hispaniola and Mexico through Central America and Venezuela to southern Brazil. They often grow directly on barren rocks, but just as frequently on the bare trunks of trees. The bee-swarm orchid is sometimes seen high on the stem of Cocos palms where, with a cluster of aerial roots as large as a crow's nest, from which proceed numerous leafy stems and clusters of flowers, it presents the remarkable appearance of an aerial flower garden, shaded by the spreading crown of the palm.

This orchid has been known since about 1700 when it was discovered by the French botanist Plumier. Under the artificial conditions in northern greenhouses it grows much more slowly, and flowers more sparsely, than in its native habitat. One

of these plants sent to a European greenhouse flowered only after eleven years.

The specimen shown in the accompanying illustration, as reproduced and recently installed in a separate case near the orchids at the north end of Hall 29, was collected in open woods at an altitude of about 3,000 feet near Petropolis, in the state of Rio de Janeiro, Brazil. Its local name there is *sumaré*, which refers to its mucilaginous juice, recommended as a substitute for glue



Aerial Flower Garden

Bee-swarm orchid of Central and South America, as it grows high on the trunk of trees. Reproduced in the Museum laboratories, and now on exhibition in the Hall of Plant Life.

in shoemaking, and said to be useful for gluing wood. Like most other plants of distinctive appearance and unusual properties, it has found a place in popular *materia medica*, chiefly as a demulcent. Its leafless shoots are commonly displayed in the shops of herb dealers, where they are known under the name of *rabo de tatu* or "armadillo tail," a term sometimes applied to the plant itself.

## Lac and Lacquer

Lac is a resinous incrustation formed by a scale insect (*Coccus lacca*) feeding upon the sap exuding from twigs of certain trees native to India and the Malay States. For commercial use, this resinous matter is scraped from the twigs and washed, producing seed lac. After drying, the seed lac is heated until it melts, to produce shell lac.

There is on display in the northwest corner of Hall 28 an exhibit showing the successive steps in the treatment of crude lac to obtain seed, button, and shell lac. Also displayed are several "lacquered" articles of various kinds made in India.

## HAVE YOU READ—

*Apes, Men and Morons*, by Dr. Earnest A. Hooton, Professor of Anthropology at Harvard University.

"A very illuminating, witty and 'debunking' kind of inquiry into Man's past and future," says Dr. Paul S. Martin, Chief Curator of Anthropology at Field Museum.

This is one of the many excellent books on sale at the new FIELD MUSEUM BOOK SHOP. \$3.

## EXPEDITION SEEKS MATERIAL FOR NEW TYPE OF EXHIBIT

As the first step in a project to prepare certain exhibits of a new kind, Dr. Wilfred H. Osgood, Chief Curator of Zoology, left Chicago May 15 by motor car to conduct an expedition in south central New Mexico. There he plans to collect mammal specimens and accessory material illustrating examples of evolutionary changes taking place today.

Dr. Osgood, accompanied by Dr. Frank W. Gorham, of Los Angeles, and Mr. Walter F. Nichols, of Pasadena, California, will work in the "white island" of sand in Tularosa Basin, a desert region of some 800 square miles, and in the "seas" of black lava formation which compose the ground surface of adjoining territory. About eight weeks will be spent in the area. A general representation of the regional fauna, for the study collections of the Museum, will be sought as well as the material for exhibits.

The Tularosa white sands are populated by a wide variety of small mammals, largely of the rodent order, many of which have turned as white as their habitat, thus becoming invisible or nearly so to their enemies, the larger predatory animals such as coyotes, foxes, owls and hawks. On the other hand, the small animals inhabiting the adjacent black lava beds have assumed dark coloration which similarly protects them in their environment.

"These are relatively recent evolutionary phenomena, and they present one of the best and most convincing examples anywhere in the world of currently continuing changes in accordance with environment," states Dr. Osgood. "The striking contrasts between the colors of the two habitats, and the colors of the animal inhabitants of each, show clearly how nature acts to protect, on the one hand, creatures which on the other hand it has contradictorily exposed to destruction by unleashing against them predatory birds and beasts that relish them as food. The prevailing whiteness of the animals in the white sand area, and the blackness of those which live among the black lava rocks, provide excellent examples of the effect of environment on coloration. The changes which have occurred to the animals in these areas have been almost directly observable by man, and afford definite evidence of evolution in progress. By collecting these animals and exhibiting them in scenes re-creating their habitats, Field Museum will tell their story and show how these changes happen."

To insure specimens arriving in strictly natural condition, Dr. Osgood will ship them alive, by airplane, to the Museum. After the work of the expedition is completed he will attend the meeting of the American Society of Mammalogists to be held at San Francisco July 19 to 23.

## FIELD MUSEUM WPA PROJECT REPRESENTED IN EXHIBIT

Work being done at Field Museum by Works Progress Administration employes was represented in the Exhibit of the Women's and Professional Division of the WPA held at the Merchandise Mart May 5-10. In the Museum section there were shown examples of deapatization of copper and bronze archaeological objects, methods employed for reproducing plants and flowers used in habitat groups of animals, the cleaning of animal skeletons, mending of ancient textiles, types of scientific catalogues and indexes prepared by clerical workers, and results of other activities.

## ZOOLOGICAL CONTRIBUTIONS FROM DR. HENRY FIELD

Extremely valuable additions to the zoological collections of the Museum have been made during the past several years through the efforts of Dr. Henry Field, Curator of Physical Anthropology. Nearly all the species represented are new to Field Museum—some are new to science. In certain divisions, collections are so large, and the regions involved so little known zoologically, that reports are to be published. On the Hemiptera and Orthoptera of Arabia, Iraq, and Iran, reports by Mr. W. E. China, and Dr. B. P. Uvarov, British Museum specialists, are now in press at Field Museum.

Dr. Field, while conducting anthropological expeditions, has always made a point of collecting material needed in Botany, Geology, and Zoology. In addition, he has stimulated the interest of other persons with whom he has come in contact in foreign lands, and as a result further material is constantly pouring in.

Among the collectors are the following attachés of the Iraq Petroleum Company, whose Managing Director, Mr. John Skliros, has rendered valuable assistance since 1927: Dr. and Mrs. M. Don Clawson, Dr. A. Bechara, the late Dr. F. R. S. Shaw, and the late Mr. T. H. Dekker. From Baghdad, specimens have been received from Dr. Walter P. Kennedy, of the Royal College of Medicine; the late Wing-Commander A. R. M. Rickards; Mr. Austin Eastwood, and two Assyrians, Yusuf Lazar and Philippus Dinkha.

From Arabia, Mr. H. St. J. Philby has sent an important collection of insects; he is now collecting reptiles and amphibians from Central Arabia. Professor Ernst Herzfeld, and Dr. Calvin W. McEwen, of the Oriental Institute, University of Chicago, have collected animals near Persepolis, Iran, and Antioche, Syria. Mr. Lloyd Hamilton, of the Standard Oil Company of California (London office) has asked the company's geological staff in Arabia to collect zoological specimens. Lord Cadman, chairman of the Anglo-Iranian and Iraq Petroleum Oil Companies, has expressed willingness to aid in collecting the fauna of southwestern Asia.

Mr. Richard A. Martin, Curator of Near Eastern Archaeology, who accompanied Dr. Field on the Anthropological Expedition to the Near East, 1934, assisted in collecting and preparing zoological specimens.

The Division of Mammals has received 308 specimens, from Iraq, Syria, Arabia, Iran, and England, as a result of Dr. Field's interest. The Division of Birds has received 45 specimens from Iraq, and five from Aden.

More than 1,500 specimens have been received by the Division of Reptiles and Amphibians. Among them is a new and extraordinarily distinct species of snake, from the North Arabian or Syrian Desert, which has been given the name *Pseudocerastes fieldi*, in recognition of Dr. Field's discovery of it. Dr. Field has obtained snakes, lizards, turtles, salamanders, frogs, and toads also from the Near East, various parts of the United States, England, Scotland, and France.

The Division of Fishes has received one of the largest collections ever brought from Iraq. This collection, with others from Florida, Scotland, and England, makes a total of 937 specimens. Some of the regions in Iraq in which Dr. Field collected fishes had never been worked scientifically before, and others had received little attention since early in the nineteenth century.

For the Division of Insects, Dr. Field and his associates obtained 2,770 specimens of insects and other invertebrates from southwestern Asia (mainly Iraq and Iran), 1,215 from Great Britain, 567 from the Near East, 1,043 from Arabia, and 47 from Florida.

## 2,700 PERSONS HAVE ATTENDED SUNDAY LECTURE-TOURS

The first season of Sunday afternoon lecture-tours conducted by Mr. Paul G. Dallwig, the Layman Lecturer, ended last month. Beginning with the first Sunday in October, thirty-five lectures were given, and the average attendance was 77, making a total of approximately



Daguerre Studio, Chicago  
Paul G. Dallwig,  
the Layman Lecturer

2,700. There were several hundred more applicants than could be accommodated, as parties were necessarily limited to a size practical for handling. Participants in the tours included, besides Chicagoans, visitors from all sections of the United States and Canada, and even from European countries. They included business and professional men and women, office workers, university instructors, high school principals, college students, world travelers, actors, professional lecturers, and groups from women's clubs, business men's associations, and other organizations.

Mr. Dallwig, a Member of the Museum who rendered this service because of his interest in this institution and in the sciences which it embraces, is an able and well qualified speaker who has developed a unique dramatic style in presenting his subjects. His lectures this season covered prehistoric animals, prehistoric man, and the living races of mankind. It is notable that not a single person in any of the groups that Mr. Dallwig addressed left a lecture-tour prior to its conclusion. His talks were frequently interrupted by spontaneous outbursts of applause.

Mr. Dallwig will resume the Sunday lecture-tours next October, when new subjects will be announced.

## Chemists to Visit Museum

Members of the Chicago Chemists Club will be guests of Field Museum on June 18. Mr. Henry W. Nichols, Chief Curator of Geology, will conduct them on a visit to the Museum laboratories, after which they will attend a luncheon in the Cafeteria.

## FOR THAT BOY, OR GIRL, OF YOURS—

*The Story of Earthquakes and Volcanoes*, by Gaylord Johnson.

"An exceedingly interesting and informative volume," says Mr. Henry W. Nichols, Chief Curator of Geology at Field Museum. "Although written primarily for juvenile readers, the book is well worth an adult's perusal."

This is one of the many splendid books especially selected for children, now on sale at the new FIELD MUSEUM BOOK SHOP. \$2.

## 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:

Wednesday June 1—Hall of Races of Mankind; Thursday—General Tour; Friday—Plants and Animals of Long Ago.

Week beginning June 6: Monday—Fishes and Reptiles; Tuesday—General Tour; Wednesday—Egyptian Exhibits; Thursday—General Tour; Friday—Hall of Plant Life.

Week beginning June 13: Monday—African Animals; Tuesday—General Tour; Wednesday—China and Tibet; Thursday—General Tour; Friday—Birds of America.

Week beginning June 20: Monday—Plants of Economic Value; Tuesday—General Tour; Wednesday—Indians of Plains and Deserts; Thursday—General Tour; Friday—Marine Life.

Week beginning June 27: Monday—Moon, Meteorites and Minerals; Tuesday—General Tour; Wednesday—Islands of the Pacific; Thursday—General 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-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 A. V. Kongsberg—a model outrigger canoe, New Guinea; from Mrs. William B. Berger—2 Babylonian contracts; from Mrs. Edna Horn Mandel—copper spindle whorls and beads strung together, Peru; from Jardin Botánico de Bello Horizonte—400 plants, Brazil; from Dr. Earl E. Sherff—81 plants, Hawaii; from Museo Nacional—155 plants, Costa Rica; from Rev. Brother Elias—50 plants, Colombia; from Professor Bernardo Rosengurt—62 plants, Uruguay; from B. A. Krukoff—161 plants, Ecuador; from Mrs. Ynes Mexia—83 plants, South America; from Professor J. Soukup—121 plants, Peru; from H. J. Dentzman—11 wood specimens; from School of Forestry, Yale University—117 plants, Dominican Republic; from Dr. J. R. Johnston—35 plants, Guatemala; from Carnegie Institution of Washington—37 plants, Yucatan; from Hermann C. Benke—220 plants, United States; from John W. Jennings—a specimen of alate, Arkansas; from Marquette Geologists' Association—17 specimens glacial pebbles, and 6 marcasite concretions, Illinois; from Asphalt Shingle and Roofing Institute—20 specimens asphalt roofing; from Elmer S. Riggs—collection of 47 Upper Miocene mammals, Nebraska; from H. C. Dake—a specimen of corundum changing to damourite, Wyoming; from William B. Pitts—plaque of 23 chialstolite sections, California; from G. S. Deming—25 snakes, Illinois; from A. W. Exline—6 crocodile skulls, Philippine Islands; from John G. Shedd Aquarium—a Pirarucu fish, Brazil; from Chicago Zoological Society—27 mammals and birds; from Dr. Orlando Park—6 reptiles, Mexico; from Miss Margaret Ennis—9 bats, a snake, and 36 lizards and toads, Honduras; from Paul McGrew—84 bats, 2 rats, and 36 lizards and snakes, Honduras; from Leon Mandel—a "mako" shark, Cuba; from Georgian Historical Society and from Dr. Alexander De Sushko—valuable books for the Library.

## NEW MEMBERS

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

### Associate Members

E. F. Austin, William Arthur Chapin, Mrs. Paul S. Moyer, Mrs. Sidney S. Porter, Adolf Schmidt, W. D. Steele, Emil F. Vacin.

### Annual Members

W. A. Baril, Armin Elmendorf, Miss Rose Grossfeld, Mrs. Sara Martin Gruppe, Mrs. David W. Hall, Jr., Frank J. Janda, Frank L. King, Mrs. H. Durward Ludlow, Hugh Redmond.

Ornate cages, and elaborate paraphernalia for the training of crickets, which are used by the Chinese for championship fights, and also to supply "music" in the home, are the subject of an exhibit in Hall 32.



# Field Museum News

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## SU-LIN, RE-CREATED BY THE TAXIDERMIST'S ART, JOINS MUSEUM EXHIBITS

By H. B. HARTE  
Public Relations Counsel

In all the history of zoos, museums, and circuses, probably no animal ever received such extensive and prolonged public attention as Su-Lin. The nearest approach was, most likely, Barnum's elephant "Jumbo," but he must now be considered a poor second in popularity. During Su-Lin's life the continuous throngs of visitors at the Chicago Zoological Society's park at Brookfield, the almost daily stories and pictures in the press, the frequent feature programs on the radio, and the many motion picture news-reel "shots" all attested to the fact that she had made the world "giant panda-conscious."

Su-Lin's unfortunate death on April 1 actually plunged thousands of Chicagoans into as deep mourning as if a human friend had died—a fact revealed by the many letters and telephone calls to the Zoo, the newspapers, and Field Museum, which followed her passing.

Now Su-Lin "lives" again. By the magic and art of modern taxidermy she has been restored in a familiar, playful pose such as captured the hearts of so many hundreds of thousands of admirers when she was the stellar attraction of the Zoo. For the present she may be seen in Stanley Field Hall, where she has been placed temporarily as a special exhibit. After a few months the mounted Su-Lin will be permanently installed in a case containing the principal related animals.

The miraculous realism and accuracy with which Su-Lin has, so to speak, been "brought back to life," is due to the consummate skill and artistry of Staff Taxidermist C. J. Albrecht. Long before there was any idea that the much beloved animal was to become an exhibit at Field Museum, Mr. Albrecht had spent many hours of his spare time in studying her at the Zoo, and he is the maker of an unusually complete and interesting motion picture film showing her varied antics. Thus, being thoroughly familiar with Su-Lin in life, he was the logical man of the staff to perpetuate her living characteristics in a Museum exhibit when the Brookfield Zoo authorities generously presented her remains to this institution. Mr. Albrecht devoted the same meticulous care to the preparation of Su-Lin as he has in the past to such elaborate habitat groups as the African water-hole, sea-lions, and bongo.

All of the time that has passed since Su-Lin's death was required to produce a

result that would meet with the Museum's standards of scientific accuracy and artistic preparation. It was first necessary to make a death mask and other plaster molds direct from the carcass. With these as guides, a framework skeleton and clay model of the animal were made by sculptural methods, photographs taken during Su-Lin's life being used to obtain a suitable pose. From the clay model new plaster molds were made, and in these was built up a manikin of a composite material consisting of several

As the first complete specimen of a giant panda ever to reach scientific dissecting tables, Su-Lin is making possible a distinct contribution to zoological knowledge. The body, except for the removed skin, is undergoing a thorough anatomical study which probably will not be completed for another year or more. At the outset, a post-mortem examination was made by pathologists of the medical schools of the University of Chicago and Northwestern University, and the cause of death was established as pneumonia. The detailed study of Su-Lin's anatomy to complete the determination of her proper place and relationships in the world's fauna is now being conducted by Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology. When he has finished his research, a monographic report will be published by Field Museum Press for international distribution among zoologists, to whom the giant panda has hitherto presented an enigma.

Besides Su-Lin, the Museum has on exhibition a habitat group in William V. Kelley Hall (Hall 17) showing two full-grown giant pandas in a setting reproducing their natural environment. The specimens were collected in 1928 by Colonel Theodore Roosevelt and Mr. Kermit Roosevelt as leaders of the Kelley-Roosevelts Expedition to Asia.

Su-Lin was captured in Szechwan, China, when she was about six weeks old, by an expedition headed by Mrs. William H. Harkness, of New York, who brought her successfully from the other side of the world to Chicago. The baby panda was about four or five months old when she arrived at the Brookfield Zoo on February 8, 1937. Altogether, Chicago "scooped"

the world on giant pandas, having had in the Roosevelts' group at Field Museum the first specimen ever shot by white hunters, in Su-Lin the first one ever in captivity, and again in Su-Lin the first complete specimen every available for anatomical study.

Su-Lin will be permanently installed, after the current temporary exhibition in Stanley Field Hall, in the Museum's systematic collection of mammals of the world, in Hall 15. With her will appear such cousins as the small or ordinary panda, an animal from the same general region of China as that whence come the giant pandas; the kinkajou and the coati of Central and South America; the common raccoon and the ring-tailed bassarisk of North America, and the crab-eating coon of South America.



Su-Lin

The famous giant panda, late of the Brookfield Zoo, as she now appears in a special exhibit in Stanley Field Hall. Presented to the Museum by the Chicago Zoological Society, the specimen was prepared by Staff Taxidermist C. J. Albrecht.

layers of glued burlap, plaster and other materials. The various parts of this manikin were fitted together, and the outside plaster molds broken away. The manikin was then shellacked, and the skin of Su-Lin mounted upon it. Other factors contributing to the unavoidable delay were the tanning, trimming and drying of the skin, and the drying of clay, plaster casts, and manikin. Few people realize the intricacies of the many steps, and the great length of time required, in the preparation of any animal by the exacting methods employed in modern taxidermy. Compared to the usual progress of such work, Su-Lin's preparation was a "rush job." Museum taxidermy today is far distant from the old-fashioned technique of "stuffing" animals.

## Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Field Drive, Chicago

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### FIELD MUSEUM NEWS

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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.

## SEWELL AVERY SPONSORS FOUR EXPEDITIONS

Through the generosity of Mr. Sewell Avery, a Trustee of Field Museum, funds have been provided for sending four expeditions into the field during 1938.

The first of these left Chicago on June 18 to collect specimens for use in physical geology exhibits. Work is under way in northern Colorado, and later activities will be transferred to New York, Connecticut, Massachusetts, Rhode Island, and possibly other eastern states. This expedition is being conducted by Mr. Sharat K. Roy, Curator of Geology, and is a continuance of the field work of this type in which he was engaged last year. Mr. Roy will collect specimens illustrating the work of various dynamic agents, such as wind, running water, moving ice, volcanic activities, and other phenomena, and also structural geology specimens illustrating the nature, properties, relations and positions of the component rock masses of the outer part of the earth.

On July 15, Mr. John R. Millar, Curator of the N. W. Harris Public School Extension, will leave for Nova Scotia where he will make studies and collect material for the Department of Botany (of whose staff he was formerly a member). The prime object is material for an exhibit representing the submerged vegetation of the northern Atlantic waters. Owing to the extreme tidal conditions prevailing in the Bay of Fundy, where the difference between high and low water levels reaches as much as fifty feet, it is expected that this will prove to be an exceptionally favorable locality for collecting the kelps and other marine plants it is proposed to show in one of the new ecological groups in the Hall of Plant Life.

Early in September, Mr. Emmet R. Blake, Assistant Curator of Birds, will sail for British Guiana. At Georgetown he will charter an airplane to take him and two native assistants 600 miles inland to the headwaters of the Corentyne River, on the southernmost boundary of the country, close to the frontiers of Dutch Guiana and northern Brazil. This region, entirely uninhabited by human beings, is almost totally inaccessible except by air. At certain seasons it may be reached by river travel with special boats manned by large crews. The water trip, however, requires about five weeks, whereas by airplane it may be made in four hours. The area has never been worked before from a biological standpoint, and Mr. Blake will seek a representative collection of its vertebrates, including birds, mammals, reptiles and fishes. The airplane will return to its coastal base leaving Mr. Blake entirely out of contact with the outside world for about four months, except for one or two return flights to deliver supplies.

A botanical expedition to Guatemala will be conducted by Mr. Paul C. Standley, Curator of the Herbarium, who will leave Chicago about the beginning of November. It is planned to spend approximately five months in the field, gathering herbarium material, for use in preparation of a flora of Guatemala, similar to that of Costa Rica which is now in course of publication. Guatemala's vegetation is more varied in type than that of any other Central American country, although not so rich in species as that of Costa Rica. It includes alpine meadows, mountain forests of fir and pine, much rain forest where orchids and other epiphytes abound, and an extensive cactus desert. It is planned to visit as many as possible of these distinct regions, with the

expectation of obtaining many plants new to the country, and some that are quite unknown to science.

All of these expeditions are being completely financed by the sponsor, Mr. Avery, and will be known as the Sewell Avery Expeditions of 1938. The Museum is deeply indebted to Mr. Avery for making possible this much needed field work, which is expected to fill serious gaps in the collections of each of the Departments concerned.

### Raymond Foundation to Present Summer Programs for Children

Beginning Thursday, July 7, and continuing each Thursday morning up to and including August 11, the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures will present a summer series of free motion picture programs for children. These will be given at 10 o'clock in the James Simpson Theatre of the Museum. In addition to educational films on natural history and other subjects, a special feature of most of these programs will be talking animated cartoons in color by Walt Disney. No tickets are needed for admission, and children from all parts of Chicago and suburbs are invited. Enclosed with this issue of FIELD MUSEUM NEWS is a program giving the titles of the films to be presented on each date.

### Leaflet on Chicago Birds

For the benefit of bird lovers, a leaflet, *Haunts of Birds in the Chicago Region*, has been prepared by the Chicago Ornithological Society, and published by Field Museum Press. It provides a guide to recommended field trips, giving the best localities for observing birds, the kinds of birds which frequent each, and the various routes for reaching them. Favorite spots within the city, as well as suburban areas north, west and south, are covered. Accompanying each copy is a map, furnished by the Cook County Forest Preserve District, showing the most interesting forest preserves. Information in the leaflet was compiled by the Field Committee of the Ornithological Society, of which Mr. Karl E. Bartel is chairman. Copies are available at 15 cents each in The Book Shop of Field Museum.

### The Indian Rhinoceros

One of the outstanding habitat groups in William V. Kelley Hall (Hall 17) is that of the Indian rhinoceros. Specimens for the preparation of this group were collected by Colonel and Mrs. Theodore Roosevelt, and Mr. and Mrs. Kermit Roosevelt, on the James Simpson-Roosevelts Asiatic Expedition of 1925-26. The larger of the two animals was shot by Mrs. Kermit Roosevelt.

The animals in the group appear amid a reproduction of their natural environment, one of them standing in swamp mud. Around them rises the high grass typical of the country, and the background gives an effect of the swampy plains in the Province of Nepal, stretching off for many miles.

The Indian rhinoceros differs from those of Africa (of which the so-called "white" species is shown in Akeley Memorial Hall) in having only one horn, and in having its thick skin divided into great shields by deep folds. The horn is present in both sexes, and is relatively small, usually not more than twelve inches in length. While the animals are usually comparatively inoffensive, they will sometimes charge furiously if harassed.

## MAN'S OLDEST "LIVING ANCESTOR"

By D. DWIGHT DAVIS

Assistant Curator of Anatomy and Osteology

A group of squirrel-like mammals living in Malaysia has long attracted the attention of students of man's ancestry. These animals, the treeshrews, are squirrel-like only in general appearance, for examination of their teeth shows that they really are insectivores, related to moles, shrews, and hedgehogs. When anatomists studied their structure carefully, it became apparent that they represent an ancient group of "living fossils" that has survived relatively unchanged down to the present. They seem to represent the root of the primate line, and in a limited sense they are the oldest living relatives of the human race.

Some types of treeshrews have advanced farther than others, however, and so have become less like the original great-grandfather (many generations removed) of the human race. For many years it was believed that the rare pen-tailed treeshrew had changed least, and so it had the distinction of being considered man's oldest living relative. Last year, on his trip around the world, however, Dr. Wilfred H. Osgood, Chief Curator of Zoology, collected specimens of another treeshrew in French Indo-China. This rare animal, the pigmy tree-shrew (*Dendrogale*), had been known only from conventional museum study skins until Dr. Osgood brought back a skeleton and a complete specimen preserved in liquid.

Study of this material has now been completed, with the result that *Dendrogale* has usurped the pen-tailed treeshrew's position, held for so many years, as the oldest extant precursor of humanity, because *Dendrogale* was found to be even less specialized.

The results of this anatomical study are incorporated in a paper recently issued in the Museum's technical series. A skeleton of a treeshrew is exhibited in the case of insectivore skeletons in Hall 19.

## PRESIDENT FIELD PROVIDES NEW STORAGE EQUIPMENT

In a large and growing museum the provision of space and equipment for storage is an ever present problem. The Divisions of Mammals, Birds, and Reptiles have been seeking a solution to their storage difficulties for some years. The situation was partly alleviated by making the two third-floor storage rooms used for mammals and birds into one, and by increasing the size of the cases. The west side of the fourth floor has been used for the storage of large mammal skulls for some years. An additional row of steel cases on this floor gave temporary relief for the storage of the rapidly growing reptile collection.

Through the generosity of President Stanley Field the problem has recently been very adequately solved by building a mezzanine on the west side of the fourth floor. The skull storage cases have been placed on this mezzanine, and two larger cases have been added at each end.

The space under the mezzanine has been equipped with 100 taller cases. These are to be used mainly for storage of mammals, birds and shells, and will allow expansion of the collections without crowding for at least ten normal years.

On the east wall of the west side of the fourth floor nineteen additional cases have been installed for the future growth of the reptile and amphibian collections, filling a long felt need in that Division. As soon as

the trays and runners for all these cases can be built, the collections will be moved and rearranged.

The length of this storage hall is 280 feet and the mezzanine is 13½ feet wide. The construction and the cases are all of steel and represent the best type of storage



Photograph by De Lacy, Chicago

### Solution to Pressing Problem

A new mezzanine, lined with the most modern type of steel storage cases, has been erected on the fourth floor of the Museum. Part of this is shown in the accompanying photograph. The Department of Zoology estimates that this will meet its needs for storage facilities during at least the next ten years.

equipment to be found in any museum in the world. With the additions just installed the total number of storage cases on the fourth floor is now 249. —C.C.S.

## A GEOLOGICAL MYSTERY

By HENRY W. NICHOLS

Chief Curator, Department of Geology

Among the greater geological mysteries of the world are tectites—nodules and fragments of natural glass scattered abundantly over certain limited areas of the earth's surface. It is not known where they came from or how they were made. They are found in Czechoslovakia, Indo-China, Australia and neighboring islands, the Dutch East Indies, the Philippines, the Ivory Coast of Africa, and the Libyan Desert.

Tectites are siliceous glasses much like the volcanic glass, obsidian. They have been melted and their shapes indicate that they were cooled while whirling in the air. Peculiar etched patterns which appear on the surfaces present another puzzling feature which geologists have been unable to interpret. Most tectites are black, like most volcanic glass, but those from Moravia in Czechoslovakia, and those from the Libyan Desert, are clear glass suitable for gems.

Many ingenious theories have been propounded to account for tectites, but there seem to be insuperable objections to all of them. Unable to account for their origin by any terrestrial process, many geologists have concluded that they are meteorites.

Objections to a meteoritic origin, however, are fully as grave as those adduced against a terrestrial source, and the nature and origin of the tectites remain a mystery. A collection of these curious little objects has been placed with the meteorite collection in Hall 34.

## THE FRILLED SHARK

By ALFRED C. WEED

Curator of Fishes

Japanese fishermen bring to light many strange creatures when they set their long lines at depths of two thousand feet or more where the great oceanic current, flowing to the northeast, comes close to the shores of their islands. Sharks of many kinds, ghost-fishes, strange eels, and other odd fishes are caught on these lines.

One of the strangest of these creatures is that which the Japanese fishermen call by names that mean silk-shark, because of the unusual silky smoothness of the skin with its covering of shagreen, or lizard-shark because of the peculiar shape of the mouth with its rows of strange teeth. In English it is usually called frilled shark, referring to the peculiar collar about its throat, formed by the flap over the first gill-opening.

A specimen of this species of shark, about five feet long, was recently presented to the Museum by Professor H. W. Norris, of Grinnell College, Grinnell, Iowa. It is hoped that it may be used in preparing a reproduction for exhibition in the series of mounted fishes.

Although its structure shows it to be a shark, this fish looks more like a thick-bodied eel in its general form. It is quite as slender as some of the great morays that may be seen at the John G. Shedd Aquarium. Its mouth is at the end of the head, instead of underneath, as one expects to find it in a shark. The jaws are so long that the mouth opens the whole length of the head.

The teeth are in rows across the jaws. Each of them has three sharp points as slender as needles, and curved like the fangs of a serpent. Under the skin they are braced by long roots. The roots of each tooth extend back under the next one in the row so that it cannot be tipped over or pulled loose by the struggles of a captive. These rows of teeth and the peculiar shape of the jaws make the head of this shark look very much like that of a lizard-fish.

The frilled shark has very large fins, set far back, and an exceedingly flexible body. It can turn as easily as an eel to seize an active fish that may try to dodge. The sharp teeth prevent the victim's escape.

In most sharks the gill openings are simply slits with one free edge that acts as a valve to prevent water from moving in the wrong direction when the fish breathes. The frilled shark has these flaps strengthened by rods of cartilage. The first flap extends entirely around the "neck," except for a narrow space on the back. It is so wide that it covers the second one and seems to form a ruffle or frill just behind the head.

Most specimens of this shark have been caught near the southeast coast of Japan, but a few have been taken as far away as Madeira and the coast of Norway.

## Mrs. Edith Almy Adams Honored

In recognition of her generous bequest, amounting to more than \$30,000 in value, the Board of Trustees of Field Museum has posthumously elected Mrs. Edith Almy Adams as a Contributor to the Museum (Contributors are those whose gifts to the Museum range between \$1,000 and \$100,000).

Practically the entire field of petroleum products is illustrated by a synoptic collection in Hall 36.

## BEEHIVES IN AFRICA

By WILFRID D. HAMBLEY  
Curator of African Ethnology

The keeping of bees is a common custom among Negro tribes of Africa. Two of their types of hives are displayed in Field Museum collections. One in Hall E (Case 30-A), made by the Akikuyu, is a long cylinder of smooth brown wood decorated with burnt designs. This is a common form used in northeast Africa. Another type, of about the same size but of rougher workmanship, made from a cylinder of bark about four feet long and ten inches in diameter, is shown in Hall D (Case 7). This form is in general use throughout central and eastern Angola, among the Ovimbundu and the Vachokwe tribes. The technique is sometimes varied by binding the hive neatly with coarse grass.

Hives are individually owned, but they are not kept at the homes of the possessors. Each owner places his hives at a considerable height in the branches of trees in the forest near his home, and he is entitled to the bees that swarm in them, and to the honey deposited.

In order to collect the honey the Ovimbundu light a smoky fire at the base of the tree, and a climber ascends the trunk and lowers the hive with a rope made of bark. The hive is suspended over the smoke until the bees are driven out or suffocated, then one end of the hive is removed and the honey is extracted. Some tribes rub themselves with a vegetable juice that is supposed to give immunity from stings.

The honey may be eaten with the vegetable manioc, or it may be used in the fermentation of beer. The liquor made in this way from maize is potent, and in the words of an informant, "a man who drinks beer made with honey may sleep on the ground all next day and say nothing." In Angola, wax is made into balls and carried to the stores of European traders. Before money came into use these balls were used as currency during long caravan journeys.

## STAFF NOTES

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, has been awarded a grant from the Academy of Sciences of St. Louis, through the research fund of the American Association for the Advancement of Science. This grant is to be used in connection with detailed field work and studies on the flora of Missouri, in preparation of a manual. Dr. Steyermark recently returned from his second collecting trip of the season in Missouri. In addition to collecting a thousand specimens of plants for the Museum herbarium, he brought back also a number of reptiles and fishes, and a giant centipede for the collections of the Department of Zoology. On his first trip this season he had collected another thousand plant specimens.

Mr. Rudyerd Boulton, Curator of Birds, was the principal speaker at the annual meeting of the Michigan Audubon Society held last month at the Cranbrook Institute of Science, Bloomfield Hills. He spoke on "Habits of West African Birds," basing his lecture on data assembled on his African expeditions. Mr. Boulton also made some studies at the Museum of Zoology of the University of Michigan at Ann Arbor during the course of the same trip.

Miss Elizabeth McM. Hambleton has been appointed a guide-lecturer on the staff of the James Nelson and Anna Louise Raymond Foundation for Public School

and Children's Lectures. She replaces Miss Velma D. Whipple who has resigned to accept a position as school teacher. Miss Hambleton, as Associate in Southwestern Archaeology in the Department of Anthropology, has been a volunteer worker at the Museum for several months past.

Mr. Loren P. Woods, of the Graduate School of Zoology at Northwestern University, has been given a temporary appointment for the summer months as a guide-lecturer on the Raymond Foundation staff.

## THINGS YOU MAY HAVE MISSED

## Music from the Clouds

A pleasing conceit of the Chinese is to fasten whistles to the tails of pigeons so that a beautiful humming music floats down from the birds flying overhead. The whistles have two or more pipes, tuned in harmony, which produce a vibrant chord as the pigeons whirl in the sky. Sitting in a garden or



Musical Pigeon

Long before radio filled the ether, the Chinese enjoyed music from the air by attaching melodious whistles to the tails of hundreds of pigeons in the manner illustrated by the above specimen which is on exhibition in Hall 32 of the Museum.

riding through the streets of Peiping one hears these aerial concerts mingled with the calls and sounds of street vendors.

A collection of pigeon whistles made from reeds and small gourds, with from two to eight pipes, is on exhibition in Hall 32, Case 45, together with a mounted pigeon outfitted with a simple whistle. Pigeon fanciers in America might find enjoyment in adopting this quaint custom, of which a more detailed account, by the late Dr. Berthold Laufer, appeared in FIELD MUSEUM NEWS, September, 1934. —C.M.W.

## Wheel Chairs For Museum Visitors

For the benefit of persons either temporarily or permanently disabled, Field Museum has provided a number of wheel chairs which are available for a small fee. Visitors planning to use them must furnish their own attendants.

## YOU SHOULD READ—

*The Life Story of the Fish*, by Brian Curtis.

"So far superior to any other book on fishes that I have seen in many years that it is difficult to avoid being too enthusiastic about it," says Mr. Alfred C. Weed, Curator of Fishes at Field Museum.

This is one of the many outstanding books on sale at the new FIELD MUSEUM BOOK SHOP. \$3.

## 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, or on July Fourth.

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-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 Henry Field—a large sarcophagus, a carved marble bath, a marble basin with stand, 2 marble capitals, and 4 bird skins, Italy and Iraq; from John T. McCutcheon—a Peruvian jar and a porcupine fish; from Mrs. Edna Horn Mandel—2 ceramic statues of Yama, the god of death, China; from Mrs. Arthur Meeker—a necklace of two strands, made up of coral and silver coins, Guatemala; from Miss Helen R. Gilbert—a piece of painted cloth, Bali; from Jardim Botânico de Belo Horizonte—208 herbarium specimens, Brazil; from Museo Nacional—59 specimens of mosses, Costa Rica; from Rev. Brother Elias—75 herbarium specimens, Colombia; from Howard Scott Gentry—36 herbarium specimens, Mexico; from Irving W. Knobloch—50 herbarium specimens, Mexico; from Mrs. Keith Griswold—9 specimens graphic granite, North Carolina; from Hugh S. Spence—3 specimens asterism in phlogopite, Canada; from F. C. Cleveland—a specimen *calymene niagarensis*, Chicago area; from Fred E. Gray—a fossil cephalopod, Chicago area; from Chicago Zoological Society—7 mammals and 3 birds; from Dr. Julian A. Steyermark—8 snakes, lizards, and turtles, Missouri; from Colorado Museum of Natural History—2 downy golden eagles, Colorado; from C. M. Barber—7 snakes, turtles, and lizards, and 17 lizard eggs, Arkansas; from Dr. Harold Nelson—21 bats, Egypt; from H. B. Conover—10 duck skins, Chile; from David Gustafson, from Antonio Serrano, and from the Ryerson Estate—valuable books for the Library.

## NEW MEMBERS

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

## Contributors

Mrs. Edith Almy Adams\*

## Life Members

Charles A. McCulloch

## Associate Members

Mrs. Louis Eckstein, Mrs. William Dodge Horne, Jr., Arthur W. Nelson, William Wager.

## Annual Members

Henry W. Balfanz, Mrs. Henry G. Barkhausen, Mrs. Louise T. Biggio, Mrs. J. R. Cardwell, Harold E. Cuttle, Guy G. Fox, J. T. Gillick, Dr. Henry E. Irish, Melville Keim, Mrs. William H. Lyon, Charles B. Nolte, Miss Myrtle Schulz, Dr. Leslie W. Schwab, Roger A. Simonson, F. W. Sundlof, Mrs. Charles Ware, Ira E. Westbrook, Miss Velma D. Whipple.

\*Deceased

## Distinguished Visitors

Among recent distinguished visitors received at Field Museum are Dr. C. G. Seligman, retired professor of ethnology of the University of London, and Mrs. (B. Z.) Seligman who has collaborated with her husband on his many researches and scientific publications; Dr. Hannah Rydh, archaeologist of Upsala University, Sweden, and Miss Anna Rothmann, of the Albany Museum in Grahamstown, South Africa.

# Field Museum News

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## STORKS NESTING ON ROOF IN POLISH VILLAGE SHOWN IN NEW HABITAT GROUP

By RUDYERD BOULTON  
Curator of Birds

The Darwinian principle of Natural Selection is believed to be responsible for a great deal of the differentiation of animals into their respective species, genera, families, and so forth. The individuals best adapted to a particular environment are likely to survive because of their advantage over the misfits.

Within historic times only a very few cases are known in which the basic principle of Natural Selection has been reversed. Where this does occur, an animal deliberately selects a new artificial environment, instead of remaining in its original one, thereby avoiding slow extinction due to the restriction and shrinkage of the conditions under which it evolved.

The white stork of Europe and Asia is one of the outstanding birds in which this interesting situation is shown to good advantage. A habitat group of these birds has recently been opened in Field Museum (Hall 20). It is the gift of the Polish-American Chamber of Commerce of Warsaw, Poland, and was made possible through the cordial co-operation of the Polish Consul-General in Chicago, Dr. Wacław Gawronski, and Professor Jerzy Bojanowski, an official of the Consulate.

The group shows a scene at sunrise in a little rural community near Krzemieniec, southeastern Poland. In the foreground is the thatched roof top of a cottage supporting a stork's nest containing two young storks. One of the parents stands on the nest offering a frog to the youngsters. The other parent solemnly stands near-by—sentinel-like. In the painted background are a number of cottages, one of which supports an additional stork's nest, and a church of the Greek Orthodox faith with its characteristic steeple and Byzantine cupola. The rising sun, a

golden half-disk on the horizon, casts a rosy glow over the scene. Although no people are about because of the early hour, wisps of smoke from the cottage chimneys forecast the day's activity. In the distant background are meadows and fields of grain, for in this part of Poland the farmers of a district gather together in little communities, the cottages being placed close together for companionship, while the tilled fields surround the

Perhaps the best known legend about storks is the one that is told to little children regarding the arrival of human babies. The origin of this story is shrouded in the mists of early history, but even in countries like England and the United States, where storks do not occur, it is the time-honored explanation of additions to a family. Another widespread story is that storks hold court and pass judgment on the actions of members

of the stork community, punishing and even executing individuals who do not conform to standards of stork morality. Were it not for the universal and widespread interest in storks they undoubtedly never would have deserted their natural nesting sites on cliffs and trees to adopt the habitations of human beings. Now having done that, they are practically dependent on humans for their existence, and a sudden change of popular opinion would work a great hardship on them.

In the United States three species of birds have adopted the ways of humans, as storks have in Europe. Curiously enough, they are all birds that gather their food from the air and rarely descend to the ground. The chimney swift formerly nested in hollow trees, but nowadays it

is an event to find one in such a natural situation, for they almost always nest in unused chimneys or deserted barns. Likewise, the barn swallow now normally nests on the beams and rafters of barns or in boat houses, while the purple martin, more common in urban communities than in the country, nests almost exclusively in "cottages" and "castles" especially built for it by interested persons.

The taxidermy and accessories of the stork group are by Staff Taxidermist John W. Moyer, assisted by Mr. John La Bonté. The background is by Mr. Arthur G. Rueckert.



European Storks in Roof Top Home

New habitat group in the Hall of Birds showing scene in a Polish village. The stork specimens and the nest, together with the actual roof top on which it was built, are a gift to the Museum from the Polish-American Chamber of Commerce in Warsaw. The birds were prepared by Staff Taxidermist John W. Moyer, and the background was painted by Mr. Arthur G. Rueckert.

village. At one side of a winding road is a shrine, without which no Polish village would be complete.

For centuries the stork has been celebrated in song, story and legend in Europe. As a result, storks are universally protected, not only by laws, but by tradition and popular opinion. It is regarded as a good omen throughout central Europe to have a stork's nest on one's house. In many communities the householders go to the extent of placing an old wagon-wheel on the roof, hoping to attract the storks by providing a firm foundation for a nest.

parts, rather than by complicating the structure. Some of man's early fish-like ancestors, now extinct and known only by their fossil remains, had as many as 160 bones in their skulls, states Mr. D. Dwight Davis, Assistant Curator of Vertebrate Skeletons, who was responsible for preparation of the new exhibit. The number has been slowly reduced through the ages, although not always with complete consistency. The reduction is not necessarily greatest according to whether an animal is

in a lower or higher classification—birds, for example, have fewer bones in their skulls than man has. The tendency in general, however, has been toward structural simplification of the skull as evolution progresses.

Also shown in the exhibit are the skulls of a frog (31 bones), a lizard (52 bones), a bird (11 bones), and a muskrat (34 bones). In preparation are further exhibits illustrating other phases in the history of the development of the human skull.

### EVOLUTION OF HUMAN SKULL

The component parts of a human skull, numbering 20 bones, are compared with those of a codfish, numbering 68, in a new exhibit pertaining to evolution, installed in Hall 19 of the Department of Zoology.

The two skulls have been disarticulated, or separated into all their parts, and mounted on screens, side by side. Thus is graphically illustrated the fact that, in animal bodies, as in well-designed machinery, efficiency is often increased by reducing the number of

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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.

## Crown Prince of Sweden Visits Field Museum

On Saturday noon, July 16, His Royal Highness, Crown Prince Gustaf Adolf, accompanied by his official party and Mayor Edward J. Kelly, made a brief visit to Field Museum. The Crown Prince, himself an archaeologist, was conducted by the Director through the Hall of the Races of Mankind and the Hall of the Stone Age of the Old World.

The pressure of official receptions and the fact that the Crown Prince had spent considerable time at Field Museum on his last visit to Chicago prevented the inclusion of Field Museum in the official itinerary of the present visit. It became possible on short notice, however, for the Crown Prince to make a fleeting visit to this institution, of which he is an Honorary Member, in order to see the exhibits in the two halls visited. The Crown Prince expressed himself as being delighted with the bronzes of Malvina Hoffman and with the methods used in the explanation and display of prehistoric human culture.

## MAN AND THE MAMMOTH

By HENRY FIELD

Curator of Physical Anthropology

The mammoth (*Elephas primigenius*), which roamed over Europe in Pleistocene times, became extinct more than a hundred centuries before the birth of Christ. Prehistoric man hunted and trapped this huge animal for food, made beads of his ivory tusks, and tools of his long bones. On smooth pieces of bone, too, he engraved with tools of flint symbolic drawings of magical and religious significance.

The mammoth was almost thirteen feet tall at the shoulder and was covered with long, reddish-brown hair. Enormous, curved tusks protruded from his jaws. Like Nebuchadnezzar, he was herbivorous, but unlike the temperamental old king, he made a habit of grass-eating—with him it was not merely the momentary demonstration of a fit of anger.

In 1611 Josias Logan brought to London an "elephant" tusk obtained by Samoyeds near the Petchora River in Arctic Russia. In 1644 Mikhail Staduschin verified reports that in northeastern Siberia "large islands rich in great elephant bones" existed. Since that time mammoth ivory has been a profitable article of commerce, the world market being in London. In 1901 the Beresovka mammoth was carried on twenty sledges to the Museum of the Academy of Sciences in Petrograd. During the past decade new mammoths have been found in Soviet Arctic territory, and plans are now in progress to salvage parts of these animals for study. Preserved for tens of thousands of years beneath the frozen tundra, bodies of mammoths were exposed by unusual thaws, and the meat was eaten by ravenous dogs.

Basset Digby, who explored northeastern Siberia, has written an exciting account of mammoth-hunting there.

According to the Tungus witch-doctors, the mammoth still exists and is a giant, burrowing rat, whose death is certain the moment he sees the sun. Other Siberian natives believe that earthquakes are caused by these gigantic "rats" tunneling at high speed just below the surface of the ground.

On exhibition in the Hall of the Stone Age of the Old World (Hall C) at Field Museum are carvings on mammoth ivory, necklaces of mammoth ivory beads, and a superb pair of mammoth tusks, from the Lena River, Siberia.

## Children's Programs Continue

The summer series of free programs of motion pictures (with sound effects), provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures, will continue in August with two presentations. On Thursday morning, August 4, at 10 o'clock, the films to be shown will be "Old King Cole" (animated cartoon in color by Walt Disney), "The Great Raccoon Hunt," "Songs of the Hills," and "Let 'er Buck." At the same hour, on Thursday, August 11, the pictures will be "King Neptune" (Disney cartoon), "Robinson Crusoe," and "Brock, the Badger." These entertainments will be given in the James Simpson Theatre. Children from all parts of Chicago and suburbs are invited. No tickets are necessary for admission.

## WARRIORS OF EAST AFRICA

By WILFRID D. HAMBLY

Curator of African Ethnology

Probably most people would name the Zulu as the greatest fighters of Africa. Undoubtedly their organization was efficient and their methods were ruthless. But in the northeast of the continent live the Masai, who for courage and military prowess were equal to the Zulu. The two great armies might have clashed and so put the matter of military efficiency to the test, but British and German influence prevented such a marathon.

In Hall E (Case 27-A) are accoutrements, personal ornaments, and samples of the arts and handicrafts of the Masai and the near-by Akikuyu. These tribes, differing physically, culturally, and linguistically, have been great rivals. The Masai are a mixture of Hamitic and Negro elements. Hamites entered Africa many centuries ago and imposed themselves on the Negro tribes with whom they mingled as social superiors. The Hamites are fighters, they disdain settled agricultural pursuits, regard vegetable food as unclean, and live on the milk of their cattle. Cattle are the center of their social and religious life, and the animals are never slaughtered for food, though they may be sacrificed and eaten as part of a religious rite.

Like the Zulu warriors, all Masai males served in the army from early boyhood to the age of forty. They lived in bachelors' camps, and had to remain unmarried, though girl companions were customary, and a retired warrior usually married the companion of his youth.

In Stanley Field Hall are bronze sculptures, by Carl E. Akeley, of Nandi lion hunters in action. The Nandi are closely akin to the Masai in race, language, and custom. The Masai, too, are great lion hunters, and the successful men show their prowess by wearing a lion mane headdress. Warriors wear large ostrich feathers as a head decoration, and they carry exceptionally fine spears.

An important feature of the social organization of the Masai is their division into age-grades. Passage from one grade to another is ceremonially made at regular intervals. Young boys of the first age-grade subdivide themselves into groups called "fires." The members of these juvenile units call themselves by some animal name such as "elephants" or "buffaloes." The most important grades are those for warriors, who are subdivided into units that are distinguished by shields of different colors. At the conclusion of military service an elaborate ceremony transfers the fighters to the grade of tribal councilors.

## NIPA PALM

An exhibit of the fruit and fruiting stem of the feather-leaved nipa palm, which grows in brackish swamps of the East Indies and other Oriental tropics, has been added to the economic botany exhibits in Hall 25.

Nipa swamps probably constitute the world's largest potential source of cheap alcohol, according to Dr. B. E. Dahlgren, Chief Curator of Botany. A single acre is said to yield about 1,000 gallons. From the cut flower stems are obtained large quantities of sugary sap, which is readily fermented. The leaves are used by the natives for thatching roofs of their huts.

Nipa palms form solid stands inside the mangrove belt in the swamps where they grow. Apparently stemless, the nipa emerges from an underground creeping stem or rootstock, from which the large feathery leaves and fertile shoots originate.

The specimen from which the Museum's exhibited reproduction was prepared came, not from its native habitat, but from South America, where a number have been transplanted. It was collected by Dr. Dahlgren while leading the Stanley Field Botanical Expedition to Guiana some years ago.

## PACIFISM AND MILITARISM AMONG TURTLES

By KARL P. SCHMIDT  
Curator of Reptiles

In contrast with their attitude toward most of the major groups of amphibians and reptiles, few people look with aversion on turtles. It does not excite great surprise to find them kept as children's pets, and various turtles are regularly eaten in civilized countries. Even English-speaking peoples, who are inclined to disdain many sea-foods enjoyed by the Latins and others, regard turtles as delicacies.

Due to our great familiarity with them we are inclined to forget that turtles are really the oldest type of living reptiles, vastly more ancient in lineage than the more familiar fossil dinosaurs and most other extinct types. They deserve the term "living fossil" much more than do many creatures to which it is commonly applied.

The extraordinary development of a protective bony shell, which characterizes turtles so sharply, is directly correlated with their proverbial sluggishness of movement and inoffensiveness of disposition. Metaphorically, peace has been the keynote of their evolution for some hundreds of millions of years, and their reliance, in a world filled with predacious enemies, has been on passive defense. How effectively this principle has governed their long evolution is shown by the development of all sorts of devices for the more complete closure of the shell. For this purpose, either the front or rear lobe of the plastron, or both, may be hinged. An irregular but effective hinge is developed even in the upper shell of an African land turtle, so that its posterior part can be drawn down over the openings for feet and tail. The typical land turtles, to which the gigantic forms belong, close the openings neatly with armored surfaces of their limbs. Such complete closure of the shell by secondary modification has been attained at least a dozen times in quite different and unrelated types of turtles. One of the best examples is supplied by the abundant American box turtles.

Another kind of clear evidence, indicating the importance of the evolutionary pressure of an environment filled with active and predacious types of animals, is afforded by the land turtles on islands. Where they have no effective enemies, as is the case in the Gala-

pagos Islands, for example, the bony shell is reduced almost to paper thinness, though superficially as well developed as ever. In continental land turtles the shell is phenomenally thick and strong.

In the typically American family of snapping turtles, however, the familiar military axiom that offense is the best defense has been adopted, and with it has gone enlargement of the limbs and tail, powerful jaws, and active habits, and above all an aggressive disposition. Instead of withdrawing into his shell, the snapping turtle squares away at an approaching enemy, and lunges at him so violently as he comes within range that the turtle may lose his balance and fall forward. The enlargement of the soft parts has been somewhat at the expense of the lower shell, and complete retraction of the limbs and head is no longer possible. It is especially clear in this case that the psychic characters are subject to evolution in the same way as is the body.

Although the snapping turtle family includes essentially only three forms—the widespread common snapping turtle, the giant snapper of the lower Mississippi, and a relative in far-off New Guinea—the success of our common snapper in the face of civilization is notable. Campaigns of extermination waged by game commissions on account of its destruction of fish and water fowl do not yet appear to have affected its numbers. Perhaps, after all, its evolutionary investment in offensive weapons was worth while.

Opposing developments and tempers of pacifism and militarism in our own race might be compared with the two opposing trends of evolution in these ancient and remote relatives of ours. No timely lesson can be drawn, since, in the turtles, both the peaceful and the warlike have attained a measure of success, having somehow avoided the pitfall of conflict with each other.

## MOUTH-BLOWN PIPE ORGANS OF ANCIENT CHINA

The huge modern pipe organs used in churches and theatres are designed on a principle discovered in very ancient times in China, it may be deduced from a small Chinese mouth instrument in which bamboo tubes are used for pipes. Examples of this type of instrument, which in appearance resembles somewhat the modern saxophone, are on exhibition among the Oriental archaeological collections in Hall 32 (Case 45).

The mouth pipe organ, or "sheng," as the Chinese call it, consists of a bowl-shaped body of lacquered wood at the end of a tube with a mouthpiece, which gives it a resemblance to a large meerschaum pipe as well as to a saxophone. Seventeen bamboo tubes of varying lengths are inserted in the top of the body, which provides the wind reservoir. Thirteen of the tubes are fitted with free reeds, similar to those used in some organs today. Each of the tubes has a small hole just above the point where it enters the reservoir, and these holes must be covered with the finger in order that each pipe may produce its particular tone when the player blows into the instrument.

While the sheng is still used in China to a limited extent, it is rarely heard nowadays because of a peculiar superstition that a skillful performer becomes so wedded to his music that he is forever playing, to the exclusion of all other activities. This, the Chinese apparently fear, would prove inconvenient for the player and might become annoying to his neighbors.

Another thing that has caused the popularity of the instrument to wane in later years is the fact that because it is played

largely by sucking the breath in, as well as by blowing, it causes inflammation of the bronchial tubes and diseases of the lungs, and it is said that no habitual player ever lives longer than forty years. This is a serious matter indeed to the Chinese, to whom longevity is one of the fundamental ideals in life and religion.

The harmonium, or small organ with free reeds but without pipes, was the first occidental development from this instrument. The principle of the free reed became widely known in Europe through the introduction of the Chinese reed organ at the end of the eighteenth century.

The information herein offered is based on notes of the late Dr. Berthold Laufer, who obtained the Museum's collection of these instruments in China in the course of one of his expeditions.

## THINGS YOU MAY HAVE MISSED

### Tea Bush

The leaves used in making tea are derived from an evergreen shrub or small tree (*Thea sinensis*) native to Asia. It has been grown in China since very ancient times, but its cultivation on a large scale in India, Ceylon, Malaya, and Formosa dates only to about the middle of the nineteenth century. In the United States it has been grown to a limited extent for beverage purposes in South Carolina, and is still grown there as an ornamental plant because of its glossy foliage and white flowers.



Both Ornamental and Useful

The tea plant is sometimes grown for decorative purposes as well as for the making of the beverage derived from its leaves. This reproduction of the plant is on exhibition in Hall 25.

Each tea growing country has its own particular system of pruning, designed to increase the yield of young leaves from which are made the finer grades of tea. A reproduction of a tea shrub from southern China, natural size, and in full flower and fruit, has been prepared in the laboratories of the Department of Botany, and is on exhibition in Hall 25. Near-by is a miniature model of a Ceylonese tea plantation.

—B.E.D.

Numerous varieties of coal, including specimens from many important fields in various parts of the world, form an exhibit in Hall 36.

## CHINESE EXHIBIT ILLUSTRATES THE STORY OF PRINTING

By C. MARTIN WILBUR

Curator of Chinese Archaeology and Ethnology

Printing, a Chinese invention, is one vital cornerstone upon which modern civilization rests. Without it, the spread of general and technical knowledge which has produced our industrial civilization would have been impossible. Twentieth century democracy, postulated upon an educated and informed public, is inconceivable without printed books and journals. Postage stamps and bank-notes, time-tables and telephone books, with all that they imply, are utterly dependent upon the primary invention of printing.

Paper, which has everywhere been the forerunner of printing, making it possible on a large scale, is also of Chinese origin, and was transmitted to Europe by the Arabs. The slow migration of these two Chinese inventions across the whole of Asia to Europe, and the revolutionary consequences, make a fascinating story.

Traditional Chinese methods and equipment for printing are exhibited in Hall 32 (Case 27). Inks, paper, printing blocks and the tools for cutting them, together with examples of Chinese printed books, are all displayed. This ancient method of printing from wooden blocks is separated from our modern methods by centuries of independent development, marked in the west by a succession of brilliant inventions, increasing speed and volume. Yet there is a fundamental similarity between Chinese methods and our own: both are based upon a negative printing surface, inked, and repeatedly pressed upon paper for reproduction. It was this process which the Chinese invented and were using five centuries before Europeans learned it, and this basic idea is still employed all over the world.

The Chinese language differs greatly from those of the Occident, which are written in alphabetic scripts, and consequently it produced a different printing technique from our own. Thus, although movable type was invented and used in China as early as 1059 (long before Gutenberg), it was abandoned in favor of a method, easier for the Chinese, of cutting a wooden block for a whole page of print. Alphabetic scripts, on the other hand, favor a single type for each letter, with letters combined into words. Only recently the Chinese have returned to movable type, and are borrowing many other modern printing methods from America and Europe, because volume and speed are now vital to the fast-moving and complex life of modern China.

The story of printing illustrates a fundamental concept of the anthropologist, who views all civilization as the complex result of innumerable ideas, inventions, and institutions, coming from many lands and from various times in the past. All these elements are inseparably mixed in a vast and mysterious pudding, which constantly changes as new ideas and inventions, new methods and practices, are accepted. In our western civilization certain basic Near Eastern, Greek, Roman, and western European practices give the primary flavor. No one knows what other sauces and spices have dropped into the pot from everywhere in its long and turbulent boiling.

Dr. Ralph Linton, formerly of Field Museum, in his book, *The Study of Man*, depicts an average American who wakes in the morning and quite unconcernedly uses products and inventions from every part of

the globe as he dresses and eats: "When our friend has finished eating he settles back to smoke, an American Indian habit, consuming a plant domesticated in Brazil in either a pipe, derived from the Indians of Virginia, or a cigarette, derived from Mexico. . . . He reads the news of the day, imprinted in characters invented by the ancient Semites upon a material invented in China by a process invented in Germany. As he absorbs the accounts of foreign troubles he will, if he is a good conservative citizen, thank a Hebrew deity in an Indo-European language that he is 100 per cent American."

### Aerial Tropical Garden

A group of epiphytic and parasitic plants, growing about a termite nest built at the tip of a tropical tree branch is exhibited in Stanley Field Hall. The group was reproduced from nature in the plant reproduction laboratories of the Department of Botany. The original specimen came from the Demerara River in British Guiana.

### INSOLATION

By HENRY W. NICHOLS

Chief Curator, Department of Geology

In the deserts and upon the mountain tops the sun's rays can shatter solid rock, breaking it into fragments and covering the ground with an accumulation of rocky debris. This destruction is a consequence of the rapid heating of the rock, called insolation, during the day, followed by rapid cooling through radiation after sunset. When the heating and cooling are sufficiently rapid the accompanying expansion and contraction induce strains greater than the brittle rock can endure. The rock breaks and chips, and even large pieces are flaked away from the surface. Campers have often been startled by a similar disruption of rock when a campfire built against a ledge has heated the rock too rapidly and fragments fly off with explosive and sometimes dangerous violence.

Over most of the world, the atmosphere, which tempers the effect of the sun's rays, protects rocks from much of this damage by insolation. On mountain tops, where the sun's rays pass through less atmosphere, their power is not reduced as much as at lower altitudes. The air over deserts is exceedingly dry, and as the atmospheric agent which absorbs most energy from sunlight is water vapor, sunlight over deserts has more power than elsewhere. Since cooling by night in deserts is less retarded by the blanketing effect of water vapor in the air, the cooling of the rock is more rapid and the cooling strains induced are more severe.

The results of insolation are exceptionally well demonstrated in the North Arabian or Syrian Desert. There the Marshall Field North Arabian Desert Expedition of 1928 made a notable collection, now on exhibition in Clarence Buckingham Hall (Hall 35).

### YOU SHOULD READ

*Snakes Alive and How They Live*, by Clifford H. Pope.

Deservedly the current "best seller" among books about reptiles, this book is interestingly written and thoroughly reliable in its information. Mr. Karl P. Schmidt, Curator of Reptiles at Field Museum, places it *first* in his list of books recommended to those interested in reptiles.

This is one of many noteworthy hooks on natural history, available at the new FIELD MUSEUM BOOK SHOP. \$2.50.

### 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:

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

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

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

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

Friday: 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 Dr. A. K. Owen—10 archaeological specimens, Egypt; from School of Forestry, Yale University—49 herbarium specimens, Colombia, Costa Rica, and Dominican Republic; from George B. Hinton—85 herbarium specimens, Mexico; from George Moore—46 herbarium specimens, Missouri; from George L. Fisher—104 herbarium specimens, Texas, California, and Mexico; from Jardim Botânico de Belo Horizonte—328 herbarium specimens, Brazil; from Museo Nacional—68 herbarium specimens, Costa Rica; from Centro Nacional de Agricultura—100 herbarium specimens, Costa Rica; from I. W. Knobloch—30 herbarium specimens, Mexico; from Rev. Luis Mille—15 herbarium specimens, Ecuador; from Frank Von Drasek—19 mineral specimens, New Mexico and Arkansas; from Mrs. Beatrice Norden—a specimen of cinnabar and one of barite, Arkansas; from Duncan MacMillan—34 specimens of fossils, Illinois; from J. A. King—27 birds, Guatemala; from Al Pfueger—a specimen of Allison's tuna and 2 ducks, Florida; from Chicago Zoological Society—3 mammals, 59 birds, and 9 reptiles; from H. B. Conover—50 birds, Tanganyika Territory; from John G. Shedd Aquarium—2 fish specimens, Mexico and Fiji Islands; from Julian A. Steyermark—11 fish specimens and one centipede, Missouri; from the American Museum of Natural History—a 35 mm. silent film *Man versus Beast*.

### NEW MEMBERS

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

#### Associate Members

Dr. John M. Berger, Mrs. George E. Brennan, Mrs. George Fabyan.

#### Annual Members

Frank D. Carpenter, B. E. Cedarquist, Earle M. Combs, Jr., R. E. Connolly, Charles F. Cooke, David W. Davidson, Charles G. Foucek, Mrs. A. G. Hollingshead, Paul J. Kahn, Miss Katherine Marjorie Kelly, F. E. Kruesi, Z. E. Martin, H. H. Meltzer, John H. Milne, B. F. Roman.

### Staff Notes

Dr. Henry Field, Curator of Physical Anthropology, left July 5 for an extended visit to Europe where he will attend scientific meetings in Copenhagen, London, and Brussels, at all of which he will present papers. At the Congress of Anthropological and Ethnological Sciences in Copenhagen, which he will attend as the official delegate from the United States, Dr. Field will present a paper entitled "The Physical Characters of the Modern Peoples of Iran."

The story of a lion hunt by African natives, armed with spears, is told in a series of three bronze groups, exhibited in Stanley Field Hall. They are the work of the late Carl E. Akeley.



# Field Museum News

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## GROUP SHOWS GIANT ORIOLES COLLECTED BY MANDEL GUATEMALA EXPEDITION

By RUDYERD BOULTON  
Curator of Birds

Oropendulas, or giant orioles, belong to the family of blackbirds and orioles so well represented in the United States by meadowlarks, grackles, cowbirds, bobolinks and orioles. They are indeed most closely related to the orioles whose well known pendant type of nest architecture they have improved on tremendously. They are found throughout the forests and clearings of Central and South America, from Southern Mexico to Brazil and Peru. About twelve species belonging to half a dozen genera are known. All of them are relatively large, the size of a small crow, and all are characterized by the fascinating colonial nesting habits illustrated in the accompanying picture.

This photograph represents a group recently installed in Hall 20, showing a portion of a nesting colony of Montezuma's oropendula. It is the gift of Mr. Leon Mandel, and was collected during the Mandel Guatemala Expedition by Messrs. Emmet R. Blake, Assistant Curator of Birds, and Karl P. Schmidt, Curator of Reptiles. The birds were mounted and installed by Staff Taxidermist John W. Moyer, the plant accessories are by Preparator Frank Letl and the scenic background was painted by Mr. Arthur G. Rueckert.

The giant tree in which the colony was found was about one hundred feet high and six feet in diameter. After vainly attempting to climb the straight branchless trunk to the eighty-foot level at which the nests swung, Messrs. Blake and Schmidt resorted to their axes. Five hours of steady chopping brought the tree crashing

to the ground. Although the colony of 138 nests was well populated with birds they were much gratified to discover that only a half dozen were actually occupied, no more than enough to supply the data needed for the construction of the group. One of the intricately woven nests was six feet long and the gourd-shaped nest chamber at the bottom a foot in diameter. In some cases two or three nests closely crowded together had

ing and posturing before each other in characteristic attitudes of courtship, defence and play. An adult is attacking a rice grackle which parasitizes the oropendulas. The female grackles wait for opportunities to slip into the orioles' bag-shaped nests where they lay their eggs, leaving them to be incubated and the young grackles to be raised to maturity by the oropendulas. In this interesting habit the rice grackles resemble our American cowbird and the European cuckoo. Another bird, the striped flycatcher (*Legatus*), also imposes on the oropendulas. The flycatchers are much smaller than the orioles, but gain their objective by sheer persistence and tenacity of purpose. Eventually they drive a pair of orioles away from their nest and the flycatchers then build their own nest within the larger one, and there raise their own family.

The background shows a savanna, dotted here and there with patches of forest, in the Motagua valley in eastern Guatemala. Man-made clearings in the forest seem to be favorable to the Montezuma oropendulas. The only undisturbed regions in which their nests were found were along river banks where the expanse of water provided them with the same breadth of view and lack of constraint that the savanna clearings seem to do. Because of the exposed situations and

the tremendous isolated trees that the birds prefer, the colonies of the giant orioles are conspicuous features of the landscape wherever they occur in Central and South America, and they are well known to many persons who have traveled in those regions.



Giant Oriole Group in Hall 20

These South American birds, also known as oropendulas, are noted for their long hanging nests, a number of which may be seen in the exhibit. The specimens were collected by Assistant Curator Emmet R. Blake who was ornithologist on an expedition sponsored and led by Mr. Leon Mandel, of Chicago. The group was prepared by Staff Taxidermist John W. Moyer; Mr. Arthur G. Rueckert painted the background, and accessories were made under the supervision of Preparator Frank H. Letl.

been interwoven throughout their length, making a sort of swaying "duplex apartment."

The group shows a section of a colony containing about twelve nests. Eight or ten adults, the males about one and one-half times as large as the females, are busy weav-

### Marshall Field Provides Scientific Equipment

Several thousand dollars' worth of scientific equipment, long needed in the various Departments of the Museum for the proper continuation and expansion of many types of research, has recently been provided through the generosity of Mr. Marshall Field, a Trustee of the Museum. For a long time some members of the staff have been hampered in their work through the lack of adequate facilities, and this gift will greatly increase effectiveness of future activities.

### Leaflet on Autumn Flowers

With the arrival of September, timely reading for flower enthusiasts is offered in the Field Museum Leaflet *Autumn Flowers and Fruits*. This little book, with thirty pages of text, illustrated with a color plate, two collotype plates, and twenty-eight half-tones, is by J. Francis Macbride, Associate Curator of the Museum Herbarium. At the BOOK SHOP of FIELD MUSEUM—25 cents.

### Change in Visiting Hours Begins September 6

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 6, 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.

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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.

## NOTED GERMAN BIOLOGIST JOINS MUSEUM STAFF

Dr. Fritz Haas, formerly Curator of the Department of Mollusks at the Senckenberg Museum, Frankfurt-on-the-Main, Germany, has been appointed as Curator of Lower Invertebrates at Field Museum. Dr. Haas is well known throughout the scientific world for his important biological researches, and is the author of numerous publications. He has come to America under the sponsorship of the Emergency Committee in Aid of Displaced German Scholars, of New York, and the Jewish Welfare Fund, of Chicago, which are jointly furnishing funds from which part of his salary will be paid for a period of one year.



Dr. Fritz Haas

### SPECIAL NOTICE

All Members of Field Museum who have changed their residence or are planning to do so are earnestly urged to notify the Museum at once of their new addresses, so that copies of FIELD MUSEUM NEWS and all other communications from the Museum may reach them promptly.

### Staff Notes

Mr. Sharat K. Roy, Curator of Geology, and leader of the Sewell Avery Physical Geology Expedition, recently completed his work in northern Colorado. He returned to the Museum for a week last month, and then left for the east to continue the collecting of rocks for exhibition and study purposes, his further work being chiefly in various parts of New England and New York state.

Since his arrival in Europe in July, Dr. Henry Field, Curator of Physical Anthropology, has been collecting data for a tribal map of Iran to supplement statistics compiled during his previous expeditions and research. In addition he has assembled material for a report on the Ossetes and Yezidis of Georgia, U.S.S.R.

Mr. Phil C. Orr, Assistant in Paleontology in Field Museum's Department of Geology, has resigned to accept a position as Curator of Archaeology and Paleontology at the Santa Barbara (California) Museum of Natural History.

Mr. J. L. Jones, Field Museum's Purchasing Agent since 1929, has resigned from the staff because of extended long illness. He will resume his former residence in Florida where the climate is better suited to the state of his health.

### BOTANISTS ISSUE WARNING ON NEW ILLINOIS WEED

Recently, while on the way to Rock Creek, Kankakee County, to collect plants, Curator Paul C. Standley and Assistant Curator Julian A. Steyermark of the Museum Herbarium, discovered several large and thriving colonies of a showy and rather handsome plant that proved to be the globe thistle (*Echinops sphaerocephalus*). The locality where the weeds were found is along the Governor's Highway, south of Manteno.

The globe thistle, native of the Mediterranean region, is sometimes grown for deco-

rative effects in gardens. It reaches three to six feet in height, and has numerous large, spherical heads of lead-color and purple.

In spite of the variety it gives to the roadside, the plant should be watched, or better, exterminated, for like all the thistle tribe, it is likely to prove a pernicious and dangerous weed. Certainly in this locality it gives every appearance of spreading rapidly, and being able to hold its own with the rankest native weeds along the railroad right of way and on the borders of fields.

In the Herbarium of Field Museum there is a specimen of this plant obtained in 1894 at Rockford, Illinois, but it is not known whether the plant was well established there, or perhaps still persists.—P.C.S. and J.A.S.

## CURATOR OSGOOD RETURNS WITH DESERT COLLECTION

With approximately four hundred specimens of mammals, birds, and reptiles, including a number of rare and odd species, Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology, returned to Chicago August 17. Dr. Osgood left the Museum on May 15 as the leader of an expedition conducted in south central New Mexico. He was accompanied by Dr. Frank W. Gorham, of Los Angeles, and Mr. Walter F. Nichols, of Pasadena, California. The expedition, personally financed by Dr. Osgood as a contribution to the Museum, concentrated its efforts chiefly on the "white island" of sand in Tularosa basin, a desert region of some three hundred square miles, and in the adjoining territory where a black lava formation composes the ground surface.

One of the most striking specimens obtained is that of a pure cream white lizard the color of which made it almost invisible in the white Tularosa sands. Kangaroo rats were collected alive and sent to the Brookfield Zoo. Live specimens of a black mouse whose dark coloration protects it in its environment of black lava beds were sent to the Museum by airplane for use in research work. A variety of white mice inhabiting the "white island" of Tularosa was found to be scarce, and no living specimens were secured, but dried specimens were obtained, and arrangements made for live ones to be collected later.

In addition to collecting in the desert, Dr. Osgood obtained important zoological specimens also in the Mogollon mountains of New Mexico, in California, and in Colorado. After the conclusion of the expedition Dr. Osgood presented a scientific paper at the meeting of the American Society of Mammalogists held at San Francisco in July. He is a founder, and a former president, of this society, and is at present chairman of its committee on nomenclature.

### FOR READERS FROM EIGHT TO EIGHTY—

*Our Friendly Animals*, by Karl P. Schmidt, Curator of Reptiles at Field Museum.

"An informative and attractively illustrated book on domestic mammals and their wild ancestors," says Dr. Wilfred H. Osgood, Chief Curator of Zoology. "It covers a neglected subject of interest alike to children and adults."

Copies, autographed by the author, on sale at the BOOK SHOP of FIELD MUSEUM. \$1.

## ANCIENT COLORADO VILLAGE AND TEMPLE UNCOVERED

By PAUL S. MARTIN

Chief Curator, Department of Anthropology

The ruins of an Indian village more than a thousand years old, including the largest known Great Kiva, or temple built by prehistoric Americans, ever found, have been discovered and excavated by the Field Museum Archaeological Expedition to the Southwest during its 1938 season of operations.

The buried village, which centuries ago was inhabited by Indians of the "Basket Maker" culture, a people well advanced in the arts, architecture, and agriculture, was uncovered by the writer and his associates at a steep and picturesque point on the south rim of Cahone Canyon, a deep and rocky cut in a high plateau of southwestern Colorado.

At the base of the point the expedition first uncovered the remains of the Kiva, a great circular slab structure, 81 feet in diameter. This apparently was intended to accommodate the people in their religious ceremonials which, no doubt, formed a most important part of their lives. There are indications that it was originally a dance plaza, perhaps only partially roofed. All theories as to its use are necessarily conjectural, as no other structure quite like it is known. It is about two feet deep, and almost a perfect circle.

Near-by were found living quarters. These consisted of rows of masonry-walled rooms that commanded a wide sweep of the canyon, and of subterranean houses that had been laboriously hewn out of the rock. The larger and more spacious rooms contained hearths, and nooks for holding domestic necessities. They were the living rooms proper. Smaller adjacent chambers were used for storage of food and other supplies.

It was evident that one row of these rooms had been ravaged by fire—whether through accident or an attack by enemies is not known. Although the destruction must have been a catastrophe to the ancient Indians, it proved profitable to the Museum archaeologists to dig into the burned rooms, for there we have uncovered finely made pottery, bone implements for the dressing of hides and working of leather, stone axes and arrow points, bone and stone ornaments, and a quantity of charred corn and beans, all of which had been abandoned when the inhabitants scurried out for their lives. By archaeological methods it has been possible to establish that these buildings, and their contents, date from about the year A.D. 700. Every object that could possibly be helpful in reconstructing the daily life of the inhabitants of the village—who were probably the ancestors of modern Indian tribes—was carefully examined. Studying the common as well as the unusual material, the members of the expedition hope through continued work at this and other ancient sites to bring to light another chapter in the story of early man.

Eight years ago work was begun by the first Field Museum expedition into this region, which is in the Colorado drainage area of the San Juan, and on public land north of the Ute reservation. In succeeding years continued expeditions have excavated new sites, collected vast amounts of artifacts and data, and brought to light new and impressive evidence bearing upon hitherto complete mysteries as to the history of these people. The work of the successive expeditions is now co-ordinating into a coherent

story of the development of a single group of people—Indians whose ancestors are believed to have come from Asia at some remote time in the dim past, and who had settled down in the San Juan area about A.D. 500. Successive dates for the various prehistoric sites excavated by the expeditions are well defined. Wooden posts and roof beams from the ruins, cross-sectioned and compared with a master tree-ring chart, lead to the conclusion that these Indians were in this region for seven hundred years, from A.D. 500 to 1200. In successive periods their pottery making and wall construction show marked improvements in technique and artistry, and other signs point that their living conditions bettered and their society became more complex. Sometime after 1200 they migrated, presumably southward, and their descendants apparently are the modern Pueblo Indians.

### THINGS YOU MAY HAVE MISSED

#### A Nest of Fossil Dinosaur Eggs

The discovery of fossil eggs of dinosaurs in Mongolia a few years ago introduced new evidence as to the life and habits of these extinct reptiles. Fossil eggs of birds had been known from the Bad Lands of North America, and turtle eggs had been found



Eggs 80,000,000 Years Old

On exhibition in Ernest R. Graham Hall, these dinosaur eggs were found in Mongolia. Had they hatched, there would have emerged from them the saurians known by the name *Protoceratops*.

fossilized in various places, but the possibility of finding the eggs of these great extinct reptiles had remained a matter of speculation.

These dinosaur eggs were first encountered in a bright red sandstone ledge of Cretaceous age, designated as Flaming Cliffs. They lay in a group embedded in soft sandstone, partly washed out by surface water. Beside them were parts of a reptile skull, and elsewhere in the same formation were found skeletons of the small, hooded dinosaur known as *Protoceratops*. From this association of skeletons and eggs in the same rock formation, it is concluded that the eggs were laid by this dinosaur.

A nest of these eggs may be seen at the Museum, in Ernest R. Graham Hall (Hall 38). They are about four inches in length, and are stained a light reddish color. The exhibit shows them on a section of the sandstone in which they were found.

The material was collected by Dr. Roy Chapman Andrews, Director of the American Museum of Natural History, on an expedition in which Field Museum collaborated with the New York institution.—E.S.R.

Prehistoric gold ornaments from Colombia and Ecuador form an attractive exhibit in Stanley Field Hall.

## SEWELL AVERY EXPEDITION TO BRITISH GUIANA

Bound for the jungle frontiers along the border between British Guiana and Brazil, Mr. Emmet R. Blake, Assistant Curator of Birds, sailed from New York on July 30, as leader of the Sewell Avery British Guiana Expedition of Field Museum. He hopes to collect a typical cross-section of the bird, mammal, and reptile life in the forests of this little known area of South America.

The expedition, as announced in the July FIELD MUSEUM NEWS, was originally scheduled to leave in September, but departure was advanced because of especially favorable conditions at this time.

The British Guiana boundary has recently been surveyed with the result that many areas may be reached at present which could not be reached a year hence because of the rapid growth of jungle vegetation. The section is practically unexplored zoologically, and it is possible that new species may be discovered by the expedition.

Mr. Blake's project involves exploration in a "lost world." The region is separated from the nearest human habitation by three hundred miles of almost impenetrable jungle. The only way to enter is by airplane and boat. It is possible to fly about two hundred miles inland in a seaplane to a certain pool in the Courantyne River which is the only suitable place for descending. From this point it is necessary to continue the journey on the river in native dugout canoes. This requires a voyage of more than three hundred miles on an extremely tortuous stream which has three major waterfalls around which portages must be made, and more than one hundred difficult rapids which must be skillfully navigated.

The region is especially interesting because, during its work of the past few years, the British Boundary Commission discovered a range of mountains hitherto unknown. These have an altitude of about five thousand feet. Consequently, without doubt the birds, mammals and reptiles of the region will show significant differences from those which were collected in the lowlands of British Guiana by Mr. Blake on his expedition last year.

The expedition personnel will include seventeen men—only one other white man besides Mr. Blake. The boats will be manned by a full crew of Bush Negroes. Mr. Blake will be assisted in collecting by an experienced East Indian collector, as well as native South American Indian hunters and guides. Because the party will be completely cut off from all other means of communication with the outside world, it will have a short-wave radio set and operator as a safety measure.

In January of the present year Mr. Blake returned to this country after an absence of a year during which he collected birds and other animals in the lowland sections of British Guiana as well as on the plains of Brazil. Mr. Blake has collected extensively for Field Museum and other institutions, having been a member of the National Geographic Society's Expedition to the Amazon, the Leon Mandel Orinoco and West Indies Expedition, the Leon Mandel Expedition to Guatemala, the Carnegie Museum Expedition to British Honduras, and the Stanley Field British Guiana and Brazilian Expedition.

The present expedition was made possible through the generosity of Mr. Sewell Avery, of Chicago, a Trustee of the Museum.

A model of a large Minnesota iron mine is exhibited in Hall 36.

## SATURDAY AFTERNOON LECTURES TO BEGIN OCTOBER 1

On Saturdays at 2:30 P.M. instead of at 3:00 as in past years, during October and November Field Museum will present its Seventieth Free Lecture Course for adults in the James Simpson Theatre. Eminent explorers and naturalists have been engaged for the series, which will be illustrated with motion pictures and stereopticon slides. There will be nine lectures in the series. The first one will be "A Winter in Oaxaca," and the speaker will be Dr. W. H. Camp, of the New York Botanical Garden. A complete schedule of the dates, subjects and speakers for all nine lectures 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 2:30 P.M. 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 2:30 P.M. on the lecture day, even though no advance reservation has been made. All reserved seats not claimed by 2:30 P.M. will be available to the general public.

## FREE SATURDAY PROGRAMS OFFERED FOR CHILDREN

The James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures will present free motion picture programs for children every Saturday morning during October and November. These programs will be presented in the James Simpson Theatre of the Museum and will include many films with sound effects, for which the theatre was recently equipped. There will be two showings of the films on each program, one beginning at 10 A.M., and one at 11.

The pictures to be shown on the opening program, October 1, are: "The China Plate" (color cartoon by Walt Disney), "Isle of Desire" (including "Enchanting Tahiti," "Manea Battles an Octopus," and "Walking Upon Hot Stones"), and "Water Boy." A complete schedule of the dates and titles of films to be presented on each of the nine programs in the series will appear in the October issue of FIELD MUSEUM NEWS. Children may come alone, accompanied by adults, or in groups from schools and other centers. No tickets are required for admission.

## SUNDAY LECTURE TOURS TO BE RESUMED

Mr. Paul G. Dallwig, the Layman Lecturer, has prepared for his second season of Sunday afternoon lecture tours at Field Museum, which will begin October 2. Lectures will be given every Sunday during the eight months up to and including next May, with a new subject being treated each month. On the five Sundays in October the title of the lecture will be "Digging Up the Cave-man's Past," and the tour will embrace the exhibits in the Hall of the Stone Age of the Old World. In November the title of the lecture tour is "Nature's 'March of Time,'" dealing with prehistoric animals; in December "Gems, Jewels, and 'Junk,'" covering the halls devoted to precious and semi-precious stones; and in January, "Parade of the

Races," illustrated with the Races of Man-kind sculptures by Malvina Hoffman in Chauncey Keep Memorial Hall.

It is necessary to make reservations for the Sunday tours and receive an identification ticket, as the number that can be accommodated is limited. Reservations may be made in advance by mail or telephone (Wabash 9410). Only if advance reservations do not exceed the number to which the party is limited will additional registrations be permitted for other Sunday visitors at the Museum. Parties are restricted to adults.

The lectures are given each Sunday, and begin promptly at 2 P.M. They end at 4:30, and are broken midway by an intermission of one-half hour for relaxation, during which members of the party may obtain refreshments and smoke in the Cafeteria where special tables are reserved for the group.

Those participating are requested to arrive at the Museum a few minutes before 2 o'clock so that registration may be completed, and wraps checked, without inconvenience to themselves and others.

Mr. Dallwig is a member of the Museum, and renders this service without compensation either from the institution or from those participating in the lecture tours, because of his deep interest in science and education. He dramatizes his subjects in a unique manner, and his ability as a speaker was lauded by hundreds of people from all parts of the United States, Canada, Europe, and elsewhere, when he gave his lectures last season.

## THE WORLD'S OLDEST NECKLACE

By HENRY FIELD

Curator of Physical Anthropology

Prehistoric man wanted his wife to look more attractive than nature made her, so he gave her a necklace. He fashioned beads from the tusk of a mammoth, pierced shells and the teeth of elk, fox, and bison, and strung them together artistically on threads of animal sinews. Thus he made the first beautiful necklace, probably to celebrate some happy event, such as the arrival of his first-born son.

On exhibition in Case 5 in the Hall of the Stone Age (Hall C) are four such necklaces, from an Aurignacian deposit in France attributed to a period some 30,000 years ago. This is the earliest period from which beads have been unearthed in western Europe.

At La Souquette, near St. Léon-sur-Vézère, Dordogne, these necklaces were excavated by Mr. M. Castanet in a rock shelter on his farm. Close to one wall of the shelter was a rock surrounded by flint piercing tools, fragments of mammoth ivory, and perforated animal teeth and shells. Several ivory fragments showed incomplete perforation, suggesting that the work may have been abandoned suddenly. This rock shelter must have served as a prehistoric workshop—a forerunner of the modern Cartier!

While the National Museum of France, at St. Germain-en-Laye, and other museums possess similar necklaces, none are finer or older than those in Field Museum.

From modern, matched pearl necklaces to these from an Aurignacian cave may seem a far cry, but the feminine urge to wear beads has changed but little during thirty millennia.

Most foreign woods now imported into the United States are represented in the exhibits in Hall 27.

## SEPTEMBER GUIDE-LECTURE TOURS

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

Thursday, September 1—General Tour; Friday—Hall of Races of Man.

Week beginning September 5: Monday—Labor Day holiday, no tour; Tuesday—General Tour; Wednesday—Su-Lin and Her Asiatic Neighbors; Thursday—General Tour; Friday—Minerals, Moon and Meteorites.

Week beginning September 12: Monday—The Egyptian Hall; Tuesday—General Tour; Wednesday—Plant-life, Past and Present; Thursday—General Tour; Friday—Cavemen of the Old World.

Week beginning September 19: Monday—South American Animal Life; Tuesday—General Tour; Wednesday—New Bird Groups; Thursday—General Tour; Friday—Prehistoric Animals.

Week beginning September 26: Monday—Cereals and Their Uses; Tuesday—General Tour; Wednesday—Habitat Groups; Thursday—General Tour; Friday—Chinese Exhibits.

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 Gordon Pearsall—25 herbarium specimens, Illinois; from Professor C. J. Chamberlain—60 herbarium specimens; from Professor J. Soukup—31 herbarium specimens, Peru; from Dr. César Vargas C.—100 herbarium specimens, Peru; from Centro Nacional de Agricultura—46 herbarium specimens, Costa Rica; from George Moore—60 herbarium specimens, Missouri; from Jardim Botânico de Belo Horizonte—255 herbarium specimens, Brazil; from Lieutenant James M. Nisbett—5 snakes, Arkansas; from Al Pfeueger—2 Florida ducks and 2 turtles; from Rudverd Boulton—11 photographs of historical interest; from Chicago Zoological Society—a young koodoo, Africa; from Mont A. Cazier—4 beetles, California; from Carl Dreutzer—4 bearded seals, Cape Prince of Wales; valuable books for the Library from: American Society for Testing Materials, Richard Martin, Stanley Field, Jusserrand Memorial Committee, Dr. E. E. Sherff, Dr. Henry Field, C. A. Kent, and the Ryerson Estate.

## NEW MEMBERS

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

### Associate Members

Dr. Alfons R. Bacon, Dr. Edward L. Cornell, William W. Kimball, William Robert Tobey, Thomas H. West.

### Non-Resident Associate Members

Homer Niederhauser

### Annual Members

Mrs. Sigmund C. Fish, Leo Karpen, Theodore Leavens, Lewis W. Lee, Jr., Mrs. Edward Meier, Allan Muller, E. T. Murphy, M. H. Propp, John R. Railton, Milton Zadek.

## Distinguished Visitors

Among recent distinguished visitors received at Field Museum of Natural History were Brother Marie-Victorin, of the University of Montreal; Dr. Ivan M. Johnston, Arnold Arboretum, Jamaica Plain, Massachusetts; and Count Nils Gyldenstolpe, Curator of Birds at the Naturhistoriska Riksmuseet in Stockholm. Count Gyldenstolpe was a member of the party of his Royal Highness, Crown Prince Gustaf Adolf of Sweden, whose visit was reported in the August FIELD MUSEUM NEWS.

Dr. Fred A. Barkley and Mr. Merton J. Reed of the University of Montana are spending four weeks during August and September in study in the Herbarium and Botanical Library of the Museum.

# Field Museum News

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## GIANT PANDA'S ANCESTORS TRACED TO NEBRASKA

By PAUL MCGREW  
Assistant in Paleontology

It is probable that no other living mammal has enjoyed so much popularity as has recently been accorded the giant panda. Popular interest does not exceed the scientific interest in this little-known animal. Within the past year, fossils have been found which provide much new information regarding the zoologic relationships and the ancestry of both the giant panda and its smaller cousin, the "ordinary" panda. Such a fossil specimen has recently been acquired by the Division of Paleontology of Field Museum.

The extinct form referred to is known only from two small fragments containing upper teeth and portions of two lower jaws. All of the known specimens are from the lower Miocene deposits of western Nebraska which establishes them as approximately 20,000,000 years old. The name *Cynarctoides* has been given to this long extinct creature.

*Cynarctoides* was a small animal only slightly larger than a mink, and must have closely resembled *Bassariscus*, the cacomistle or ring-tailed cat of the southwestern United States and Mexico. In fact, its dental characters are such that it must have been derived directly from *Bassariscus*. *Bassariscus* has long been recognized as the most primitive representative of the raccoon family, and its fossil record shows that it has changed but little in the last 25,000,000 years—thus it is a true "living fossil." *Cynarctoides* has characters which are intermediate between those of *Bassariscus* and the living pandas, suggesting that the pandas are derived originally from *Bassariscus* through *Cynarctoides*.

One of the puzzling characters of the giant panda, which previously seemed to bar it from the raccoon family, was the presence in the lower jaw of a third molar which is absent in all other members of the family. It is of great significance, then, that *Cynarctoides*, which is distinctly a member of the raccoon family, has this third lower molar as well as other characters which strongly suggest that this form is very near to the direct ancestor of the giant panda.

The available evidence indicates that the panda originally developed in North

America. During the lower part of the Pliocene epoch, or about 12,000,000 years ago, a route of migration was opened across the Bering Strait and it is probable that the ancestral pandas migrated to the Old World at this time to become established in their present habitat. In North America this branch of the raccoon family became extinct, but, fortunately for purposes of scientific research, their fossilized bones bear witness to their former existence in this country.



A Scene on the "Dig" in Colorado

One of the ancient pit houses excavated by Field Museum Archaeological Expedition to the Southwest. The width is about fifteen feet, the depth about six feet. The hole in the foreground was a firepit used by the prehistoric Basket Maker Indians who lived here some 1,300 years ago. In the rear is a tunnel which was used both as a ventilator and an entrance to the subterranean structure.

Simultaneously with the studies conducted on the fossil specimens, detailed anatomical studies have been proceeding at Field Museum on the modern species, as a result of the death a few months ago of Su-Lin, and the presentation by the Brookfield Zoo of her remains to Field Museum. Su-Lin was the first complete specimen to reach scientists for dissection and thorough anatomical study. This task is still in progress, and is being conducted by Mr. D. Dwight Davis, Assistant Curator of Anatomy and Osteology, and his associates.

## Expedition in Far Northwest

An expedition to collect semi-precious quartz, agate, chalcedony and similar minerals is working in Oregon and Washington for Field Museum. Dr. A. J. Walcott, a Chicago geologist at present attached to the Museum's Department of Geology under a special arrangement, is in charge of collecting. Dr. H. C. Dake, editor of a mineralogical magazine published at Portland, Oregon, is co-operating with the expedition.

## EXPEDITION TO SOUTHWEST FINDS ANOTHER PREHISTORIC VILLAGE

By CARL LLOYD

Staff Assistant, Field Museum Archaeological Expedition to the Southwest

This is a season of "firsts." In August the Field Museum Archaeological Expedition excavated the largest kiva or circular, ceremonial structure known in the Southwest—83 feet in diameter. Last month the expedition uncovered the largest Basket-

Maker site yet reported for Colorado. The extreme length of this new "dig" is more than 500 feet, and the width about 300 feet. Evidence of extreme antiquity is being uncovered daily in the slab-lined above-ground granaries, in the pit-houses of all-earth construction, and in the living quarters which had walls built of posts.

Surface indications of the site were so meager that an untrained person could walk over this wooded area without knowing that under his feet there had been a village formerly occupied by hundreds of Indians. The rains and snows of thirteen hundred winters and summers had toppled over the one story surface buildings, rotted the post-wall houses, and filled up the subterranean quarters (pit-houses) with dirt. Then a forest grew up on and in the ruin, completely covering it.

Although the village is estimated to have been occupied about A.D. 600, an accurate date will not be known until dendrochronologists (tree-ring experts) have analyzed the ancient roof logs which have been re-covered and made comparisons with a master chart.

To discover and uncover both the post-wall houses and pit-houses, the most painstaking technique and excavating experience are required. All that remains of these ancient post-wall houses is a series of holes where the posts once were set, and a dirt floor of a different color and hardness from the fill above.

The pit-houses have dirt floors and walls and are filled with wind-blown soil. Yet even after 1,300 years, this wind-blown fill is not annealed to the ancient walls, and patient troweling delineates the angular periphery.

The expedition, under the leadership of Dr. Paul S. Martin, Chief Curator of the Department of Anthropology, is sponsored by Mr. Stanley Field, President of the Museum.

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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 5 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.

## TEACHERS PRAISE ACTIVITY OF HARRIS SCHOOL EXTENSION

By JOHN R. MILLAR

Curator, N. W. Harris Public School Extension

With the recent opening of the Chicago public schools, the N. W. Harris Public School Extension of Field Museum began its twenty-fifth year of regular distribution of natural history and economic exhibits. The organization of the Extension itself now approaches its twenty-sixth anniversary.



Science In Schools Aided by Museum

Pupils of the Spaulding School for Crippled Children inspect exhibit illustrating the growing and processing of tea. The N. W. Harris Public School Extension of Field Museum circulates hundreds of similar exhibits.

During the past summer and early fall numerous letters of appreciation have been sent to the Museum. From these, as well as

the oral statements of principals and teachers, it is possible to obtain an idea of the usefulness of the loan exhibits to the schools. On the one hand there are schools in congested areas where Harris Extension habitat exhibits introduce aspects of nature not to be seen in the neighborhood. On the other hand are schools in outlying residential areas where teachers find it difficult to give their pupils any conception of industry except through the economic exhibits furnished by the Museum. This statement may sound overdrawn until one realizes the almost unbelievable truth that many children reach junior high school age without having either the opportunity or initiative to visit a public park just a few miles from home, or to come into contact with phases of the workaday world upon which most must notwithstanding rely for their bread and butter.

Quoting from various letters, it is found that the Harris Extension exhibits "correlated splendidly with the science course," "have been used as a means of stimulating interest in nature study," "bring to the students information, ideas, and pictures not to be found in books," and "help the teacher in illustrating work along with the textbooks." One teacher writes: "This is one of the best services that the schools can receive," and another states that "Field Museum, through the agency of the Harris Extension, is rendering a genuine service to education."

Gratifying as it is to receive such eulogies, Museum authorities are aware of greater possibilities for the school extension service, and believe that developments in the future will further improve this function of the Museum.

### MUSEUM PUBLISHES PAMPHLET ON ITS WORK IN SCHOOLS

*Field Museum and Group Education*, a 48-page pamphlet illustrated with 12 colotype plates, was issued in September by Field Museum Press for the use of school officials, principals, and teachers. It outlines the work carried on by Field Museum of Natural History among school children through the N. W. Harris Public School Extension and the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. The Harris Extension was founded in 1912 by the late Norman Wait Harris, who provided a generous endowment, to which large additions have since been made by Mr. Albert W. Harris and other members of the Harris family. The Raymond Foundation was established in 1925 by Mrs. James Nelson Raymond who endowed it munificently and has continued making contributions to its support ever since.

For the benefit of teachers desiring to derive the utmost value from these Museum services, the booklet contains a classified catalog of the traveling exhibits according to the various sciences and their subdivisions, as prepared by Mr. John R. Millar, Curator of the Harris Extension; and a comprehensive table correlating Museum exhibits with the studies prescribed in the public school curriculum for each elementary grade and also for the high schools, as worked out by Miss Margaret M. Cornell, Chief of the Raymond Foundation, in collaboration with school officials.

The heads of educational institutions may have copies of the pamphlet on request to the Director of the Museum.

### Staff Notes

Dr. C. E. Hellmayr, Associate Curator of Birds, who for some years has been in Vienna where he has been working on the preparation of the large and important Field Museum publication, *Catalogue of Birds of the Americas*, is now located in London.

Dr. Francis Drouet has been appointed to the curatorial staff of the Department of Botany. He assumed his duties on September 1. Dr. Drouet will have charge of the large collections of cryptogamic plants in the Department of Botany. He is a graduate of the University of Missouri, and was formerly connected with the Osborn Botanical Laboratory of Yale University and the Marine Biological Laboratory in Woods Hole, Massachusetts. He also was engaged for a time in special research to which he was commissioned by the Brazilian government.

Mr. Paul McGrew has been appointed Assistant in Paleontology in the Department of Geology. Mr. McGrew, an alumnus of the University of Nebraska, who has specialized in paleontology as a post-graduate student at the Universities of California and Chicago, will work on the preparation of prehistoric animal specimens in the Museum laboratories, and will also conduct research in this field.

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, has returned from a collecting trip during which a botanical survey was made of the flora of the St. Francis River in Wayne County, Missouri. The purpose was the rescuing of valuable plant records which would be lost when the region is flooded by the Wappapello Dam.

## BOTANICAL EXPEDITION RETURNS FROM BAY OF FUNDY

Bringing three 35-gallon barrels filled with about 800 pounds of specimens representing the inter-tidal vegetation of the Bay of Fundy, for use in a proposed exhibit of marine plant life, Mr. John R. Millar, leader of the Sewell Avery Botanical Expedition to Nova Scotia, returned to his post at Field Museum last month.

Mr. Millar has been exploring the shores of the Bay of Fundy, collecting the material, and making photographs and color notes for guidance in the construction of the projected ecological group, since the middle of July. The principal scene of operations was in the vicinity of Sandy Cove, about twenty miles south of Digby on the rocky narrow peninsula between the Bay of Fundy and St. Mary's Bay. Surveys were also made in New Brunswick, and on the United States side of the Bay of Fundy.

The Bay of Fundy offered exceptional collecting conditions for the gathering of kelps and other marine plants because of its extreme tidal conditions, the difference between high and low water levels reaching as much as fifty feet at the head of the bay. Mr. Millar was given valuable assistance and co-operation by Nova Scotian government officials and scientists of the Provincial Museum at Halifax.

The various types of seaweed collected have been preserved in formaldehyde preliminary to further treatment for their use in the Museum exhibit. Additional material for use in the group will be prepared in the Plant Reproduction Laboratories of the Department of Botany.

## A STAY-AT-HOME TOUR OF ASIA IN NEW MUSEUM HALL

By C. MARTIN WILBUR

Curator of Chinese Archaeology and Ethnology

A fascinating journey of exploration through Asia, such as many dream of but few can take, awaits those who enter the new Hall of Asiatic Ethnology (Hall L), opened to the public last month. The exhibits include objects no longer to be found in their places of origin. They were prepared by Dr. Albert B. Lewis, of the Department of Anthropology staff.

Begin the tour with India. In this land of many peoples and diverse customs, civilization was already old in the time of Alexander the Great. In an inset case are displayed early Indian sculptures which veritably reflect Alexander's conquest in 328-326 B.C.

Material from more recent times in India fills nearly half the hall. Boys should delight in the collection of weapons and armor, by no means primitive, including swords of fine steel, daggers, spears, and battle axes, as well as enormous rhinoceros hide or metal shields and spiked steel helmets. Indian textiles will please women visitors: rich brocaded silks, dyed or woven in many colors, for shawls and other feminine apparel. There are turbans worn by men of various Indian regions, castes or occupations, and the male visitor, be he street sweeper or banker, may find the hat he would wear if he lived in India. Collections of curious musical instruments, ornamental brasses beautifully engraved or inlaid and incrustured with silver, and carved wooden architectural ornaments, will hold the attention of those interested in the arts.

Off the tip of India lies Ceylon. The culture of this island has many unique

features. Exhibited are elaborately carved Singhalese masks used in dances for exorcising demons, and others of kings, queens and heroes used in semi-historical plays. Models of boats and carts from India, Ceylon, Burma and Siam show types now crowded out by more efficient but less picturesque methods of transportation.

Far off the usual tourist route is a side trip to the Andaman and Nicobar Islands, in the Bay of Bengal, where dwell two nearly extinct groups of primitive peoples. Their weapons and fishing equipment, together with curious ornaments and ugly wooden "scare devils" used to frighten away "evil spirits," fill one section of the hall.

Burma and Siam constitute a region with curious contrasts between the primitive cultures of their back country areas, and the advanced cultures of the cities. Two large Siamese shadow figures, mounted on glass and illuminated from behind, show them as they would appear to the spectator at a shadow play. Certain Siamese pottery on display is of a type now rarely found.

The traveler now goes northward, and arrives at Korea, which is closely linked in culture to China (amply represented in other Museum halls). Besides tools, household objects, and personal ornaments of every sort, there is an attractive display of Korean clothing, of both commonplace and elaborate types. Several cases contain wedding and mourning clothes, and some of the finest examples preserved anywhere of the strictly regulated ceremonial costumes and armor of the old Korean court. The Koreans are the great archers of eastern Asia—therefore an interesting part of the exhibit shows their archery equipment.

North of Korea, beyond Manchuria, is eastern Siberia, whose indigenous tribes lived by hunting, fishing, or herding. Their clothing, made from fishskin, leather or fur, often highly decorated, reflects their economy, as do their simple tools and weapons.

Those mysterious folk, the Ainu, who live in the island of Yezo (Hokkaido) in northern Japan, are the last people to be visited. In ancient times they dwelt over most of the islands of Japan, but were slowly driven northward by the relentless advance of the Japanese. Now they are a mere remnant of a once vigorous race of hunters and fishers. Formerly their strangely ornamented clothing was made of elm bark, fishskin, or in winter of fur and skin; now they most often wear clothing made from Japanese cotton. Their household objects, weapons, and clothing, all are decorated in a geometric art.

Among those who appear as donors of gift material in the collections in this hall are: the late Martin A. Ryerson, the late H. N. Higinbotham, Mrs. Douglas Smith, Mrs. James W. Scott, Mr. Richard Matteson, Mr. Robert H. Baker, Mr. F. P. Bhumgara, Mr. Theodore A. Shaw, Mr. Frederick R. Babcock, Mr. Robert H. Fleming, Mrs. James Horton, Mr. Gustavus Goward, Mr. C. Suydam Cutting, Mr. Paul J. Rupprecht, Mr. E. B. Grossman, Miss Caroline Wicker, the late Edward E. Ayer, Miss Katherine Reed, the Maharaja Gaekwar of Baroda, Mr. Homer E. Sargent, the late Cyrus H. McCormick, the late Arthur B. Jones, the late William Wrigley, Jr., the Maharaja of Jaipur, Mr. T. H. Pandian, Mrs. L. N. Kneeland, the late Mrs. Elizabeth Dunlap Christie, and Mr. E. D. Hester.

Three Etruscan painted sarcophagi from about 500 B.C. form a noteworthy exhibit in Edward E. and Emma B. Ayer Hall.

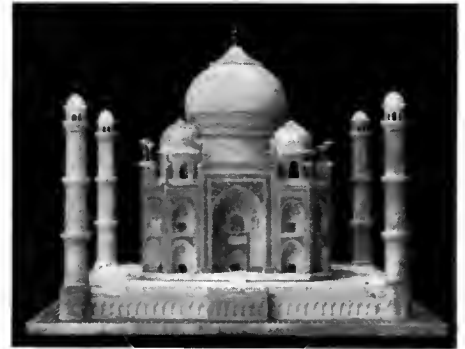
## THINGS YOU MAY HAVE MISSED

### Model of the Taj Mahal

An alabaster model of the famous Taj Mahal, which exquisitely reproduces in miniature every important detail of that beautiful structure at Agra, India, is now installed among the exhibits in a new Oriental hall (Hall L) opened last month.

The model, in addition to giving an accurate impression of the appearance of the white marble mausoleum, is itself an interesting example of the native art of the country. The alabaster has been skillfully carved to represent this architectural gem of India, with its magnificent dome, and tall intricately fashioned minarets at each of the four corners of the temple's terrace faithfully reproduced. The strikingly executed white marble trellis-work screens of the original, which admit light into the central apartment, have been reproduced with painstaking exactness in the model.

The building of the Taj Mahal was begun in 1632 and finished in 1653, at the order of the Emperor Shah Jahan, to honor the memory of his wife, the Empress Arjumand Banu Bogam. The first word of her title "Mumtaz Mahal" (the Chosen One of the



### India's Architectural Gem

Model of the Taj Mahal, carved in alabaster by a sculptor of the region near Agra where the original mausoleum stands. The miniature reproduces with delicate accuracy the intricate details of the building. On exhibition in Hall L of the Museum.

Palace) has been corrupted into "Taj," thus giving the mausoleum the name Taj Mahal. The structure cost nearly \$23,000,000, and 20,000 men worked daily for 22 years in erecting it. The spandrels, angles, and architectural details are inlaid with agates, bloodstones, jaspers and other semi-precious gems. The temple is 186 feet square; its dome reaches 191 feet in height.

The Museum's model of the Taj Mahal is a gift from Mr. Sidney Weiss, of Chicago.

## YOU SHOULD READ—

*Pheasants, Their Lives and Homes*, by William Beebe, Director of Tropical Research, New York Zoological Society.

"A magnificent edition of Beebe's famous Monograph of the Pheasants, the most authoritative work ever produced on this important, colorful and fascinating family of birds," says Rudderford Boulton, Curator of Birds at Field Museum. Profusely illustrated with half-tones, and thirty plates in color by Fuertes, Lodge, Thorburn, and other artists. More than 600 pages of text.

At the MUSEUM BOOK SHOP: \$3.50.

### RIBBON AND BEARDED SEALS PRESENTED TO MUSEUM

Two excellent specimens of ribbon seal, and four of bearded seal, collected in the Cape Prince of Wales region in northern Alaska, have been presented to Field Museum by Mr. Carl Dreytzer, of Chicago. Mr. Dreytzer has also presented semi-fossilized skulls of a musk-ox and an extinct horse.

The ribbon seals are striking in appearance because of their extraordinary color pattern consisting of blackish gray banded with a ring of white. They are veritable harlequins of the sea, and it is planned to use the specimens in a habitat group.

The bearded seals are known to the Eskimos as "oogruks," and zoologists designate them by the scientific name *Erignathus barbatus*. They are notable for their long stiff whiskers. Included in Mr. Dreytzer's gift are an adult male nine feet long, an eight-foot female, a yearling, and a cub of the 1938 breeding season.

### THIS MONTH AT FIELD MUSEUM A Special Event Every Day

During October Field Museum is offering for its Members and the general public a variety of free illustrated lectures, daily guide-lecture tours, and special Sunday tours conducted by the Layman Lecturer, Mr. Paul G. Dallwig. There will also be a series of free motion picture entertainments for children on Saturday mornings, presented by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

The Raymond Foundation programs, and the Saturday lectures for adults, will be given in the James Simpson Theatre. Children's programs begin at 10 and 11 A.M.; lectures for adults at 2:30 P.M. The regular guide-lecture tours, given daily except Saturday and Sunday, begin at 3 P.M., and the Sunday lecture tours at 2 P.M. For the Sunday tours, which are limited to adults, it is necessary to make reservations in advance by mail or telephone (Wabash 9410). Participants in both the daily and Sunday tours assemble with lecturers at North Entrance.

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.

No tickets are necessary for admission to the Saturday lectures for adults. 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 2:30 P.M. on the day of the lecture. All reserved seats not claimed by 2:30 P.M. will be available to the general public.

Following is a chronologically arranged table showing the special events scheduled for each day of the month:

#### Saturday, October 1—

—10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "The China Plate" (Disney color cartoon), "Water Boy," "The Isle of Desire" including "Enchanting Tahiti," "Manea Battles an Octopus," and "Walking upon Hot Stones."

—2:30 P.M.—Lecture for adults (Simpson Theatre) "A Winter in Oaxaca"—Dr. W. H. Camp, of the New York Botanical Garden.

Sunday, October 2—2 P.M.—Layman Lecture Tour—"Digging Up the Caveman's Past"—Paul G. Dallwig.

Week beginning October 3—Guide-lecture tours, 3 P.M.:  
Monday—"Fish, Amphibians and Reptiles."  
Tuesday—"Life in the Far North."

### Paleontologist Returns from Europe

Mr. Bryan Patterson, Assistant Curator of Paleontology, has returned to the Museum from a study trip in Europe. He spent the month of July at the Laboratoire de Paléontologie, Muséum National d'Histoire Naturelle, Paris, studying the collection of fossil mammals from the early Tertiary of Patagonia. During August he was at the British Museum (Natural History) in London working on the Ameghino collection of fossil birds from Patagonia. Upon returning to this country, Mr. Patterson spent ten days in study at the American Museum of Natural History, New York, and at Princeton University. The results of the summer's work will greatly facilitate research on the Museum's extensive paleontological collection from South America. The trip was made possible by a grant-in-aid awarded by the American Association of Museums from a fund provided by the Carnegie Corporation of New York. The institutions visited extended the utmost co-operation.

Wednesday—"Looma and Textiles."

Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.

Friday—"Food Plants America Has Given the World."

#### Saturday, October 8—

—10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "An Alpine Shepherd Lad," "The Story of the Geysers," "The Throne of the Gods."

—2:30 P.M.—Lecture for adults (Simpson Theatre) "Around Again in the Yankee"—Captain Irving Johnson, of Springfield, Massachusetts.

Sunday, October 9—2 P.M.—Layman Lecture Tour—"Digging Up the Caveman's Past"—Paul G. Dallwig.

Week beginning October 10—Guide-lecture tours, 3 P.M.:

Monday—"Cultures of the South Seas."

Tuesday—"The Story of Coal."

Wednesday—"Rare and Unusual Birds."

Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.

Friday—"American Archaeology."

#### Saturday, October 15—

—10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "Jenny Wren and Her Neighbors," and "Columbus and His Son."

—2:30 P.M.—Lecture for adults (Simpson Theatre) "Jacklighting Wild Animals for the Movies"—Howard Cleaves, of Staten Island, New York.

Sunday, October 16—2 P.M.—Layman Lecture Tour—"Digging Up the Caveman's Past"—Paul G. Dallwig.

Week beginning October 17—Guide-lecture tours, 3 P.M.:

Monday—"Geology Halls."

Tuesday—"Strange Members of the Plant Family."

Wednesday—"Skeletons, Past and Present."

Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.

Friday—"Indians of the Northwest Coast."

#### Saturday, October 22—

—10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "Nature's Bugaboo," "Pirates of the Deep," "A Siamese Journey," "The Stork Family from Poland," and "The Seventh Wonder."

—2:30 P.M.—Lecture for adults (Simpson Theatre) "Our Stone-Pelted Planet"—Dr. H. H. Nininger, of Denver, Colorado.

Sunday, October 23—2 P.M.—Layman Lecture Tour—"Digging Up the Caveman's Past"—Paul G. Dallwig.

Week beginning October 24—Guide-lecture tours, 3 P.M.:

Monday—"Races of Mankind."

Tuesday—"Trees and Their Uses."

Wednesday—"Valuable Fur-bearers."

Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.

Friday—"Ancient Burials."

#### Saturday, October 29—

—10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "Arctic Antics," (Disney Cartoon), "Work Dogs of the North," "A Young Explorer," "Ikpuq, the Igloo Dweller," and "Gathering Moss."

—2:30 P.M.—Lecture for adults (Simpson Theatre) "Birds and Animals of the Far North"—Commander Donald MacMillan, of Provincetown, Massachusetts.

Sunday, October 30—2 P.M.—Layman Lecture Tour—"Digging Up the Caveman's Past"—Paul G. Dallwig.

Monday, October 31—Guide-lecture tour, 3 P.M.: "The Horse and Its Relatives."

### TWO CONTRIBUTORS ELECTED

Mrs. Leslie Wheeler, of Lake Forest, Illinois, and Mr. Sewell Avery, of Evanston, Illinois, were elected as Contributors (the membership classification designating those who have contributed \$1,000 to \$100,000 to the Museum in money or materials) at a meeting of the Board of Trustees held September 19.

Mrs. Wheeler has generously contributed sums for the support and expansion of the Museum's collection of birds of prey which was built up by her late husband. Mr. Wheeler was a Trustee of the institution, and Research Associate in Ornithology on the Museum staff.

Mr. Avery has furnished funds for the carrying on of four important expeditions operating during the current year: a zoological expedition to British Guiana, botanical expeditions to the Bay of Fundy and to Guatemala, and a geological expedition making collections both in western and eastern sections of the United States.

### NEW MEMBERS

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

#### Associate Members

George Clinch Melcher, Rev. Peter H. Pyterek

#### Annual Members

Dr. A. F. Bokman, E. C. Christensen, Mrs. C. H. Dehning, Carl Dreytzer, Alfred E. Ellia, E. A. Eulass, Joseph M. Hammerman, Max E. Immerwahr, Isidor Lang, Mrs. John T. McGreer, Robert W. McKisson, H. B. Meyer, John C. Murphy, John H. Riley, Dr. Otto Schwartz, Mrs. Merle J. Trees.

### Gifts to the Museum

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

From Dr. Fritz Haas—a bow and 14 arrows of the Vachokwe tribe, West Africa; from Dr. Earl E. Sherff—123 herbarium specimens, Hawaii; from Centro Nacional de Agricultura—61 herbarium specimens, Costa Rica; from Jardim Botânico—105 herbarium specimens, Brazil; from Professor Manuel Valerio—28 herbarium specimens, Costa Rica; from Professor Bernardo Rosengurt—35 herbarium specimens, Uruguay; from Miss Neva Palmer—40 herbarium specimens, New Mexico; from Dr. César Vargas C.—111 herbarium specimens, Peru; from Dr. August Ginzberger—344 herbarium specimens, Amazonian Brazil; from Felix Woytkowski—59 herbarium specimens, Peru; from Dr. Henry Field—2 specimens of beach sand, Denmark; from J. O. Shead—9 specimens barite roses, Oklahoma; from Professor L. A. Higley—12 siderite concretions, South Dakota; from S. M. Snyder—a petroleum geode, Illinois; from Al Pfueger—5 mud turtles, Florida; from Gordon Grant—9 specimens of California killy-fish; from David C. Smiley—6 beetles, India; from University of Miami—2 freshwater turtles, Bahama Islands; from R. W. Buxton—15 frogs, lizards, and snakes, New Mexico; from Albert A. Enzenbacher—6 turtles and 43 snakes; from Arthur S. Lees—5 beetles; from Carl Dreytzer—2 bearded seal skins, and a semi-fossilized skull of musk-ox, Alaska; from Colonel Warren R. Roberts—an excellent mounted specimen of white marlin, Miami; from J. W. Hedge—4 beetles; from R. S. Sturgia—31 mammals, Wyoming; from Chicago Zoological Society—8 mammals and 4 birds; from Kenneth Bonk—a juvenile milk snake; from Robert Burton—a beetle necklace, Brazil; and valuable books for the Library from H. D. Tjenck Willink, Dr. Fritz Haas, Carnegie Corporation of New York, and Karl P. Schmidt.

### Distinguished Visitors

Among recent distinguished visitors received at Field Museum were Dr. Carl G. Alm, of the Botanical Garden of the University of Upsala, Sweden; Dr. Francis W. Pennell, of the Philadelphia Academy of Natural Sciences, and Miss Camilla Best, Director of Visual Aids, New Orleans, Louisiana.

The principal vegetable foods of New World origin are represented in an exhibit in Hall 25.



# Field Museum News

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## NARWHALS, SMALL WHALES ARMED WITH SPEARS, ARE SHOWN IN NEW EXHIBIT

By WILFRED H. OSGOOD

Chief Curator, Department of Zoology

One of the most unusual "groups" ever to be made as a museum exhibit has just been opened in the Hall of Marine Mammals (Hall N). This is no less than a group of whales—small whales to be sure, but nevertheless whales in the broad sense of the term. It is, so far as known, the first habitat group of whales to be shown in any museum.

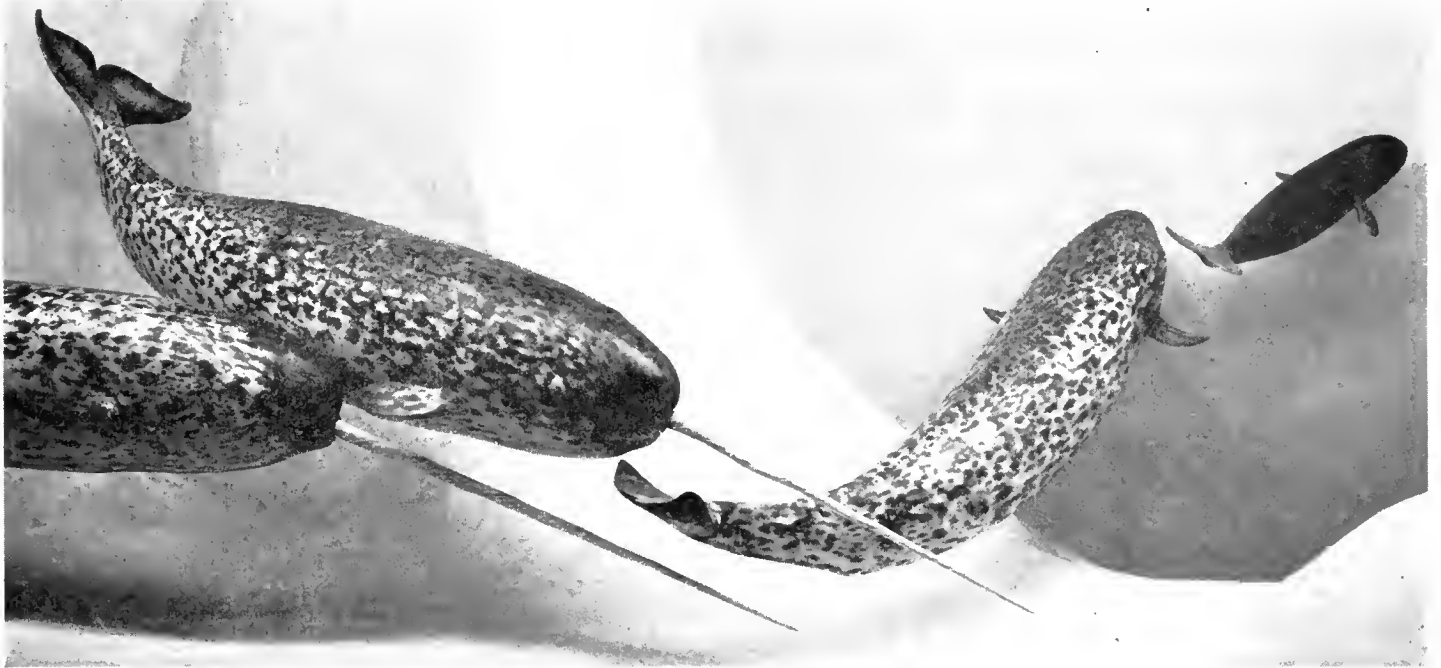
A few years ago Captain Robert A. Bartlett, the well-known Arctic explorer, was commissioned to obtain for the Museum

caught, the original specimen weighed about 2,200 pounds.

The narwhal is rather closely related to the beluga or white whale, but differs from this and all other whales and dolphins in its long rapier-like tusk. This tusk, which is an elongated tooth, is developed only in the male and appears to be no more than a distinctive mark of sex rather than an organ of defense or offense. Despite its threatening appearance, the narwhal is reported to be a very inoffensive animal. It has never been known to attack a boat as the sword-

breathe. At times it is trapped in shallow bays where deep ice prevents its return to wider seas, and then it is easily captured in large numbers by natives who use it for food and many other purposes.

Although most other whales and dolphins are plain in color, the narwhal is marbled or mottled with grayish or brownish on a creamy background. There is much variation, and very aged individuals may be almost entirely white. The narwhal feeds on soft-bodied marine life, and some fishes, including even those as large as halibut.



Narwhals—A Small Species of Whale

New habitat group added to the Hall of Marine Mammals. The animals are reproduced in cellulose-acetate, in conformity with original specimens and data collected by an expedition led by Captain Robert A. Bartlett, noted Arctic explorer. The group was prepared by Staff Taxidermist Leon L. Walters, inventor of the process used in making the reproductions, and Assistant Taxidermist E. G. Laybourne. The background, representing the submerged part of an iceberg, was painted by Staff Artist Arthur G. Rueckert.

specimens of the peculiar cetacean known as the narwhal. These he found in Inglefield Gulf, North Greenland. Skins of males with tusks, females without tusks, and young, were preserved, and photographs, measurements, and careful notes were taken by Dr. Soutter, a member of the party. Owing to the delicate structure of the skins it was not possible to use them in preserved form for the exhibit, but they served as an accurate and reliable basis for life-size models in cellulose-acetate which were prepared by Staff Taxidermist Leon L. Walters assisted by Mr. Edgar G. Laybourne. These have been arranged as a group with a background, painted by Staff Artist Arthur G. Rueckert, which represents the submerged base of an iceberg, a typical habitat of the species. Four animals are shown: two males, a female, and a newly-born young. The largest has a body fifteen feet long, and a tusk seven feet long. When

fish does, and animals wounded or killed by its spear are never found. Normally only one tusk, on the left side, is evident, while a second remains in rudimentary condition on the other side. Occasionally both are developed to nearly or quite the same length. Tusks six to eight feet long are not uncommon. They are spirally twisted, hollow almost to the tip, and very brittle, so the ivory has but little value commercially.

What is known of the habits of this animal must be gleaned from the reports of whalers and Arctic explorers or from the accounts given by natives. Few naturalists ever have seen it, and careful observations are scanty. It is confined to icy northern seas, and only in rare instances has it wandered as far south as the British Isles. It goes in small schools numbering up to twenty or more. Being a warm-blooded animal, it must come to the surface to

These it crushes with its tough jaws and swallows without mastication, since it has no functional teeth.

The cellulose-acetate process used in preparing this group has been applied in the past to the preparation of exhibits of reptiles, and to large mammals such as the hippopotamus and rhinoceros. For hairless or nearly hairless creatures of these kinds, the Walters process, Museum authorities are agreed, produces more satisfactory, and actually "more natural" results than are obtainable from mounting the real skins, because the latter do not retain their color, and their texture is susceptible to changes not encountered in mounting the skins of other kinds of animals. In some cases, the Walters process is used in preparing hairless parts of otherwise hairy animals—for example, the faces of monkeys—for use with the original skin of the body which is then mounted by the more conventional methods.

## Field Museum of Natural History

Founded by Marshall Field, 1893  
Roosevelt Road and Field Drive, 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.

## QUARTZ VARIETIES COLLECTED IN PACIFIC NORTHWEST

By ALBERT J. WALCOTT

A Field Museum expedition to Oregon, Washington and Wyoming was recently conducted by the writer to collect varieties of cryptocrystalline quartz. Specimens obtained will be used for a proposed exhibit devoted especially to this mineral, which was formed in volcanic rock formations of comparatively recent geological age. Various types were originally formed in rhyolite, basalt and volcanic ash, over which there is a series of lava flows.

In the rhyolite formation is found a unique occurrence of agate known locally as "thunder eggs." These are roughly spherical nodules varying in size from one inch to one foot in diameter. They have a compact hard wall of very fine grained material, highly silicified. An irregularly shaped hollow space inside is filled with chalcedony which forms different types of beautiful agates. As the exposed rock of the many relief structures crumbles away the nodules are released. Some lie on the surface, and some are covered to a depth of several feet, on the sage covered plains.

Agates of another kind, and geodes, originally formed in basalt, are also found closely associated with thunder eggs. Some of these include plume-like designs in deep brilliant reds, yellows, and greens. Such agates are known as plume agates, flower agates and moss agates. The color effects are due to the presence of iron compounds.

On this expedition Field Museum secured more than 300 specimens of high quality. Among them are: thunder eggs, red, green and yellow jaspers, chalcedony, chalcedony wood, jasper wood, opal wood, silicified teredo bored wood, silicified termite bored wood, silicified volcanic ash, plume agates, fluorescent chalcedony, opal containing cinabar, silicified algae, and black chalcedony. Also collected were a large piece of petrified log of beautiful red jasper, a log cast consisting of an outer band of fine blue chalcedony with a core of rock crystal quartz, and a large geode, about 160 pounds, lined with excellent quartz crystals.

Field Museum was fortunate in having the co-operation of Dr. H. C. Duke, editor of *The Mineralogist*, Portland, Oregon. Many other mineralogists rendered valuable assistance to the expedition.

## RAYMOND FOUNDATION AIDS SCHOOL RADIO PROGRAM

By MARGARET M. CORNELL

Chief, James Nelson and Anna Louise Raymond Foundation

The James Nelson and Anna Louise Raymond Foundation of Field Museum is again co-operating with the Public School Broadcasting Council in presenting a series of science broadcasts. On October 4 at 1:30 o'clock, over station WJJD, a group of boys and several adults presented a sketch based on a visit to Field Museum and the bird sanctuary in Lincoln Park. This was supplemented on October 6 by a followup program at the Museum. Boys and girls, chosen to represent their respective schools, met at 11 A.M. and again at 2 P.M. in the Lecture Hall where an informal talk, "Birches," was given by a member of the Raymond Foundation staff. An exhibit of birch bark objects made by various tribes of Indians and Eskimos was so placed that the group could handle and observe each closely.

Questions were asked, and an unusually clear idea was obtained of what an upper grade child will do when he has actual ob-

jects for investigation before him. The items of greatest interest appeared to be the canoe and wigwam models, a mask, a Chippewa woman's work-bag trimmed with porcupine quills, and a bark sheath holding a knife carrying five notches at the base of the blade.

After the meeting in the Lecture Hall the group was taken to exhibition halls in which the uses of the birch tree are illustrated.

## MUSEUM GEOLOGIST ASSEMBLES NOTABLE COLLECTION

As a result of a series of expeditions during the past few years, the last of which was concluded with the return in October of Mr. Sharat K. Roy, Curator of Geology, Field Museum now possesses what is probably the most comprehensive of all collections in America illustrating phenomena embraced in the subject of physical geology.

Since June, Mr. Roy, as leader of the Sewell Avery Geological Expedition, has been collecting rocks illustrating the work of various dynamic agents, and specimens illustrating structural features of the outer part of the earth. In addition, he collected an excellent representation of semi-precious minerals such as beryl, jasper, garnet, epidote, and tourmaline. The fields worked included the mountains of Colorado and South Dakota, and various localities in New York State and New England. Mr. Roy was in the Cape Cod region during the recent disastrous hurricane, but escaped without injury to himself or damage to the collections.

### Distinguished Visitors

Among recent distinguished visitors received at Field Museum were Mr. V. F. Fisher, ethnologist at Auckland Museum, Auckland, New Zealand; Dr. Paul Wallace Gregory of the College of Agriculture, University of California; Dr. Walter Granger, of the American Museum of Natural History, New York; Mr. Alvin Seale, Director of Steinhart Aquarium, San Francisco, and Mr. Charles E. Jackson, Acting Commissioner, Bureau of Fisheries, Washington, D. C.

### Gifts to the Museum

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

From Abbé Henri Breuil—13 negatives of views at Cap Blanc, Dordogne, France; from Irving Knobloch—98 herbarium specimens, Mexico; from Dr. Earl E. Sherff—11 herbarium specimens, Hawaii, and 133 negatives of type specimens of plants; from Rev. Brother H. Daniel—75 herbarium specimens, Colombia; from Miss Ruth Patrick, Miss Joan Bader, Dr. Fred A. Barkley, and Harold C. Bold—specimens of algae; from Centro Nacional de Agricultura—59 herbarium specimens, Costa Rica; from William E. Menzel—4 specimens pyrite concretions and a specimen of chalcedony concretion, Kansas and Wyoming; from Professor L. A. Higley—9 colored lantern slides and six photographs; from William B. Hilton and G. Bradley Harris—66 fossil plants, Colorado; from Miss Bertha Gordon—one specimen of gillespites and 4 volcanic splatter bombs, California; from University of Chicago—8,424 fishes, 11 lots of invertebrates, and 5 mammals; from Dr. Hurst Shoemaker—248 fishes and 14 lots of invertebrates; from Stanley Field—a ruby-throated hummingbird, Illinois; from Chicago Zoological Society—a giant eel, a Cook's boa, and a paca; from Lincoln Park Zoo—a guereza monkey and a Javanese water snake; from Dr. Henry Field—19 toads, newts, and snakes, and 3 geological specimens, England, Norway, and Sweden; from Clark W. Walter—12 minerals, 3 fossils, and 1,200 shells; from Dr. B. H. Hawkins—a western diamond-back rattlesnake, Arkansas; from J. M. Orozco—6 fly larvae, Costa Rica; from Philip Clark—4 snakes, Malaysia; from R. A. Schneider—a turtle and a snake, Illinois; from C. M. Barber—4 snakes, 3 frogs, and a turtle, Arkansas; from Dr. Wolfgang Arnschler—543 beetles, Austria; from Dr. and Mrs. Paul Rudnick—2 pin rattle snakes, Texas; from Eugene G. Falck—2 specimens of polygyra, Indiana; from Miss Jean Nielsen—a juvenile blue racer; from Miss Claire Nemec—a crayfish, Illinois; and valuable books for the Library from Colonel Theodore Roosevelt, Karl P. Schmidt, Dr. Francis Drouet, and Dr. D. E. W. Lazell.

## THE HORNED CROCODILE OF WESTERN COLORADO

BY KARL P. SCHMIDT

Curator of Amphibians and Reptiles

A considerable number of triangular pieces of fossil bone of singular shape were brought from western Colorado by the Paleontological Expedition of Field Museum in 1937. The party consisted of Curator Elmer S. Riggs, Assistant Curator Bryan Patterson, Mr. James H. Quinn, of the Division of Paleontology, and Mr. Theodore Burdosh as volunteer assistant. On the return of the party to the Museum, Mr. Patterson and I discussed the fragments at some length, but could arrive at no conclusion beyond the certainty that they belonged to some unknown type of crocodile or alligator.

Fortunately, a knob of bone projecting from an otherwise undistinguished piece of rock had caught the eye of Mr. Burdosh, and the block had been brought to the Museum. When the rock was chipped away, the insignificant external lump proved to belong to a fairly complete skull of a fossil crocodylian allied to the alligators; and on one posterior corner it bore a triangular horn-like knob which proved to be identical with the mysterious separate fragments.

This development of "horns," while frequent in fossil reptiles of various types, was unknown in the crocodile group. The new skull consequently becomes the type of a new genus of crocodylians, named, in a recent

Museum publication, *Ceratosuchus burdoshi*. The new form is directly allied to an extinct form with the formidable name *Allognathosuchus*.

Another nearly complete skull obtained by the same party proved also to represent an undescribed form, and is now known as *Leidyosuchus riggsi*; it is a relative of the true crocodiles.

From these and other fossil forms of crocodylians we may hope for a more than usually complete understanding of the history and evolution of this group of reptiles in the future.

The skull of the horned crocodile is now on exhibition in Ernest R. Graham Hall



Crocodylian With Horns

An artist's conception, based on fossil skull, of the appearance in life of a form of extinct reptile, new to science, which was discovered by Field Museum Paleontological Expedition to Colorado.

(Hall 38), together with a restoration of the head as it is believed to have appeared in life. This restoration, made by Mr. Albert A. Enzenbacher, is reproduced in the accompanying illustration.

## AMAZON PLANTS COLLECTED BY CURATOR DAHLGREN

Dr. B. E. Dahlgren, Chief Curator of the Department of Botany, returned in October from a journey to Pará, Brazil, and the lower Amazon, undertaken especially to obtain material and photographs needed for one of the ecological groups in preparation for the Hall of Plant Life. This is to be an aquatic scene showing the largest of all fresh water plants, the Victoria regia.

This well-known water lily has, since its discovery in 1801, been grown in the principal botanical gardens of the world, as well as many public and private garden pools and conservatories. It is already represented in the Museum, but the new group will show its natural association with other aquatic plants in its native habitat. The Victoria regia is widely scattered over the inland river systems of South America, but by far the largest number of records of its occurrence are from the region of the middle Amazon, especially western Pará.

From Santarem in Pará Dr. Dahlgren went by launch to the new Ford rubber plantation at Bella Terra, on the Tapajoz River. A visit to the elevated land behind Santarem yielded some desirable plant material.

The museum of natural history of Pará, Museu Goeldi, as well as the Brazilian federal authorities, extended important favors to Dr. Dahlgren. Sen. R. Monteiro da Costa, well-known Brazilian plant col-

lector and explorer of the Amazon, was granted a leave of absence from his work for the Chamber of Commerce in Belem in order that he might take part in the trip up the river.

At the request of one of Field Museum's Life Members, Mr. H. F. Johnson Jr., of Racine, Wisconsin, a visit was made to the S. C. Johnson Company's recently established carnauba plantation in Ceará.

### YOU WILL ENJOY READING—

*They Wrote on Clay*, by Edward Chiera, late professor of Assyriology at the University of Chicago.

"Thrilling as a detective story is Professor Edward Chiera's lucid tale of the life and thoughts of the ancient Babylonians, revealed to us by their clay records," says Richard A. Martin, Curator of Near Eastern Archaeology at Field Museum. The book contains many illustrations.

At the MUSEUM BOOK SHOP—\$3.

### Lecture on Museum Expedition

Dr. Albert J. Walcott lectured on October 12 before the local chapter of the American Gem Society on the results of the Field Museum Geological Expedition to the Pacific Northwest.

## EXPEDITION TO SOUTHWEST ENDS SUCCESSFUL SEASON

BY PAUL S. MARTIN

Chief Curator, Department of Anthropology

A final and complete sequence of the history of the earliest known inhabitants of southwestern Colorado—the prehistoric Basket Maker Indians who occupied the region from about A.D. 600 to 1200—will be constructed from data and artifacts obtained during the 1938 season of operations of the Field Museum Archaeological Expedition to the Southwest, members of which returned to Chicago last month.

From an extensive survey made in Montezuma County and the adjoining country, it is known that the workers reached this season the earliest culture horizon of the ancient people. Gaps in the cultural and historical sequence from the work of previous years were this year filled in, and there now can be traced, with the data and objects collected from buried villages, the evolution of pottery styles, architecture, and other basic cultural developments for the entire period from the year 600 to 1200.

Furthermore, an entire new field for future investigation was opened by the discovery of a rare and beautiful type of pottery with red decorations on a buff background, hitherto known from only one other area to the west where a few pieces were first found a few years ago. The writer, who was leader of the expedition, and his associate archaeologists—Messrs. Carl Lloyd, John Rinaldo, Alex Spoehr, and Donald Collier (graduate students of the University of Chicago)—definitely established that this new pottery represents a period earlier than A.D. 600, and that it was not a local product. Checking with evidence from archaeological sites in New Mexico and Arizona, to which fields side explorations were conducted, evidence was obtained indicating that this pottery must have been brought to Colorado in early trading between peoples of the two regions, or by a migrant people from the south who at some time predating the Basket-Maker settlements, must have lived temporarily in the Colorado area, or at least passed through it. The evidence thus far obtained seems to point to some relationship between the Colorado cultures and those of the Arizona and New Mexico regions.

The expedition was sponsored by Mr. Stanley Field, President of the Museum. The 1938 season was marked by several especially important achievements, reported in FIELD MUSEUM NEWS (September and October).

### NEW MEMBERS

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

#### Contributors

Miss Clara A. Avery\*, Sewell L. Avery, Mrs. Leslie Wheeler.

#### Associate Members

Dr. Joshua M. Brown, Mrs. Milton S. Florsheim, Mrs. Curtis N. Kimball, Miss Cordelia Ann Manning, Frank P. Roesch.

#### Annual Members

J. A. Amos, James S. Arcus, M. B. Austin, Mrs. Charles Bender, Andrew R. Bopp, T. Chanock, A. C. Cronkrite, Clinton O. Dieken, Hubert C. Ellis, J. E. Galvin, Max Gerber, W. N. Gillett, Mrs. Melvin M. Hawley, Mrs. Freeman Hinckley, Charles Lowell Howard, Mrs. Mary M. Jeffreys, John H. Kraft, Leonard J. Kugel, Mrs. R. E. Lorentz, Arthur A. Marquart, Miss Ruth C. Mason, Miss Ava McDowell, Mrs. O. V. McGrew, Miss Agnes J. Olson, Arthur N. Paulsen, Philip D. Sang, Francis O. Stevens, Marshall E. Strauss, Francis C. Woolard, A. Arthur Zangerle.

\* Deceased

## THIS MONTH AT FIELD MUSEUM A Special Event Every Day

During November Field Museum is offering for its Members and the general public a variety of free illustrated lectures, daily guide-lecture tours, and special Sunday tours conducted by the Layman Lecturer, Mr. Paul G. Dallwig. There will also be a series of free motion picture entertainments for children on Saturday mornings, presented by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

The Raymond Foundation programs, and the Saturday lectures for adults, will be given in the James Simpson Theatre. Children's programs begin at 10 and 11 A.M.; lectures for adults at 2:30 P.M. The regular guide-lecture tours, given daily except Saturday and Sunday, begin at 3 P.M., and the Sunday lecture tours at 2 P.M. For the Sunday tours, which are limited to adults, it is necessary to make reservations in advance by mail or telephone (Wabash 9410). Participants in both the daily and Sunday tours assemble with lecturers at North Entrance.

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.

No tickets are necessary for admission to the Saturday lectures for adults. 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 2:30 P.M. on the day of the lecture. All reserved seats not claimed by 2:30 P.M. will be available to the general public.

Following is a chronologically arranged table showing the special events scheduled for each day of the month:

- Week beginning November 1—Guide-lecture tours, 3 P.M.:  
 Tuesday—"Jades and Gems."  
 Wednesday—"Glimpses of India, Burma, Siam and Korea."  
 Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.  
 Friday—"Cereals and Palms."
- Saturday, November 5—  
 —10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "Shades of Noah" (color), "Songs of the Plantations," and "Thrills on the Faroe Islands."  
 —2:30 P.M.—Lecture for adults (Simpson Theatre): "Where the Rainbow Ends"—Howard MacDonald, of Yonkers, New York.
- Sunday, November 6—2 P.M.—Layman Lecture Tour: "Nature's 'March of Time'"—Paul G. Dallwig.
- Week beginning November 7—Guide-lecture tours, 3 P.M.:  
 Monday—"Prehistoric Life."  
 Tuesday—"Mexico."  
 Wednesday—"Dogs and Cats."  
 Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.  
 Friday—"Man Through the Ages."
- Saturday, November 12—  
 —10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "In the Land of Montezuma," "Land of the Eagle," "Fiesta of Calaveras," and "Quaint Animals of Guatemala."  
 —2:30 P.M.—Lecture for adults (Simpson Theatre): "Primitive Tribes of the Guianan Jungle"—Colonel Charles Wellington Furlong, of Cohasset, Massachusetts.
- Sunday, November 13—2 P.M.—Layman Lecture Tour: "Nature's 'March of Time'"—Paul G. Dallwig.
- Week beginning November 14—Guide-lecture tours, 3 P.M.:  
 Monday—"Amber, Lacquer, Turpentine and Rubber."  
 Tuesday—"Winter Birds of the Chicago Area."  
 Wednesday—"Moon, Meteorites and Minerals."  
 Thursday—a general synopsis of anthropological, botanical, geological and zoological exhibits.  
 Friday—"Egyptian Exhibits."

## 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.

## MUSEUM RECEIVES COLLECTION OF 6,640 AFRICAN BIRDS

The second largest single accession of birds ever received at Field Museum arrived in October. It is a magnificent series of birds collected over a period of twenty years by Sir Frederick J. Jackson while he was Lieutenant-Governor of Kenya, and Governor of Uganda, in East Africa. The collection contains approximately 6,640 specimens belonging to more than six hundred species.

Also received was the sumptuous three-volume work on the birds of East Africa by Sir Frederick, posthumously published within the last few months. This work contains all the notes and observations made by the collector on the specimens which are now the property of the Museum.—R.B.

## Staff Notes

Mr. Clifford C. Gregg, Director of the Museum, gave a radio talk on "What Field Museum Means to You" on the Montparnasse program over station WIND on the evening of October 15. Recently Director Gregg returned from a tour of the East during which he visited leading museums and similar institutions in the principal cities. Among the cities in which Mr. Gregg extended Field Museum's contacts were Pittsburgh, Philadelphia, New York, Boston, Cambridge, Newark, and Washington.

Mr. Clarence B. Mitchell, Research Associate in Photography, has returned to the Museum after several months in California, and has resumed his work of making color photographs of outstanding exhibits. Mr. Mitchell is one of the volunteer workers who have been giving the Museum extremely valuable services.

Mr. Rudyerd Boulton, Curator of Birds, last month attended the annual meeting of the American Ornithologists' Union, held at Washington.

Saturday, November 19—  
 —10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "Pied Piper of Hameelin" (Disney color cartoon), "Make a Mask," "Beautiful Tyrol," "Woodland Pale," and "Freaks of the Deep."  
 —2:30 P.M.—Lecture for adults (Simpson Theatre): "America and Isles of the Pacific"—Fred Payne Clatworthy, of Estes Park, Colorado.

Sunday, November 20—2 P.M.—Layman Lecture Tour: "Nature's 'March of Time'"—Paul G. Dallwig.

Week beginning November 21—Guide-lecture tours, 3 P.M.:  
 Monday—"Marine Life."  
 Tuesday—"The Ecology of Plants and Animals."  
 Wednesday—"Crystals and Their Uses."  
 Thursday—Thanksgiving holiday, no tour.  
 Friday—"The Akeley Memorial Hall."

Saturday, November 26—  
 —10 and 11 A.M.—Raymond Foundation program for children (Simpson Theatre): "Mickey's Orphans" (Disney cartoon), "Snow Fun," "Winter," and "Travels in Toyland."  
 —2:30 P.M.—Lecture for adults (Simpson Theatre): "The Human Side of Nature"—Sam Campbell, of Three Lakes, Wisconsin.

Sunday, November 27—2 P.M.—Layman Lecture Tour: "Nature's 'March of Time'"—Paul G. Dallwig.

Week beginning November 28—Guide-lecture tours, 3 P.M.:  
 Monday—"Hall of Systematic Mammals."  
 Tuesday—"South America Past and Present."  
 Wednesday—"Effects of Wind, Water and Frost."

## THINGS YOU MAY HAVE MISSED

### A Prehistoric Venus

Representations of the ideal woman in modern, mediaeval, classical, and proto-historic art generally resemble the Venus of Milo. Even portraits from the Late Stone Age favored much the same physical proportions for women. A striking contrast, however, is offered by Aurignacian statuettes of 30,000 years ago, reproductions of which are exhibited in the Hall of the Stone Age (Hall C).

One of the most famous of these is the "Venus of Lespugue."

The original, in the Musée National at Saint-Germain-en-Laye, near Paris, was found in 1922 by Dr. René de Saint-Perier in the Haute-Garonne district, France.

This statuette, carved from mammoth ivory, has a small ovoid head bearing no vestige of a face. This omission might suggest that the artist minimized the physiognomy in portraying his idea of a beautiful woman, but more probably some superstition prevented carving the features. Even today some primitive peoples believe an evil spell can be cast



"Venus"

Posterior view of prehistoric statuette representing, stylistically, an early beauty ideal.

through an image of a person's face. Where the face of the Venus of Lespugue ought to be, there are engraved lines representing hair. The chest is narrow and flat, the shoulders round and sloping. Large, pendulous breasts occupy much of the normal abdominal region. The hips are grotesquely wide, and the large thighs taper to short legs which terminate in stylized feet. The upper part of the back is narrow and flat, thus accentuating the extreme size of the hips. A peculiar fringed garment covers the back of the legs. The accentuation of female characters probably symbolizes fecundity.

Despite stylization of certain parts of the body, others are represented with detailed attention to muscle form indicating the artist's accurate knowledge of anatomy.—H. F.

### Field Work by Dr. Noé

Professor A. C. Noé, Research Associate in Paleobotany, recently collected fossil plants in southern Illinois. He also studied collections of institutions in Texas and Mexico, and collected in the Pennsylvanian field in Texas and the Cretaceous and Tertiary in Mexico.

### 3,000 Missouri Plants Collected

Dr. Julian A. Steyermark, Assistant Curator of the Herbarium, recently returned from a three weeks' collecting trip in Missouri with 3,000 specimens for the Museum's collections, including a large number of the lower cryptogams. Several very rare varieties and some new species were found. The data obtained will be used for a manual of plants of Missouri, Arkansas and the adjacent Ozark region upon which Dr. Steyermark is working.

# Field Museum News

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## FAMED QUETZAL, GUATEMALA'S RESPLENDENT NATIONAL BIRD, IN NEW GROUP

By RUDYERD BOULTON  
Curator of Birds

A bird sacred to ancient people, the emblem of a modern nation, epitome of the exotic, and gorgeous beyond description—all this, in brief, is the quetzal of Guatemala.

Recently there has been completed in Hall 20 a habitat group of this famous bird, for which specimens were collected by the Mandel Guatemala Expedition (1934), and presented by Mr. Leon Mandel, of Chicago. The specimens were taken, and the field studies made, by Mr. Emmet R. Blake, Assistant Curator of Birds, who at present is leader of the Sewell Avery Expedition in the previously unworked hinterland of British Guiana.

The quetzal has acquired its fame naturally, for it has a long and honored history. Its name is derived from Quetzal-coatl, the traditional king and legendary founder of the culture of the Aztecs of Mexico. The first account of the bird was given in 1651 by the Spanish historian Hernandez whose seventeenth-century Latin curiously but accurately described its habits, call notes, nest, and food. Most interesting is his statement that, although the quetzal's feathers were in demand by the chiefs and nobles of the native tribes who wore them as personal decorations, no one was permitted to kill the bird that bore the golden green plumes. They were simply trapped, the plumes removed, and the birds then released.

The quetzal was so much hunted to fill the demands of fashion in the days of the international millinery plume trade that its range was greatly reduced. It is now rigidly protected, and seems to have flourished again. At any rate, it may be seen in something like its original numbers in the relatively inaccessible cloud forests on the seaward slopes of the Guatemalan volcanos.

Quetzals belong to the trogon family which is found in all tropical forests, but is more common and more diversified in the New World than in the Old. The male quetzal is distinguished from all other trogons by the remarkable development of the feathers lying immediately above the tail. The real tail is normal in all respects, but is hidden by two of the upper tail coverts which are broadened and elongated to as much as three and a half feet (although the bird is no larger than an ordinary pigeon), and are of a gossamer-like, filmy, attenuate structure found in no other feathers. These two feathers, as well as the entire upper parts including the prominent crest, are a brilliant metallic color which varies from golden green to deep blue, depending on the angle of incidence of reflected light. The under parts are crimson, and over each black wing there lie about six lanceolate golden-green feathers curved in scimitar form. The females likewise would be considered beauti-

ful were they not eclipsed by their gorgeous mates. They lack the long train and the crest, while some of the green and the crimson is replaced by warm wood brown and pale pink.

The setting of the group, shown so well in the accompanying plate from a natural color photograph by Mr. Clarence B. Mitchell,

was the leader of the Mandel Guatemala Expedition. The male quetzal is shown streaming like a rocket through the forest towards his mate who demurely waits on an arm of the cactus.

Mr. A. J. van Rossem has given an excellent account of the habits of the quetzal in *Birds of El Salvador*, recently published by

Field Museum. The males whip about through the tangled forests at high speed without damaging their tails or seemingly being hampered by them. At times, above the roof of the forest, they perform an evolution suggestive of an airplane's loop, which may well be part of their courtship behavior. Their principal food is the pulp of certain forest fruits which they pluck from the trees while on the wing and, like many other trogons, they are said to be fond of caterpillars. Quetzals never descend to the ground. They lay two bluish green unspotted eggs in a hole of a tree, generally an abandoned woodpecker's hole. No nest is built. The young are black and naked when hatched. In about a week they become covered with pale brownish down, and when a month old are covered with green and brown spotted feathers that give little hint of the resplendent plumage they will have when adult. At this time they leave their home.

The preparation of the specimens, because of their extraordinarily delicate skins, presented major technical problems, ably solved by Staff Taxidermist John W. Moyer. Mr. Frank Letl, who prepared the plant accessories, and Staff Artist Arthur G. Rueckert, painter of the background, have contributed to a highly successful habitat group.

Because of its great beauty, the quetzal has always been regarded as a prize that might be exhibited alive in a zoological garden. Recently the Bronx Zoo of the New York Zoological Society received living specimens from Honduras, the first ever to be exhibited alive in either Europe or America. Among Guatemalans the quetzal is regarded as the symbol of love of liberty, and the fable that it cannot be kept alive in captivity is widely current.

In the near future a post card in color, similar to the accompanying plate, will be available in The Book Shop of the Museum, along with others recently made from Mr. Mitchell's color photographs.

### Important Fish Collection

It is gratifying to report the receipt as a gift from the Zoology Department of the University of Chicago, of a large number of fishes taken in the Great Lakes and the upper Ohio and Mississippi Valleys. Most of Field Museum's collections from those regions were made thirty to forty years ago, and new material is especially welcome.



The Quetzal

Group showing the national bird of Guatemala, recently installed in Hall 20. Specimens were collected by an expedition sponsored by Mr. Leon Mandel. The illustration is reproduced from a natural color photograph made by Mr. Clarence B. Mitchell, Research Associate in Photography at Field Museum. The birds were mounted by Staff Taxidermist John W. Moyer.

Research Associate in Photography, is laid in northwestern Guatemala on the upper slopes of the Volcan Tajumulco at an altitude of about 7,000 feet. In the far distance can be seen the Volcan Tacana beyond the Mexican border. The vegetation in the group consists principally of giant tree ferns, so characteristic of the humid sub-tropical cloud forests which are the sole habitat of the quetzal. A heavy coat of drenched moss covers a dead stub of a tree which supports a climbing cactus with brilliant red flowers and several bromeliads, those strange epiphytic relatives of the pineapple. Among the leaves of the bromeliads are examples of two species of salamanders, both discovered and made known to science by Mr. Karl P. Schmidt, Curator of Reptiles, who

## Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Field Drive, 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.

## NEW CHRISTMAS GIFT SERVICE OFFERED BY FIELD MUSEUM

Field Museum for several years has served its Members by making available Museum memberships as Christmas gifts for friends and relatives.

In addition to continuing this service, the Museum offers this year, through its new Book Shop, further Yuletide assistance. The Book Shop is prepared to furnish books, endorsed for scientific authenticity by members of the Museum staff, for both adults and children. Also, it has in stock a wide selection of other appropriate gifts, such as book ends, illuminated globe-maps of the world, models of animals suitable for use as library decorations and as toys for children, and miniature reproductions in bronze of the famous Races of Mankind sculptures by Malvina Hoffman.

Both in the case of Christmas Gift Memberships in the Museum, and in respect to the books and other offerings of the Book Shop, the Museum is extending exceptional facilities for the convenience of Members. Where desired, the Museum will handle mail and telephone orders, and will undertake all details in connection with the dispatching of the gifts to the recipients designated by purchasers. Purchasers may specify the date on which delivery is desired. Thus, Museum Members may do all, or a large part, of their Christmas shopping while sitting at their own desks. They can avoid being jostled in crowded stores, be relieved of the task of wrapping gift parcels, and escape having to stand in long lines at post offices waiting to have their packages weighed, stamped and insured. Gifts from the Museum Book Shop will be accompanied by appropriate Christmas cards bearing the giver's name, and will be wrapped in cartons or paper with suitable holiday decorations. They will be delivered either to purchaser, or directly to recipients, in accordance with the purchaser's instructions.

In the case of Christmas gift memberships, the Museum will send to the recipients attractive Christmas cards, with the name of the giver, notifying them that they have been elected Members of this institution. Information as to their privileges as Members will accompany these cards, as well as the regular Membership cards (and Certificates in the case of Life and Associate Memberships).

With this issue of FIELD MUSEUM NEWS, there are enclosed Christmas Gift Membership application forms, and a Book Shop list of suggestions and prices. Books which are to be delivered to the purchaser can be sent "C.O.D." if desired; where they are to be sent directly to recipient of gift, payment must be made in advance, as the Museum does not carry charge accounts.

### EXPEDITION BOAT WRECKED; ALL LIVES SAVED

Although a boat carrying its personnel, and its collections and equipment, was wrecked last month on the Courantyne River, the Sewell Avery Zoological Expedition to British Guiana, led by Mr. Emmet R. Blake, Assistant Curator of Birds, reached Georgetown with no loss of life or serious injuries. The boat foundered below King William's Falls. Mr. Blake, an assistant, and thirteen native helpers managed to escape to rocks in the river, and even to salvage about one-half of the scientific collections which originally included approximately 2,400 specimens of birds. The party faced a serious situation, being marooned on the barren rocks in the raging river for

some ten days, with most of the provisions lost. They were finally rescued by a flotilla of small boats manned by Indians.

The mishap was apparently due to unavoidable causes. Equipment and crew were the best available, and navigation was in charge of an experienced river man who for four years had been in command of all water transport for the British Guiana Boundary Commission. Only the most meager details have been learned from a brief cablegram sent by Mr. Blake to the Museum. Mr. Blake is expected to return to Chicago in January, and a full account may be expected in an early issue of FIELD MUSEUM NEWS.

### PYGMY FIRE MAKER

An exhibit illustrating the primitive methods of fire-making and cooking used by pygmies of the Malay Peninsula, with a life-size and lifelike model of a pygmy as the fire-maker, is included in the large Malaysian collection in Hall G. The model represents a pygmy of the Semang tribe, who are among the most primitive peoples of the world. A life-size full-length figure of one of these men, in bronze, sculptured by Malvina Hoffman, is to be seen in the Races of Mankind exhibits in Chauncey Keep Memorial Hall. The men are about four feet eight inches in height, and the women two or three inches shorter. They live in the deep jungles which cover the mountain slopes of the interior.

Without matches, or flint and steel, the pygmies make fire easily, whenever desired, by the method illustrated in the Museum exhibit. A piece of bamboo is split in two, and the side of one strip cut to a sharp edge. This is then placed on the ground, edge up, and is held upright by four pegs. A cut is made across the bottom of the other half of the tube, and a bit of tinder is pressed over the opening. The groove is then rubbed rapidly back and forth across the fixed section until the friction ignites the tinder.

In the Museum group the ashes of an old fire are seen nearby with native cooking utensils which consist almost exclusively of bamboo tubes.

The model was made from exact ethnological data obtained by the Arthur B. Jones Expedition to Malaysia some years ago.

### Field Museum Moves the Sun!

Joshua commanded the sun to stand still, and "the sun stood still" for a whole day (Joshua:X:12).

Conversely, Field Museum recently made the sun shift its position. In order to improve the installation of the walrus group in the Hall of Marine Mammals (Hall N), the illuminated representation of the Arctic midnight sun was moved from the south side of the case to the north. This has resulted in better lighting for the exhibit, and a better arrangement of the group and background as a whole.

Rare metals and their uses are illustrated by exhibits in Frederick J. V. Skiff Hall (Hall 37).

### HOLIDAY READING—

*The Japanese New Year's Festival, Games and Pastimes*, by Helen C. Gunsaulus (Field Museum Anthropology Leaflet No. 11).

At THE BOOK SHOP of FIELD MUSEUM—15 cents.

## SEWELL AVERY EXPEDITION TO EXPLORE GUATEMALA

A botanical expedition to Guatemala, sponsored by Mr. Sewell Avery, a Trustee of the Museum, recently began operations. It is being conducted by Mr. Paul C. Standley, Curator of the Herbarium, who left Chicago November 14, and sailed from New Orleans two days later.

It is planned to spend approximately five months in the field, gathering herbarium material for use in preparation of a descriptive account of the flora of Guatemala, similar to that of Costa Rica, whose publication by Field Museum is now almost completed.

Guatemala's vegetation is more varied in type than that of other Central American countries, although in number of species probably not equal to the 6,000 flowering plants found in Costa Rica. On the tops of several high volcanoes are alpine meadows in which are found northern plants such as buttercups, Indian paint-brushes, lupines, etc. The higher mountain slopes support extensive forests of pine, fir, Douglas fir, and even bald cypress, associated with willows, maples, box-elder, alders, and oaks. There are large areas of rain forest of the type that continues southward to the Amazon Valley, with the usual abundance of orchids and other epiphytes. One of the most distinctive features is the Zacapa Desert of eastern Guatemala, whose abundance of cacti of various forms rivals that of the Sonoran Desert.

Mr. Standley plans to visit as many of these regions as time permits, with the expectation of obtaining many plants new to Guatemala, and some that are quite unknown to science.

The Guatemalan Ministry of Foreign Affairs has extended special courtesies to facilitate the success of the Museum expedition.

## NOTABLE ADDITIONS MADE TO CHINESE CERAMICS

By C. MARTIN WILBUR  
Curator of Chinese Archaeology and Ethnology

Pottery often serves an archaeologist in the way that "index-fossils" help the geologist, assisting the excavator to date a site or a particular stratum in it. Field Museum, in the exhibits in George T. and Frances Gaylord Smith Hall (Hall 24), attempts to present a chronological sequence of Chinese ceramics which will enable visitors to recognize pottery of different periods. A number of additions have recently been made to this ceramic series.

The most unique addition is a brown pottery jar in Case 8, about ten inches high, its body covered with a stamped design of stags or ibexes. This piece comes from the region of Loyang in Honan, and is thought to date from the third century B.C. The decoration, almost unique in Chinese pottery, bears a striking resemblance to animal motifs found on bronzes of the Sino-Scythian type. Somewhat similar jars are known only in the University Museum, Philadelphia, and in the Louvre, Paris, each of which has one.

Mortuary figurines of two guardian knights of the T'ang period (A.D. 618-906), clad in full armor and scowling with a ferocious look, have been added to Case 17. It was their function to scare evil spirits from the tomb. They are a noteworthy addition to the interesting exhibit of mortuary figurines.

Three beautiful bowls of the type known as *chün yao*, dating from the Sung period (A.D. 960-1280), and manufactured at Chün

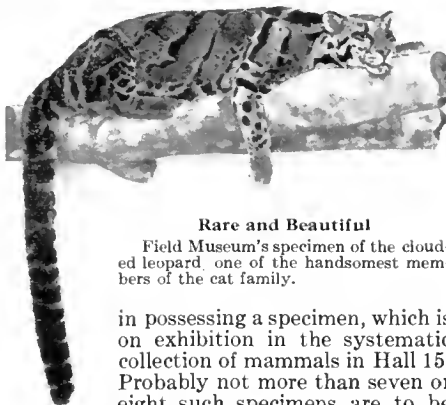
Chou in the present prefecture of K'aifeng, have been installed with other Sung pottery in Case 28. They were acquired in a bequest from Mrs. Frances Gaylord Smith. Fine *chün* ware has a thick, bubbly, opalescent glaze in many colors, with blue, red and purple predominating. The three new specimens were made to hold plant bulbs, possibly for the imperial palace, and are superb examples of this much coveted type.

Also from Mrs. Smith's bequest are 29 specimens of porcelain from the last Chinese dynasty, dating 1644-1911. Case 34 has been completely reinstalled to include these pieces, with an attempt to display each as effectively as its peculiar beauty merits. An interesting bowl, with a painted scene showing Chinese fishermen with cormorants, presented several years ago by the American Friends of China, has also been given its chronological place in this case.

## THINGS YOU MAY HAVE MISSED

### The Clouded Leopard

One of the rarest, as well as one of the most beautiful, members of the cat family is the clouded leopard of southern Asia and the East Indies. Field Museum is fortunate



Rare and Beautiful

Field Museum's specimen of the clouded leopard, one of the handsomest members of the cat family.

in possessing a specimen, which is on exhibition in the systematic collection of mammals in Hall 15. Probably not more than seven or eight such specimens are to be found in all the museums of the United States, and probably not more than fifteen in the museums of the world, according to Dr. Wilfred H. Osgood, Chief Curator of the Department of Zoology.

The clouded leopard is very shy, and inhabits the depths of heavy forests, usually in regions difficult of access to hunters. Even in the wild its numbers are very limited. Strictly speaking, it is not a true leopard, and is somewhat smaller than the ordinary leopard. Its tawny body is marbled with black markings, in pattern very distinct from those of most of the cats, and these contribute to its handsome appearance. The dark color predominates in the animal's long heavy tail. The Museum's specimen was mounted by Staff Taxidermist W. E. Eigsti.

### TIMELY—

*Chicago Winter Birds*, by Colin Campbell Sanborn (Field Museum Zoology Leaflet No. 2). 10 cents.

*The Wild Turkey*, by John T. Zimmer (Field Museum Zoology Leaflet No. 6). 10 cents.

At THE BOOK SHOP of FIELD MUSEUM.

## UNIQUE FOSSIL SKELETON PLACED ON EXHIBITION

By ELMER S. RIGGS  
Curator of Paleontology

An almost complete skeleton of a huge prehistoric animal known as the mountain ground sloth of South America, the first of its kind to be erected in any museum, has been placed on exhibition in Ernest R. Graham Hall (Hall 38). The specimen was discovered and excavated in a mountain valley of southern Bolivia by Captain Robert M. Thorne, a member of the Second Marshall Field Paleontological Expedition to Argentina and Bolivia. The work of repairing and reassembling the bones, many of which were in fragments after having lain buried for probably a million years, was a tedious and exacting process.

The animal, which is designated by the scientific name *Pseudomegatherium lundii*, has the proportions of a bear of the most gigantic type. It had a short neck and a ponderous body set upon stout legs, and was armed with a massive tail. Its deep jaws were equipped with strong grinding teeth.

The specimen had been covered by 150 feet of accumulated clay sediments washed down from the mountain side. Weight of this mass lying above had compressed and distorted the bones. Finally, softened by rains, the clays had "crept" or slid on the sloping surface in the manner of a glacier moving down its course, partially uncovering the skeleton at the surface and thus leading to its discovery. In this process, vertebrae were broken and displaced, the flat bones of the pelvis were cracked into many pieces, and plant roots had entered and further damaged the specimen. Nevertheless, it was a practically complete skeleton with all parts more or less in place, and lacking only a few joints of the toes.

While the mountain megatherium is not the largest, it is one of the rarest species of the family of ground sloths, as is evidenced by the fact that the one in Field Museum is the only complete one known. It is also only the second skeleton of a megatherium of any species to be mounted in any North American museum. The first one, a great skeleton of the species *Megatherium americanum*, largest type known, is also on exhibition at this Museum, having been installed in 1935.

### Staff Notes

Mr. Rudyerd Boulton, Curator of Birds, during November conducted field work in southern Mississippi, near Ocean Springs. At the invitation of Messrs. James R. Leavell and Carl A. Birdsall, of Chicago, owners of a large tract of wilderness land in this region, he participated in a preliminary natural history survey to determine the possibilities for conservation projects and special zoological studies. In connection with this, he made small collections needed for special purposes by the Museum.

Mr. C. Martin Wilbur, Curator of Chinese Archaeology and Ethnology, recently spent a month making a survey of Chinese collections in eastern museums. Among cities in whose institutions he conducted research are Detroit, Toronto, Buffalo, Boston, Cambridge, New Haven, New York, Philadelphia, Baltimore, Washington, and Cleveland.

A unique collection of raffia cloths from Madagascar, decorated with elaborate designs made by the warp-dyeing process, is exhibited in Hall E.

## GEMS AND JEWELS FEATURED ON SUNDAY LECTURE-TOURS

"Gems, Jewels and 'Junk'" is the title of a new lecture-tour to be given on the first three Sundays in December by Mr. Paul G. Dallwig, the Layman Lecturer of Field Museum (on the fourth Sunday, December 25, the Museum will be closed for the Christmas holiday).

On this tour Mr. Dallwig will guide his listeners through the gem exhibits both in the Department of Geology and in H. N. Higinbotham Hall (the Gem Room). His lecture will trace precious and semi-precious gem-stones from their mother-rocks to the jewelry store, the museum collection, and the jewel chests of the ladies. He will relate many fascinating stories about the world's famous diamonds, and describe the workings of the world's jewel markets.

It is necessary to make reservations for the Sunday tours and receive an identification ticket, as the number that can be accommodated is limited. Reservations may be made in advance by mail or telephone (Wabash 9410). Parties are restricted to adults.

The lectures begin promptly at 2 P.M. They end at 4:30, and are broken midway by an intermission of one-half hour for relaxation, during which members of the party may obtain refreshments and smoke in the Cafeteria where special tables are reserved for the group.

## MOTHERS-IN-LAW AND "JOKING RELATIONSHIPS" IN AFRICA

By WILFRID D. HAMBLEY  
Curator of African Ethnology

In many Negro tribes, and among peoples in other parts of the world as well, respect for certain individuals is shown in peculiar ways. Mothers-in-law have been the subject of so many jokes in America and Europe that it is hard for us to realize that the Negro who crosses to the other side of the path when he meets his mother-in-law is displaying the respect decreed by tribal custom. It is often customary also for both to turn their heads away from one another.

In the Ovimbundu tribe of central Angola (Portuguese West Africa), a man may converse with his mother-in-law only through the walls of her hut. He takes up his position on the outside, and she stands opposite on the inside. This is, however, a profound mark of respect and not, as a white man might suppose, a safeguard against hostilities.

The "joking relationship" is another peculiar form of respect observed between certain relatives, whereby there are tolerated light banter, and even insults, which would meet with severe reprisals if indulged in by persons not thus privileged.

In many tribes there is a very close and confidential relationship between a boy and his mother's brother. The boy must work to help pay the debts of this maternal uncle, but the uncle must pay any fine necessitated by the boy's thefts or other misconduct. This joking relationship also takes the form sometimes of practical joking whereby the boy may steal, with approval, small articles from the home of his uncle.

In west Africa a droll kind of banter is indulged in between a man and his sister-in-law, whom he may some day inherit as a wife if his brother dies. A man of the Jukun tribe says to his sister-in-law, "You know I don't think much of your cooking; and if you don't improve, I will have to drive you out and marry someone else." To this the sister-in-law replies, "If you get rid of me, there isn't another woman in the whole world who would think of marrying you."

## Hawk Breaks Into Museum

A living specimen of Cooper's hawk is now in the possession of Field Museum. It literally forced its way into the institution, flying full force against an office window-pane on the third floor and crashing through the glass. Stunned at first, it revived when an attempt was made to pick it up, and had to be pursued through several long corridors before capture. The bird has been caged in the laboratories of the N. W. Harris Public School Extension. Members of the Harris staff have made a hood for it, and are using it for experiments in falconry. If it proves unadaptable to training, it may be used later as a study specimen. Hawks of this species prey not only on smaller wild birds, but on domestic fowl.

## 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. The Museum will be open, however, on the Monday following each holiday.

## Distinguished Visitors

Among distinguished visitors recently received at Field Museum are Mr. L. M. Klauber, of San Diego, California, President of the American Society of Ichthyologists and Herpetologists; Mrs. Nicholas (Alice Roosevelt) Longworth, of Washington, D. C.; Mr. John W. Davis, former United States Ambassador to the Court of St. James's; Miss Anna Shepard, ceramic analyst on the staff of the Carnegie Institution, Washington, D. C., and Mr. Kermit Roosevelt, co-leader of Field Museum expeditions in past years, and a trustee of the American Museum of Natural History, New York.

## NEW MEMBERS

The following persons were elected to membership in Field Museum during the period from October 17 to November 15:

### Associate Members

Mrs. Theodore W. Bunte, Arthur A. Frank, Miss Margaret Nina Gentz, Mrs. F. P. Hufty.

### Annual Members

Henry Bogoff, Mrs. Perry B. Buchanan, T. J. Callan, Mrs. Annetta C. Carlson, Mrs. Dexter Cummings, Philip S. Harper, Dr. M. S. Kharasch, J. A. Korngold, Walter A. Krafft, Walter D. Lawrence, Miss R. B. Love, C. E. Lyon, Thomas N. McGowen, Dr. Charles H. McKenna, Mrs. James Leonard Mills, Mrs. James L. Palmer, Miss Christine Paulson, Robert P. Rasmussen, Benjamin B. Schneider, Mrs. Henry Bascom Thomas, Otto Vogl, Roy A. Whipple, Charles Sneed Williams.

## YOUR CHILDREN WILL LIKE—

*Indian Children*, by Cornelia H. Dam, Curator of the Educational Section, University Museum, University of Pennsylvania (with Dr. Arthur C. Parker, Director of the Rochester Museum of Arts and Sciences, as editor).

"A fascinating and accurate account of Indian children of the eastern woodland tribes," says Dr. Paul S. Martin, Chief Curator of Anthropology at Field Museum. "Destined to be a best seller."

Illustrated with "three-dimensional pictures." At the MUSEUM BOOK SHOP—\$1.50.

## DECEMBER GUIDE-LECTURE TOURS

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

Thursday, December 1—General Tour; Friday—Malvina Hoffman Bronzes.

Week beginning December 5: Monday—Birds, Past and Present; Tuesday—Botany Halls; Wednesday—Primitive Weapons and Armor; Thursday—General Tour; Friday—Chinese Exhibits.

Week beginning December 12: Monday—The Story of Plant Life; Tuesday—Skeletons of Birds, Mammals and Man; Wednesday—Indians of the Northwest; Thursday—General Tour; Friday—Dinosaurs and Other Reptiles.

Week beginning December 19: Monday—The Art of the Ancient Peruvians; Tuesday—Woods and Their Uses; Wednesday—Minerals; Thursday—General Tour; Friday—Fishes and Amphibians.

Week beginning December 26: Monday—Christmas Holiday, no tour; Tuesday—Animal Habitat Groups; Wednesday—The Eskimos; Thursday—General Tour; Friday—Strange Animals of Foreign Lands.

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 Centro Nacional de Agricultura—159 herbarium specimens, Costa Rica; from Dr. Francis Drouet—800 herbarium specimens, Brazil, and 204 algae specimens; from Farlow Herbarium—28 algae specimens; from Jardim Botânico de Belo Horizonte—637 herbarium specimens, Brazil; from Dr. L. P. Khanna—96 algae specimens, Burma; from Miss Cora Shoop—1,186 cryptogam specimens, Missouri; from Professor T. G. Yuncker—557 herbarium specimens, Honduras; from Dr. Henry S. Conard—100 specimens of mosses, Iowa; from Rev. Brother Elias—59 herbarium specimens, Colombia; from Rev. Brother H. Daniel—64 herbarium specimens, Colombia; from Miss Ann Trevett—a specimen of uranophane, Wyoming; from C. G. Colyer—16 fish teeth, South Dakota; from Dr. H. C. Duke—a geode and 12 mineral specimens, western United States; from Estate of Carrie Ryerson—44 pieces of jewelry; from Walter Nelson—an opalized wood specimen, Washington; from Charles H. Flory—2 specimens of mammoth tusk, Alaska; from W. A. Brox—37 chalcid and agate specimens, Wyoming and Montana; from *The Mineralogist Magazine*—22 mineral specimens, Oregon; from F. S. Young—11 agate and chalcid specimens, Oregon; from Smith's Agate Shop—an iris agate, Oregon; from A. R. Hine—33 agate specimens, Oregon; from Dr. E. W. Lazell—a moss agate and 11 slides of fossil wood, Oregon; from M. T. Green—a tree cast of chalcid, Oregon; from J. Lewia Renton—55 mineral specimens, Oregon and California; from A. J. and Ray Schneider—2 agate specimens, Oregon; from Jack Barry—an opalized wood specimen, Oregon; from P. L. Forbes—5 mineral specimens, Oregon; from Peter Peterson—8 agate specimens, Oregon; from Miss Bertha Gordon—4 photographs of crumpled atrata and erosion features, Mohave Desert and Death Valley; from Paul O. McGrew—3,000 vertebrate fossils, western Nebraska; from Elmer S. Riggs—11 skulls and one skeleton of modern American animals; from Texas Planning Board and University of Texas—11 polished marble slabs and 4 polished granite diacs, Texas; from Carl Dretzner—2 ribbon seal skins and skulls, Alaska; from Dr. Henry Field—an owl, 9 small mammals, and 37 insects, England and Scotland; from Gordon Grant—a centipede, a snail, and 186 slugs, insects, and allies, California and Hawaii; from Colonel J. H. Patterson—54 marine shells, Mexico; from Polish-American Chamber of Commerce (Warsaw)—70 seashells, Baltic Sea; from L. E. Harden—an albino opossum, Illinois; from Wilbur S. McAlpine—4 butterflies, Michigan; from A. R. G. Morrison—8 mammals, Peru; from Chicago Zoological Society—a Himalayan black bear, 2 parrots, and a weaver finch; from Mrs. Robb White—22 insects, Georgia; from Emil Krauth—6 butterflies, Washington; from Professor L. A. Higley—9 colored lantern slides of calico rock; valuable books for the Library from Professor H. Artowski, L. A. Bruggeman, Carnegie Institution, Dr. Alfonso Caso, George Siverling, and Rev. Rodger S. Winana.

A life-size figure of a Dyak hunter of Borneo is exhibited in Hall G.