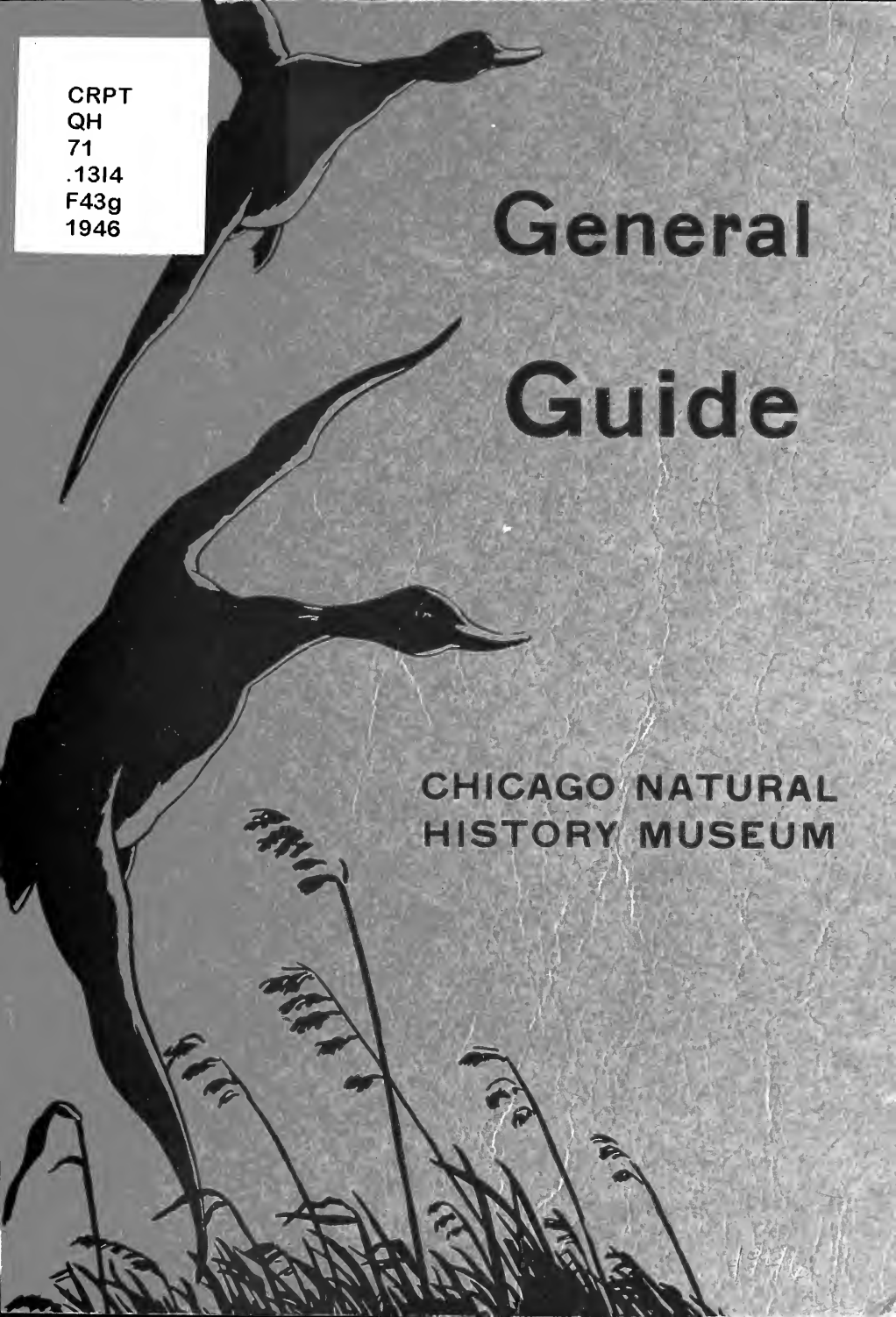


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General Guide

CHICAGO NATURAL
HISTORY MUSEUM



1976

CHICAGO NATURAL HISTORY MUSEUM
—OTHER PUBLICATIONS—

In addition to this General Guide to the collections, there is a Popular Series of publications on scientific subjects, including handbooks on certain sections of the exhibits.

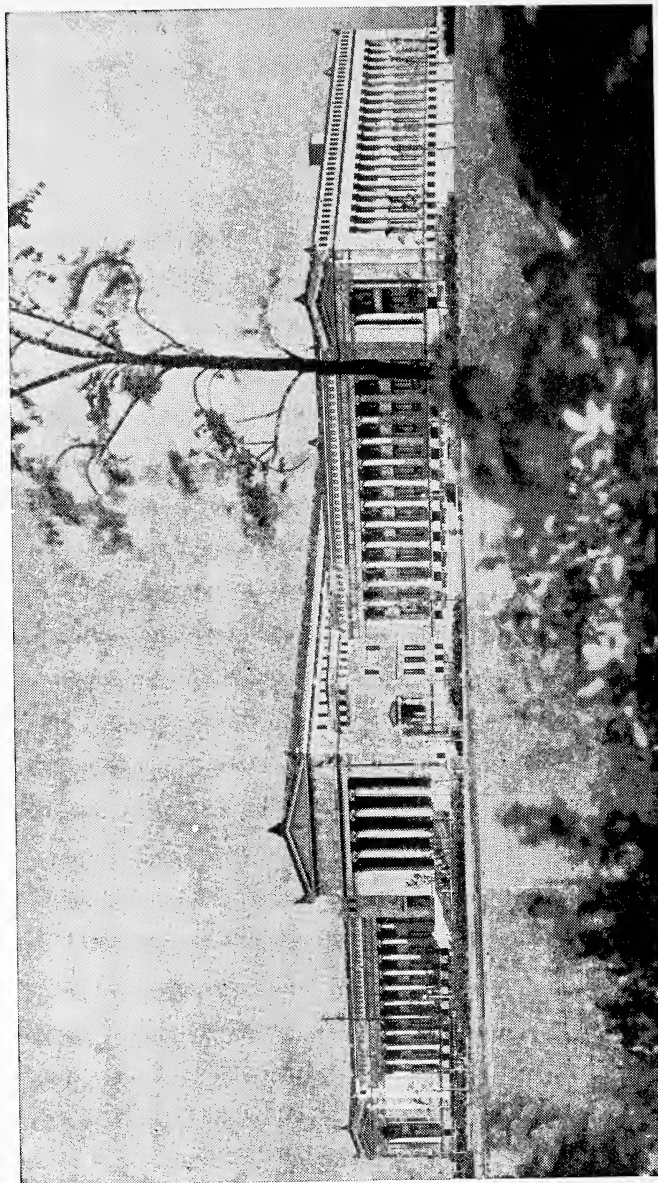
A Design Series is available, which is of particular value to those interested in design work, arts, and handicrafts.

The several Scientific Series of publications, more technical in nature and intended primarily for distribution among other museums, libraries, and institutions of learning, are also obtainable by individuals.

Lists and prices of all these Series may be had on application.

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CHICAGO NATURAL HISTORY MUSEUM

(Formerly Field Museum of Natural History)

Roosevelt Road and Lake Shore Drive, Chicago

CHICAGO NATURAL HISTORY MUSEUM

[FORMERLY FIELD MUSEUM OF NATURAL HISTORY]

FOUNDED BY MARSHALL FIELD, 1893

GENERAL GUIDE

TWENTY-SEVENTH EDITION



CHICAGO, U.S.A.

1946

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GENERAL MUSEUM INFORMATION

Location

Chicago Natural History Museum is located in Grant Park near Lake Michigan, the main entrance facing Roosevelt Road at Lake Shore Drive. Service direct to the entrance is maintained by the Jackson Boulevard busses (No. 26) of the Chicago Motor Coach Company, with free transfers to and from all other lines of the company. The Illinois Central main and suburban stations are only two blocks from the Museum. Surface cars of the Roosevelt Road Line have their eastern terminus in Grant Park about a block from the Museum. Elevated lines and interurban lines provide transportation to within a few blocks of the Museum. There are excellent drives for automobiles, and ample free parking space.

Hours and Rules of Admission

The Museum is open to the public every day of the year (except Christmas and New Year's Day) during the following hours:

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.

Children are admitted free on all days. Students and members of the faculty of any university, college, institute, or school, are admitted free upon presentation of proper credentials. The federal tax of 5 cents on students of twelve years or over and on teachers will be paid by the Museum. Adult visitors are charged the established admission fee of 25 cents plus 5 cents federal tax making a total of 30 cents except on Thursdays, Saturdays, and Sundays, when admission is free.

Checking

Canes and umbrellas *must* be checked at the entrances—this checking is free of charge. Coats and parcels may also be checked, for a fee of 5 cents each.

Telephones

Public telephones are located west of the main (north) entrance.

Wheel Chairs

Visitors desiring the use of wheel chairs may obtain them at the main (north) entrance. A fee of 25 cents per hour is charged for chairs, and attendants must be furnished by the applicants. A deposit of \$1 is required on each chair.

The Book Shop

To provide a reliable source of supply for authoritative books in the many fields of science within the scope of the Museum, a Book Shop is maintained at the east side of the north entrance to Stanley Field Hall. Through The Book Shop there are available at one location books by reputable authors on anthropological, botanical, geological, and zoological subjects, as well as on explorations and other activities related to the work of the Museum. Included are the products both of the Chicago Natural History Museum 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. There is a large selection of books for children, as well as for adults. These include books which are amusing as well as educational—books for reading to the youngest children, books for reading *by* children of various ages, picture books, books of drawings to be colored, attractively prepared atlases, etc. On special orders the Museum Book Shop will obtain for purchasers practically any book available from any publisher or dealer in the world. Books may be purchased by mail order, but it is necessary to require payment in advance, as the Museum does not carry accounts. In addition to books, there are on sale miniature representations of various animals in bronze and other materials, for use as souvenirs, library decorations, and toys. Some of the larger figures are designed to serve as book ends. There are also on sale illuminated globes bearing maps of the world.

Lunch Rooms

There is a Cafeteria on the ground floor where meals and refreshments may be obtained. Accommodations are provided near the Cafeteria for school children and persons who bring their lunches.

Special Privileges

Hand cameras may be used at any time, but to make photographs requiring use of tripods or flashlights the Director's permission must be obtained. Likewise, for sketching requiring use of an easel, chair, etc., the Director's permission is necessary.

The Research Collections are not open to the public but may be visited by students, specialists, and Members of the Museum upon application to the Director when requests meet with the approval of the Chief Curators.

Museum Tours and Guide Service

At 2 P.M. daily except Sundays, guide-lecturers conduct tours through various sections of the Museum. On Wednesdays and Fridays special subjects are covered according to a schedule, copies of which may be obtained at the north entrance or by mail on request; on other days tours are general, covering principal exhibits in all departments. Tours last an hour and may be taken, without charge, by any visitor. During July and August, on the same days, additional lecture tours are given at 11 A.M.

The services of a guide-lecturer may also be engaged, without charge, by clubs, conventions, classes from public, parochial, and private schools, or other parties of ten or more individuals on weekdays and Saturday mornings. Written application for this service should be made to the Director of the Museum at least a week in advance of the intended visit.

Layman Lectures on Sundays

Each Sunday afternoon at 3 o'clock, during October, November, December, January, March, and April special lectures are offered for adults. These are presented by The Layman Lecturer, Mr. Paul G. Dallwig, a Chicago business man and Member of the Museum, whose deep interest in scientific subjects has led him to give

his services for this work without cost to those participating or to the institution. He is an impressive and dramatic speaker, and presents authentic information on natural history subjects. His subject is changed each month, and information as to the current topic may be obtained in advance from the Museum. The wide scope of his lectures is indicated by the following typical titles: "Digging Up the Caveman's Past," "Nature's 'March of Time,'" "The Parade of the Races," "Gems, Jewels, and 'Junk,'" "The Romance of Diamonds from Mine to Man," "Mysterious Night Riders of the Sky," "Who's Who in the Mounted Zoo," and "The Romance of Wood." It is necessary to make reservations in advance for each Sunday lecture, as the number that can be accommodated is limited. Reservations may be made by personal application to attendant at the North Entrance, by mail, or by telephone (WABash 9410). Children cannot be accommodated on these programs.

Illustrated Lectures in the Theatre

Courses of free illustrated lectures on science and travel are given for the public on Saturday afternoons at 2:30 o'clock during March, April, October, and November in the James Simpson Theatre on the ground floor of the Museum. Men prominent in the fields of exploration and research are engaged for these lectures. Both motion pictures and colored stereopticon slides are used to illustrate them.

Other lectures, by members of the Museum's scientific staff, are frequently broadcast by various radio stations. Occasionally Americanization programs are presented for the foreign-born.

Membership

The Chicago Natural History Museum has several classes of Members. Annual Members contribute \$10 annually. Associate Members pay \$100 and are exempt from dues. Sustaining Members contribute \$25 annually for six consecutive years, after which they become Associate Members and are exempt from all further dues. Life Members give \$500 and are exempt from dues. Non-Resident Life Members pay \$100, and Non-Resident Associate Members \$50; both of these classes are also exempt from dues. The Non-Resident memberships are available only to persons residing fifty miles or more from Chicago. Those who give or devise to the Museum \$1,000 to \$100,000 are designated as Contributors, and those who give or devise \$100,000 or more become Benefactors. Other memberships are Honorary, Patron, Corresponding, and Corporate, 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. Subscription to the *Museum Bulletin* is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of this 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.

SUBJECT INDEX TO EXHIBITS

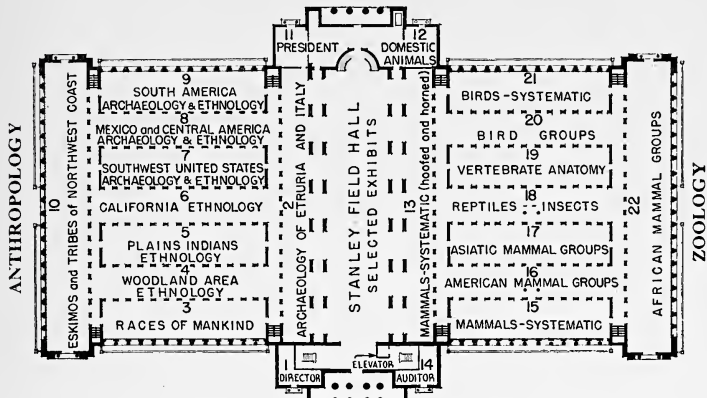
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PLAN OF FIRST OR MAIN FLOOR

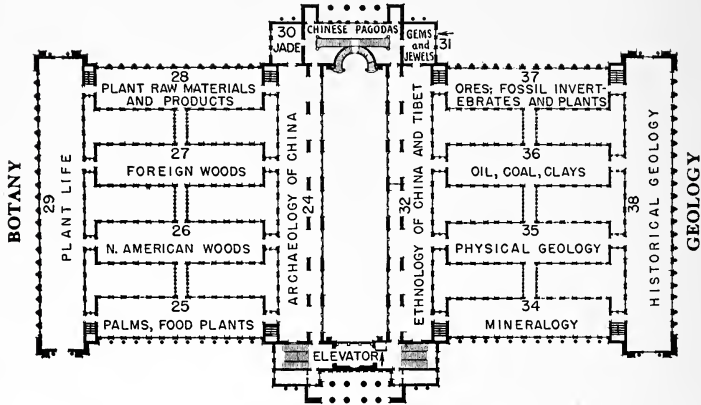


Key to Floor Plan

HALL
NUMBER

- Selected exhibits from each Department—Stanley Field Hall
- 2—Archaeology of Etruria and Rome—Edward E. and Emma B. Ayer Hall and alcoves
 - 3—Races of Mankind—Chauncey Keep Memorial Hall
 - 4—Ethnology of Indian Tribes of the Woodland and Southeastern Areas—James Nelson and Anna Louise Raymond Hall
 - 5—Ethnology of the Indian Tribes of the Great Plains—Mary D. Sturges Hall
 - 6—Ethnology of the Indian Tribes of California and Nomadic Tribes of Arizona and New Mexico
 - 7—Archaeology and Ethnology of Southwestern United States
 - 8—Archaeology and Ethnology of Mexico and Central America
 - 9—Archaeology and Ethnology of South America
 - 10—Ethnology of Eskimo and Indian Tribes of the Northwest Coast of America
 - 12—Sculptures of Champion Domestic Animals of Great Britain
 - 13—Horned and Hoofed Mammals—George M. Pullman Hall
 - 15—Mammals—Systematic
 - 16—American Mammals—Habitat Groups—Richard T. Crane, Jr., Hall
 - 17—Asiatic Mammals—Habitat Groups—William V. Kelley Hall
 - 18—Reptiles and Amphibians, and Insects—Albert W. Harris Hall
 - 19—Vertebrate Anatomy—Skeletons
 - 20—Birds—Habitat Groups
 - 21—Birds—Systematic
 - 22—African Mammals—Carl E. Akeley Memorial Hall

PLAN OF SECOND FLOOR

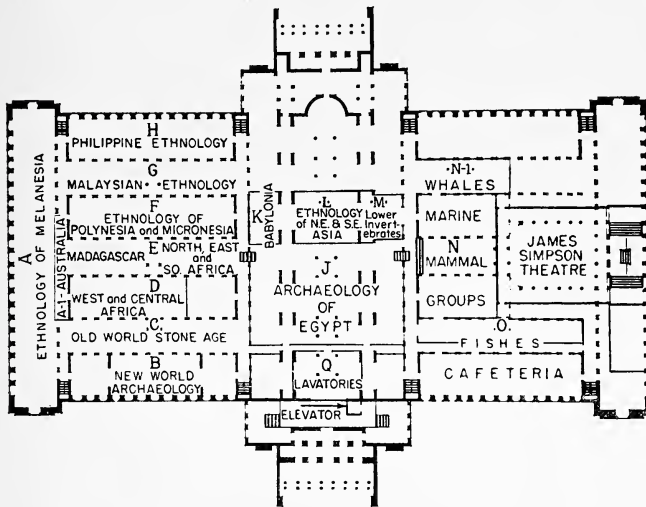


Key to Floor Plan

HALL
NUMBER

- 24—Archaeology of China—George T. and Frances Gaylor Smith Hall
- 25—Food Plants—Palms
- 26—North American Woods—Charles F. Millspaugh Hall
- 27—Foreign Woods
- 28—Plant Raw Materials and Products
- 29—Plant Life—Martin A. and Carrie Ryerson Hall
- 30—Chinese Jade
- 31—Gems and Jewels—H. N. Higinbotham Hall
- 32—Ethnology of China and Tibet; Chinese and Tibetan Theatrical Masks and Costumes
- 34—Systematic Minerals, Crystals, and Meteorites
- 35—Relief Maps, Systematic Rocks, and Physical Geology—Clarence Buckingham Hall
- 36—Petroleum, Coal, Clays, Sands, and Alkalies
- 37—Ores; Fossil Invertebrates and Plants—Frederick J. V. Skiff Hall
- 38—Historical Geology—Ernest R. Graham Hall

PLAN OF GROUND FLOOR

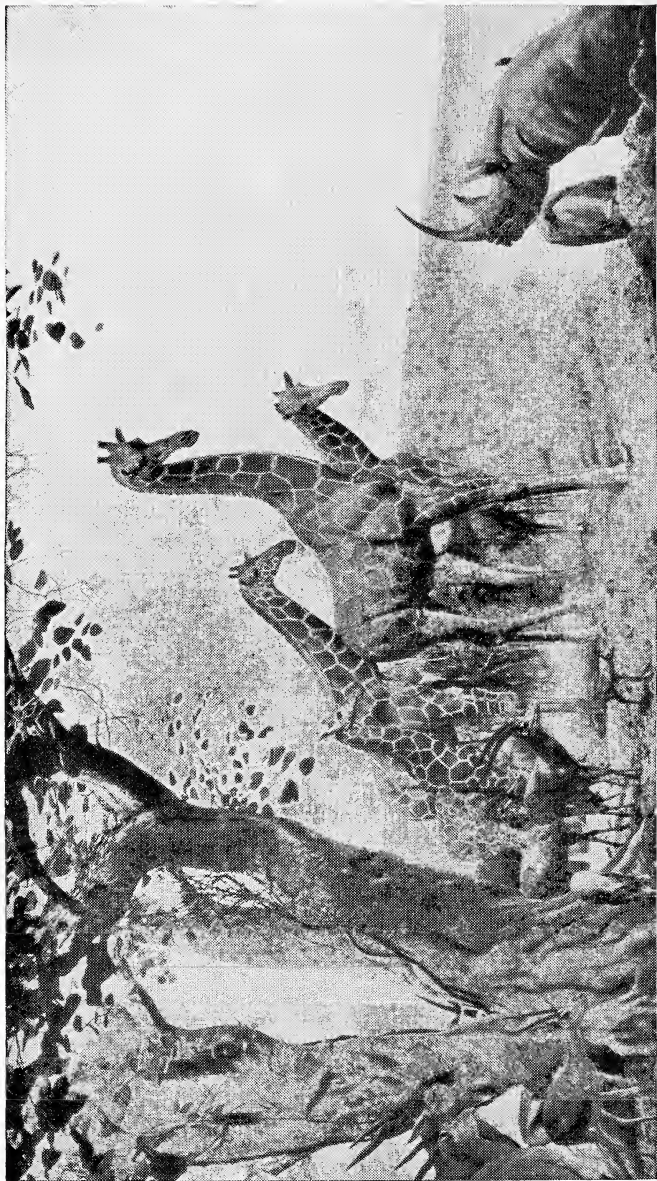


Key to Floor Plan

HALL
NUMBER

- A—Melanesia, South Pacific—Joseph N. Field Hall
- A1—Ethnology of Australia
- B—Archaeology of the New World
- C—Stone Age of the Old World
- D—Ethnology of West and Central Africa
- E—Ethnology of North, East, and South Africa, and Madagascar
- F—Ethnology of Polynesia and Micronesia
- G—Ethnology of Malaysia
- H—Ethnology of Philippine Islands
- J—Archaeology of Egypt
- K—Archaeology of Babylonia
- L—Ethnology of Korea, Siberia, India, Burma, Siam, Ceylon, Andaman and Nicobar Islands, and the Ainu
- M—Lower Invertebrates
- N—Marine Mammal Habitat Groups
- N-1—Whales
- O—Fishes

The James Simpson Theatre, the Lecture Hall, the Cafeteria and lunch rooms, and the lavatories are located on this floor.



AN AFRICAN WATER-HOLE
Section of a large habitat group in Carl E. Akeley Memorial Hall (Hall 22)

Preface

Chicago Natural History Museum (formerly Field Museum of Natural History) was established in 1893. The founding of an institution of this importance and character was made possible by the late Marshall Field, who, in addition to his original gift of \$1,000,000, made other gifts of approximately \$430,000 during his life, and bequeathed on his death in January, 1906, a further sum of \$8,000,000, of which \$4,000,000 was allotted toward the erection of the present building, located in Grant Park, and \$4,000,000 toward endowment.

The Museum is incorporated (not for profit) under state law, and its active control rests in the Board of Trustees, with President, Secretary and Treasurer. The executive of the Museum is the Director, under whom there are four Chief Curators of Departments, and many divisional Curators, Associate Curators, Assistant Curators, Research Associates, preparators, taxidermists, artists, librarians, division chiefs, etc., and their assistants.

The Museum building is 706 feet long, 438 feet wide, 104 feet high, and, with the terrace and grounds surrounding it, occupies an area of about eleven acres. The central hall, Stanley Field Hall, is 299 feet long, 68 feet wide, and 75 feet high. The rest of the building is divided into four floors. Of these, the main and second, and a portion of the ground floor, are devoted to exhibition purposes, the total exhibition space comprising approximately 550,000 square feet. The remaining space serves as working quarters for the administrative and scientific staffs and the maintenance force. The exterior, which is of white Georgia marble, is treated in monumental manner based on Greek architecture of the Ionic order. The principal fronts are divided into a large pedimented central pavilion, with two long wings terminated by a smaller pavilion at each end. A notable feature is the terrace, sixty feet wide.

In this structure, the architects, D. H. Burnham and Company, and Graham, Anderson, Probst and White, have given to Chicago and the nation a masterpiece of monumental building.

The main hall, which is dedicated to Stanley Field, President of the institution, contains four statues, designed by Henry Hering, which symbolize the aims and purposes of the Museum. The figures flanking the north archway represent Natural Science and the Dissemination of Knowledge, while those at the south archway typify Research and Record.

Certain halls in the Museum are named in honor of some of the persons who have made notable contributions or rendered valuable service to the institution.

STANLEY FIELD HALL

Occupying the Center of the Building

Stanley Field Hall, into which the main entrance opens, contains special exhibits selected from each Department of the Museum. These are changed from time to time to show new acquisitions or the results of recent expeditions. The exhibits shown at the date of publication of this Guide, as listed below, are typical of the contents of the hall.

In the center of the hall are two African elephants, collected in 1902 by the late Carl E. Akeley. They are mounted in fighting attitude.

Toward the south end of the hall three bronze groups, also the work of Akeley, illustrate lion spearing by native Africans.

A case near the center of the hall contains examples of the strategic and critical materials needed for conduct of the war accompanied by a large map showing their principal sources of supply.

Case 1. Prehistoric American gold ornaments from Colombia, South America.

Case 2. Ancient Roman bronze bathtub, from Boscoreale, Italy.

Case 3. Prehistoric races of man, illustrated by restorations of the Pithecanthropus erectus, the Neanderthal man of La Chapelle-aux-Saints, and the Cro-Magnon man.

Case 4. Embroideries, chiefly women's dresses, from western India.

Case 5. Marine life. Various types of beautiful and characteristic marine animals, such as sponges, precious corals, sea-urchins, and shells.

Case 6. Rare lacquered wooden vessels made by the ancient Indians of Peru in the Inca and early Colonial periods.

Case 7. Selected examples of Chinese art, represented by ancient ceramics, bronze, the figure of a zebu in cast solid silver, four clay figures of women engaged in a polo match, and a gilt bronze figurine of a recumbent rhinoceros.

Case 8. Gold and silver jewelry, India.

Case 9. Resins. This case, together with two others in Hall 28, Department of Botany, contains one of the finest collections of resins known.

Case 10. An iron meteorite, weighing 3,275 pounds. It is remarkable for its large size and symmetrical form. It was found in 1908 near Tonopah, Nevada.

Case 11. Pottery excavated from various Pueblo ruins in the Southwestern United States. This is a representative collection covering about eight hundred years, or from A.D. 700 to 1500. The Museum's collection of Southwestern pottery, of which this exhibit is a small sample, is the subject of a beautifully illustrated monograph and catalogue recently published by The Chicago Natural History Museum Press.

Case 12. Chinese ivory carvings of the 18th and 19th centuries, together with Chinese snuff bottles carved from semi-precious stones, coral, amber and ivory, or fashioned in lacquer, porcelain, and glass cut in cameo style.

Case 13. Varieties of quartz. The remarkable range of color and form of this mineral is illustrated.

Case 14. A group of epiphytic and parasitic plants growing about a termite nest built at the tip of a branch from a tree in the tropics. From Demerara River, British Guiana. The group was reproduced from nature in the Plant Reproduction Laboratories of the Museum.

Case 15. Passenger pigeons in a characteristic and natural setting. These birds, once common, are now extinct.

Case 16. Indians in the Americas. Present numbers of Indians and proportion of Indians to non-Indians in the different countries of North and South America shown by pictorial method; aspects of contemporary Indian life illustrated by specimens and photographs.

Case 17. Recent and ancient allied plants and animals. They are shown in both modern and fossil forms. Types known as "immortal," "persistent," "dwindled," etc., are illustrated.

Case 18. A single crystal of beryl weighing a thousand pounds.

Case 19. Bower bird. Male and female of this peculiar bird from New Guinea, with the characteristically decorated "bower" or nuptial playground built by the male.

Case 20. Ancient Peruvian textiles.

Case 21. Wood and foliage of the three principal species of mahogany.

Case 22. The history of the horse family, showing the evolution of the horse from a four-toed to a one-toed animal.

Cases 23 and 24. In these cases in the south corners of the hall are displayed, on life-size figures, feather masks from New Guinea.

Examples of exhibition cases used by the N. W. Harris Public School Extension of the Museum are displayed at the south end of the hall.

A bronze standard bearing the names of twenty-four persons, each of whom has given \$100,000 or more to the Museum, is placed at the north end of the hall.

Publications of the Museum, and other books for both adults and children, as well as photographs, post cards and ornamental objects are on sale at The Book Shop near the north or main entrance.

DEPARTMENT OF ANTHROPOLOGY

First Floor:—Halls 2-10, East Wing.

Second Floor:—Halls 24, 30, 31, and 32 (Balcony around central hall).

Ground Floor:—A-H, J, K, and L, East Wing.

First Floor

Hall 2: Edward E. and Emma B. Ayer Hall. Archaeology of Etruria and Rome.—The main section of this hall is occupied by

exhibits of Etruscan and Roman antiquities in stone, bronze, iron, pottery, and glass. Three Etruscan painted sarcophagi from about 500 B.C., and a number of fresco paintings from Boscoreale, a village north of Pompeii, of the first century A.D., are especially noteworthy.

Hall 3: Chauncey Keep Memorial Hall. Races of Mankind.—The exhibits in this hall illustrate the principal types found among the various races of mankind, emphasizing the essential physical characteristics of each. The main racial types are represented in an extensive series of life-size full-length figures, busts, and heads in bronze, and four stone busts and heads by Malvina Hoffman, distinguished sculptor.

The center of the hall is occupied by a group of three bronze statues, in heroic size, of a white, a yellow, and a black man, symbolizing the unity of the races of mankind as a single, well-defined species. The figures representing racial variations which occur within the three basic divisions are arranged around this central triad, those of peoples from each continent being grouped together.

Types of the peoples of Africa, Europe, Asia, America, and Oceania are represented in bronze and stone. At the east end of the hall are large colored transparencies further representing some of the types of races shown by the sculptures; an analytic exhibit of skulls, skeletons, models of brains, color charts of skin and eyes, and casts of hands and feet; and other exhibits pertaining to physical anthropology.

Hall 4: James Nelson and Anna Louise Raymond Hall. Indian Tribes of the Woodland and Southeastern Areas.—In the southwest corner of this hall is representative material from present-day tribes of the southeastern United States. The remainder of the southwest quarter is devoted to collections from the Iroquois, Ojibwa, and eastern Algonquian tribes. A collection of costumes from the Cree, and an exhibit of rare Naskapi material from Labrador, occupy the southeast quarter. The life of the Woodland tribes is illustrated in the northern part of the hall and includes the culture and religious practices of the Potawatomi, a central Algonquian tribe which formerly inhabited the Chicago region and is connected with its early history. In the center aisle are miniature groups illustrating the summer and winter life of the Sauk and Fox.

Hall 5: Mary D. Sturges Hall. Indian Tribes of the Great Plains.—The life of these tribes centered about the horse and the buffalo. The exhibits begin with a life-size group showing a Crow woman and horse with full trappings. The southern half of the hall is devoted to clothing and adornments of the Cheyenne, Arapaho, and Crow. Their principal religious observances are typified by exhibits of the paraphernalia of the Arapaho men's societies and by a Sun Dance Altar. In the northern half of the hall is illustrated the life of the Blackfoot, Assinaboin, Dakota, Osage, Arikara, Pawnee, Wichita, Kiowa, Shoshoni, Bannock, and Kutenai. The exhibits of Dakota bead and porcupine-quill work are especially noteworthy. Ceremonial objects of the Pawnee are shown in the northeast quarter, and the principal rites of the tribe are illustrated by miniature groups representing the Thunder Ceremony, Morning Star Sacrifice, Medicine-Men's Ceremony, and Purification of the Sacred Bundles.

Hall 6: Indian Tribes of California and Nomadic Tribes of Arizona and New Mexico.—In the west end of the hall are exhibits devoted to the California tribes, which are adequately represented by exhibits of ordinary and ceremonial costume, dance skirts and aprons, ornaments, implements, weapons, baskets, and games. Life-size figures of two Pomo medicine-men, one conjuring seed, another holding a ceremony over the deceased, stand near the west entrance of the hall. Representative collections of Navajo and Pueblo blankets, including some rare types, Navajo silver work, and a complete set of masks used in the Navajo Night Chant Ceremony are on view in the southeast section of the hall, as well as a balanced exhibit of material from the Apache Indians of Arizona and New Mexico. On the northeast side are displayed collections from a series of tribes: the Pima and Papago of Arizona, the Ute of the Plateau area, the Nez Percé of Idaho, and the Yakima, Wasco, and Thompson River Indians of the interior of Washington and British Columbia.

Hall 7: Archaeology and Ethnology of Southwestern United States (Utah, Colorado, Arizona, and New Mexico).—The west half of this hall is devoted to the culture of the Hopi of Arizona. At the west entrance is a life-size group showing the interior and exterior of a Hopi house. On the southwest side are shown modern Hopi pottery and textiles, a life-size figure of a bride, and two full-size reproductions of altars. On the northwest side are three more Hopi altars, as well as baskets, boomerangs, a life-size figure of a boomerang thrower, dolls (kateenas), and ceremonial masks. In the center of the hall are two life-size figures of kateena dancers in costume. On the northeast side are exhibited shields, textiles, painted buffalo robes, and pottery of the modern Rio Grande tribes (New Mexico); and reproductions of the pueblos of Acoma, Hano, Taos, and Walpi. On the southeast side is shown archaeological material illustrating the development of culture in the Southwest from earliest times (Basket Maker, dated at A.D. 400) through several phases of Pueblo prehistory down to historic times. There is also an exhibit which, by means of developmental and date lines, shows the sequence and relationship of the major types of prehistoric pottery. Materials illustrating the daily life and religion of one of the ancient towns, were secured by Museum expeditions and compose part of the exhibit. Here, together with tools, ornaments, etc., are four realistic paintings which relate the specimens to the modes of living these prehistoric Indians followed. These paintings treat four principal subjects: food, clothing, housing, and religion. There is also an exhibit illustrating the growth and development of stone and bone tools through eight centuries in the Southwest. Particular attention is directed to the exhibits of rare Basket Maker and Cliff Dweller material, to the pottery recovered by Museum expeditions, and to the exhibit which explains the method of dating ruins in the Southwest by means of tree rings. Included in this hall is the Stanley McCormick Collection.

Hall 8: Mexico and Central America.—In this hall are shown collections from Mexico and Central America, both archaeological and ethnological. The material is arranged, as far as possible, in geographical order. The north side of the hall is occupied by exhibits illustrating the archaeology of Mexico, including a model of the

Pyramid of Quetzalcoatl. Especial attention is directed to the very fine smaller stone work attributed to the Toltecs and Aztecs (Case 4). The Toltecs were a highly civilized people, who preceded the Aztecs and built up an empire rivaling the mighty empire of the Incas. In the northeast corner of the hall is shown a Zapotec collection from Oaxaca, southwest Mexico. The Zapotec culture supplies a link with the Maya civilization of Guatemala, British Honduras, and adjacent areas. The Mayas achieved the highest level of culture reached in the New World. Objects illustrating their civilization are exhibited in Cases 12 to 17. The casts displayed in the center of the hall were made from Maya monuments extant in Guatemala, Yucatan, and Honduras. In the center of this hall also are models of a large palace building of Mitla, Mexico, and of a pyramid at Uuaxactun, Guatemala.

Farther on are shown collections from the areas lying between the ancient home of the Mayas and Panama. The southwest corner of the hall is occupied by collections illustrating the everyday life of the present Indian of the whole Middle American region. In many cases these peoples are the lineal descendants of the tribes represented in the archaeological section. Despite more than four centuries of religious and political oppression, much of the old culture still remains, notably in wearing apparel. Large photographs of famous Maya monuments and buildings are shown on the pilasters.

Hall 9: South America.—In this hall are represented the Indians of South America of the past and present. Exhibits representing the various modern tribes of South American Indians occupy the northwest section of the hall. Among the important collections are those from the Chaco Indians; the Jivaro tribe in the forests of eastern Ecuador, represented by four examples of artificially shrunken human heads; and a large collection illustrating the culture of the northwest Amazon, Orinoco Basin, and Guiana tribes. Among the most interesting exhibits are those showing the preparation of food from the poisonous mandioca tuber, and the sacred trumpets used in initiation rites. The remainder of the north side of the hall is devoted to South American archaeology, and illustrates the high culture of the inhabitants of the west coast of South America in pre-Columbian days. The archaeology of Colombia is very well illustrated by fine collections of gold, pottery, and shell and stone work. There are several cases of artistic pottery dating from pre-Inca times, dug up in the Chimu district on the Peruvian coast. The southeast section of the hall is also devoted to Peruvian culture, both as it was developed in the highlands and on the coast. This collection includes a number of so-called mummies, which in fact are desiccated bodies, and reconstructions of the graves in which they were found; also, beautiful pottery from the Nazca Valley in southern Peru. The southwest section of the hall is given to a representation of the little-known Diaguite culture which flourished in northwestern Argentina shortly before the coming of the Incas, and the adjacent cultures of pre-Hispanic Chile.

Hall 10: Eskimo and Tribes of the Northwest Coast of America.—Eskimo culture is illustrated in its wide geographical range, which extends along the shores of America from Labrador to

northeastern Siberia. The dependence of the Eskimo on hunting and fishing is made clear by means of four life-size groups, located in the center aisle, showing an Eskimo hunter in his kayak, the chase and capture of seal, preparation of skins, and winter fishing through a hole in the ice. On the southeast side of the hall are located the Eskimo collections. The remainder of the hall illustrates the life, religion, art, and industries of the tribes of the Northwest Coast and related interior groups. A single case (No. 35), illustrating the life of the northern Athapascans of the Yukon Valley, deserves special mention, because of the excellence of the garments, and the decoration in porcupine-quill work. The interior Salish tribes are represented in the southwest corner of this hall by ceremonial objects and a life-size group showing their home life and industries. In the bays separating Hall 10 from the transverse halls, and against the south and northwest walls of the hall proper, are erected totem poles and grave posts from the Northwest Coast tribes.

Second Floor

Hall 24: George T. and Frances Gaylord Smith Hall, East Gallery. Archaeology of China.—The object of this hall is to illustrate the development of Chinese civilization in all its varied phases from its beginnings in the Old Stone Age (about 500,000 years ago) through the Neolithic period (about 3000 B.C.) down to the latter part of the eighteenth century. There are two main divisions: the ancient, original culture of China prior to the intrusion of Buddhism, shown in the south half of the hall, and the culture of Buddhistic China, as influenced and modified by religious and artistic currents coming from India from the third century A.D. onward, in the northeast section of the hall. In each division the principle of arrangement is chronological. The collection is particularly strong in Han pottery, cast iron, mortuary clay figures, Sung pottery and porcelain, and Buddhistic and Taoist sculpture, much of it provincial. Two large bronze drums, a cast-iron bell, a temple censer, and two monumental stone lions are shown on bases in the open. A lacquered imperial screen with elaborately carved dragons is exhibited at the north end of the hall.

South Gallery: Models of pagodas from all parts of China, and selected Chinese paintings and tapestries, are exhibited in this gallery.

North Gallery: A fine, carved lacquer screen of twelve panels, from China, eighteenth century, occupies this gallery.

Hall 30: Chinese Jades.—This hall contains more than a thousand examples of carved jade, arranged in ten cases in chronological order from the early archaic period (about 1500 B.C.) down to the end of the nineteenth century. On the walls there are an embroidered screen of the K'ang-hsi period and an imperial tapestry.

Hall 31: H. N. Higinbotham Hall. Gems and Jewels. *See page 43.*

Hall 32: West Gallery. Ethnology of China and Tibet.—Tibet is represented in the north part of the hall by exhibits of textiles, looms, clothing (in a series of costumed figures), jewelry, saddlery,

weapons, armor, ceremonial scarfs, metal ware, and household utensils. The Lamaist religion, a form of Buddhism introduced from India, is illustrated by images, paintings, sculpture, musical instruments, and other objects used in the Lama temples. A large cast-iron temple bell is worthy of special attention. In the central portion of the hall are shown weapons, suits of armor, imperial costumes, fans, basketry, musical instruments, bird and cricket cages, beadwork and peasant embroidery, printing equipment from China, and a case that was especially planned for the school children of Chicago and shows Chinese school children with their books, writing equipment, and samples of their drawing and painting. The south section of the hall is occupied by representations of Chinese and Tibetan dramatic performances on which a special handbook entitled *Oriental Theatricals* has been issued.

Ground Floor

Hall A: Joseph N. Field Hall. Melanesia, South Pacific.—

This hall contains ethnographical material from Melanesia and New Guinea. The Melanesian collection is without doubt the most comprehensive in America. At the north end are the collections from New Ireland, notable for elaborately carved and decorated ceremonial masks and wooden figures. Two special cases contain tall carvings representing ancestral figures, one mounted above another. Next comes the general collection from New Britain, including large masks of quite a different type. The peculiar types of decorated spears, clubs, clothing, and ornaments from St. Matthias are shown in one case. The Admiralty Islands are represented by large wooden bowls, baskets, drums, carved figures, ornamented weapons, clothing, and personal ornaments. The central part of the hall is occupied by exhibits from New Guinea. Here may be seen a great variety of wood-carvings, human and animal figures, masks, shields, bowls, and large wooden drums. Interesting types of ornamental designs can be seen on pottery, string bags, spears, and many other objects. Next comes material from the Solomons, New Caledonia, and the New Hebrides. Of special interest are the inlaid work in shell from the Solomons, the New Caledonian stone clubs, and the ancestral skulls, large tree-fern figures, and upright wooden drums from the New Hebrides. In the southwest corner of the hall are two cases of material from the little known Rennell, Bellona, and Santa Cruz Islands. In most of the cases photographs are shown illustrating the use of many of the objects exhibited. A general popular description of Melanesia and the life of its native inhabitants may be found in the handbook entitled *People of the South Pacific*, published by the Museum and on sale at the north entrance.

Hall A1: Australia.—Five cases in this hall contain material selected to illustrate the primary divisions of the simple culture of Australian aborigines. These tribes are still in a Stone Age state of development, with no agriculture, no domestic animals except the dog, and no musical instruments. Their spear heads of stone are exceptionally well worked, and spear points made from fragments of glass obtained from Europeans are delicately flaked. Many devices credited with magical powers are displayed. Varieties of boomerangs, shields, clubs, and spear-throwers are regionally classified in the exhibit.

Hall B: Archaeology of the New World.—There will be three sections in this new hall when it is completed:

Section 1: "Indian America," the New World civilizations as they were found at about the year 1492 by European explorers, missionaries, and conquerors. In this section are shown some of the fundamental characteristics of Indian civilizations at the point where recorded history and archaeology (unwritten history) meet. It is axiomatic that to exist, every man must eat, clothe himself, erect some form of shelter, make and use tools—either on a relatively simple plane or in a complex way. These aspects of Indian life are exhibited in this section, with reference not to one isolated area, but to the entire New World. Exposition of such fundamentals can best be accomplished in this manner.

The exhibits deal with a series of important culture traits arranged to show their forms and spatial distribution over North, Central, and South America. Specifically, the following subjects are treated in separate exhibits: (1) Where we obtain some of our knowledge concerning the customs of the Indians; (2) architecture (houses and temples); (3) travel and transport; (4) clothing; (5) decorative art; (6) economy—that is, agriculture, tobacco, hunting, fishing, seed and root gathering; (7) distribution of types of basketry, pottery, metal work, weaving and textiles; (8) the reasons why some Indian civilizations are rated higher than others (a chart); and (9) writing.

Section 2 is dedicated to the American Indian civilizations as they were in the thousands of years prior to White contacts (1492–1800). This section will exhibit the main accomplishments of the Peruvians, Mayas, Aztecs, and Pueblos, as well as those of the Indians of the Mississippi Valley and the rest of North America. It will also show the chronological order and the sequence of these civilizations from the time of their discovery back to the earliest evidence of man in the New World—or about 15,000 to 25,000 years ago. These subjects will be treated by means of dioramas, etc.

At present there are nineteen exhibits completed in Section 2. Ten pertain to the Hopewell Indians who lived in southern Ohio about A.D. 1100–1400; one deals with a southern "Death Cult" which flourished about A.D. 1550–1650; another displays Arkansas ceremonial pottery made during the Temple Mound stage (A.D. 1400–1700); and still another deals with northern farmers, the Oneota, Ft. Ancient, and Iroquois groups who lived about A.D. 1400–1700.

There is an exhibit showing "Why and How the Indians first came to America from Asia" about 20,000 years ago; one deals with the Shell Mound Indians of Kentucky, who lived probably before A.D. 500; two exhibits deal with northern Woodland Indians who lived in the Great Lakes region from about A.D. 1100–1700; and two are dioramas, one of an ancient Arizona cliff-house, the other of an Inca village in the mountains of Peru.

Section 3 (*in preparation*): Techniques: how stone, bone and metal tools, pottery, baskets, and clothing were made and used; how archaeologists find, excavate, and date ancient ruins; and finally, how archaeologists collect and interpret information.



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A NEANDERTHAL FAMILY

Life-size restoration of prehistoric people who lived about 50,000 years ago, with a reproduction of a rock shelter at Gibraltar. This group is one of a series in the Hall of the Stone Age of the Old World.

Hall C: Stone Age of the Old World.—The exhibits in this hall are arranged in chronological sequence to illustrate the main stages of man's cultural and physical development from approximately a million years ago down to the dawn of history, principally in western and central Europe. On the south side of the hall are diorama groups most of which contain life-size restorations of early types of man. The scenes in these, with the exception of Group No. 1, represent actual prehistoric sites.

The groups are as follows: (1) Chellean scene, northern France; (2) Neanderthal family at Devil's Tower rock shelter, Gibraltar; (3) cave of Gargas, Haute-Garonne, illustrating the dawn of art in the Aurignacian period; (4) sculptured frieze of Le Roc, Charente, illustrating the art of the Solutrean period; (5) bison of clay at Tuc d'Audoubert, illustrating the art of the Magdalenian period; (6) original Magdalenian skeleton, Cap-Blanc, France; (7) rock shelter of Cap-Blanc, Dordogne, showing frieze of animals and Magdalenian sculptures in high relief; (8) Mas d'Azil boar hunting scene; (9) Neolithic sun-worship, Carnac, Brittany; (10) Swiss Lake Dwellers. Human remains, artifacts, and remains of contemporary animals are shown in fifteen cases so arranged that the culture of each period may be studied opposite the diorama characterizing the same period.

Of special importance among the collections in this hall is the original Cap-Blanc skeleton of a Magdalenian girl. Likewise treasured for their rarity are fragments of human remains from the Neanderthal and Azilian periods, as well as additional Magdalenian material. The Middle Aurignacian necklaces from La Souquette, Dordogne, and the type collections from Tarté and Solutré, are also important. Although European material dominates the type collection in general, representative examples from Asia and Africa are shown for purposes of comparative study. On the north wall are shown drawings depicting reconstructed scenes of Paleolithic times. A large photograph of the mammoth pit at Predmost in Moravia reveals the wealth of animal bones found.

At the entrance to the west end of this hall is an exhibit called *The Ancestry of Man*, designed to show the relation between mankind and other primates, and particularly the inter-relationships of various extinct and living races of the human family.

Hall D: West and Central Africa.—The exhibits in this hall are arranged in geographical order, beginning with the Cameroon region of west Africa and extending through the Congo area and Angola (Portuguese West Africa). The section illustrated in greatest detail is that of Cameroon, on the north side of the hall, where skill in wood-carving, bronze casting, and beadwork attains a standard unsurpassed in any other part of Africa. The finest examples of the woodworker's craft are displayed in the large wall case at the west end of the hall. This exhibit includes a series of door posts and window frames, along with such objects of household use as wooden beds and stools. In the center of the hall are three life-size figures of Cameroon medicine-men. These symbolize the main current of African thought, for they represent witch-doctors engaged in magical ceremonies which are deemed necessary to cure the sick, to make rain, and to appease the ghosts of ancestors. An excellent collection of bronzes as well

as wood and ivory carvings from the west African city Benin, testifies to the high development of Negro art. Along the south side of the hall are exhibits representing warfare, handicrafts, and domestic articles of Congo Negroes and similar objects from Angola. Numerous photographs in the cases illustrate the way in which the objects exhibited were made and used in the country of their origin. Other pictures have been selected for the purpose of giving an accurate impression of the many physical types represented by the races of Africa. Case 13A makes a comparison of the wood-carving of west Africa with that of Negroes of Dutch Guiana, South America. A handbook entitled *Ethnology of Africa*, published by the Museum, is on sale at the north entrance.

Hall E: Madagascar; East, South, and North Africa.—The east half of this hall is occupied by a collection from Madagascar. The natives of Madagascar are of mixed Asiatic and African origin, and the exhibit forms a link between the African cultures and the Polynesian and Malayan objects shown in the adjoining halls to the south. This is the only Madagascar collection of importance in the United States, and is believed to be the most complete in existence. It includes implements and utensils of all sorts, weapons, jewelry, wood-carvings, ornamental iron work, textiles, and paintings. Much of the work has considerable artistic merit. The jewelry, wood-carvings, and textiles are of especial interest. The textiles are woven from silk obtained from both wild and domestic silkworms, cotton, hemp, raffia, banana fiber, and the inner bark of trees. There is on exhibition a unique collection of raffia cloths decorated with elaborate designs made by the warp-dyeing process.

The west end of the hall is occupied by collections from east, south, and north Africa. Several distinct cultures are represented, including those of Bushman hunters, camel keepers of Abyssinia, and the warlike, pastoral Masai. Two cases displaying objects from north Africa are placed midway in the hall. The rugs and clothing of the Kabyles are excellent examples of weaving and dyeing, while the jewelry of these tribes makes an attractive exhibit. One of the two cases containing objects from north Africa is devoted principally to a display of objects used by the camel-keeping Tuareg of the Sahara.

Hall F: Polynesia and Micronesia.—This hall contains collections from Fiji, Samoa, Tonga, the Cook Islands, Hawaii, New Zealand, and the Society and Marquesas Islands in Polynesia, and from the Gilbert, Caroline, and Marshall groups and various outlying islands in Micronesia. Of especial interest are the fine collections of painted bark-cloths and weapons from Fiji, Tonga, and Samoa. Noteworthy are carved ceremonial paddles and adzes from the Cook Islands. The New Zealand material illustrates well the culture of the ancient Maori. Jade implements and feather robes are prominent features of this exhibit, which is regarded as the best in the United States. The eastern end of the hall is occupied by a complete Maori council house from New Zealand, the only one in America and one of six in existence. This structure is sixty feet long and fourteen feet high. The front and all the wooden parts in the interior are covered with carvings and paintings in the best style of ancient Maori art. Among the objects from Micronesia the armor and tooth-

edged weapons of the Gilbert Islanders, and the curious weapons and implements from Matty Island, are of especial interest. A tapa mosquito curtain from Fiji fills an entire case. A handbook entitled *Ethnology of Polynesia and Micronesia*, published by the Museum, is on sale at the north entrance.

Hall G: Malay Peninsula and Malay Archipelago.—In the west section of this hall are illustrated the cultures of the island of Sumatra, chiefly represented by the Batak and Menangkabau (on the north side of the hall), the ethnology of Nias, a small island off the west coast of Sumatra, and of the Semang, Sakai, and Malay of the Malay Peninsula (on the south side of the hall). Exhibits from the Menangkabau are continued in the east portion of the hall, which in addition is devoted to the cultures of Java, Madura, Borneo, Formosa, Ceram, Halmahera, Tenimber, and the Kei Islands. The entire process of making batik-cloth is illustrated and supported by many fine examples of batik fabrics. Puppets, masks, actors' head-dresses, actors' costumes, and the musical instruments of an orchestra such as accompanies performances, testify to the high development of dramatic art in Java. There are four notable ancient stone sculptures from Java, and a remarkable collection illustrative of the life of the Dyaks of Dutch Borneo. The center of the hall is occupied by a miniature model of a Menangkabau village, a life-size figure of a Semang pygmy shown in the act of making fire, and a life-size figure of a Dyak hunter. Life-size figures of a Menangkabau bride and groom form a striking exhibit. Attention should especially be called to the numerous fine wood-carvings and textiles in this hall, including an elaborately carved figure from Bali. The Arthur B. Jones Collection is included in the hall.

Hall H: Philippine Islands.—The collections in this hall (including the Robert F. Cummings Collection) are so arranged as to emphasize the outstanding characteristics of the principal pagan groups throughout the archipelago. Comprehensive exhibits illustrate the economic and ceremonial life of the Tinguian. A miniature village of this people stands on the south side in about the center of the hall, while a life-size group pictures their most noteworthy industry—the forging of head-axes and spear-points. The Igorot are represented by two groups—one, a miniature village illustrating the daily life and activities of the people; the other, a life-size group showing the making of pottery. Suits of armor, and cannon and other weapons from the Moro, are worthy of particular attention. At the east end of the hall is a group consisting of six life-size figures representing Bagobo weavers engaged in preparing and weaving Manila hemp.

Hall J: Archaeology of Egypt.—Human mummies and coffins ranging in date from the tenth dynasty to the Roman period (i.e. from about 2200 B.C. to A.D. 200) are assembled in built-in cases along the north wall of this hall. A small chamber at the west end of the hall contains an X-ray apparatus and a mummy. Here the Museum visitor may press a button and see an actual size skeletal image of the mummy projected upon a fluoroscopic screen. X-ray photographs of some of the mummies are shown in a case near-by. Painted linen shrouds from late Egyptian mummies occupy the ends

of the north wall cases. The backs of these cases are covered with textiles, large hangings, and parts of decorated garments of the Coptic period. Other Coptic garments and ornamental tapestries and embroideries occupy a built-in case on the south wall. East of them are mounted manuscripts on papyrus. Another case on the south wall contains a group of stelae. On the east wall and the wall north of the west stairway are displayed tomb-sculptures and paintings. This exhibit includes a statue of the goddess Sekhmet. Two complete tomb chapels of the Old Kingdom have been erected in the northwest corner. There also are three late sarcophagi of red granite, black granite, and marble, respectively. The largest case in the hall, under the west stairway, contains a wooden boat almost four thousand years old, found buried beside the pyramid of King Sesostris III at Dahshur. A prehistoric Egyptian body, buried long before mummification was practised, is shown in a burial pit, surrounded by pottery. Other exhibits are devoted to statuettes in stone, bronze, and wood, ushebti, offering-tables, tomb and memorial tablets, alabaster and other stone vases, pottery, faience and glass, jewelry, toilet articles, charms, beads, tools, weapons, wooden furniture, and mummified animals. All the foregoing are original objects. Reproductions shown include only the famous Rosetta Stone, the elegant papyrus of Ani, and certain important tomb and temple sculptures the originals of which are still in Egypt.

Hall K: Archaeology of Babylonia.—Cultures of the ancient Near East from the middle of the fourth millennium B.C. to the fourth century A.D. are shown in this hall. The material, almost entirely from excavations by the Field Museum-Oxford University Joint Expedition to Kish and Jemdet Nasr, is representative of four thousand years of development in Babylonia. The floor cases contain pottery of the Jemdet Nasr, Early Dynastic, Babylonian, and Neo-Babylonian periods; Sumerian stone and bronze vessels; chariot wheels and rein rings from tombs dating to about 2900 B.C., with a scale reconstruction of a four-wheeled chariot; cuneiform writing on clay tablets; and building materials and models showing how they were used. In the wall cases are tools, weapons, personal ornaments, toilet articles, figurines, gaming pieces, weights, toys, glass vessels, lamps, amulets, and cylinder and stamp seals.

At the west end of the hall is a restored Sasanid portal, flanked on both sides by sections of a large palm-frond soffit. The two alcoves near-by are devoted to an extensive display of Sasanid stucco and pottery.

Around the walls is a frieze of cylinder-seal impressions, enlarged approximately twenty-five times, selected to show the development of glyptic art. A leaflet describing these seals is on sale in the hall.

Hall L: Siberia, and the Ainu, India, Ceylon, Andaman and Nicobar Islands.—Ethnological collections from both the primitive and advanced cultures of northeastern and southern Asia are shown in this hall. The west end contains the clothing, household objects, weapons, and tools of the primitive peoples of eastern Siberia, and of the Ainu of Japan. Beside the west door of the hall are two large Siamese shadow figures, mounted on glass and

illuminated from behind to show them as they appear to the spectator at a Siamese shadow play. Extensive collections from India, including musical instruments, weapons, textiles, clothing, ornamental brasses, architectural wood-carving, and a model of the famous Taj Mahal fill the eastern section of the hall. Particularly notable is the inset case in the center of the east wall exhibiting Indian sculpture of the first century of our era and later. Exhibits from Ceylon, of which the most interesting are perhaps the carved wooden masks, and the models of boats and carts, are along the north wall. There also are three cases containing collections from the primitive tribes of the Andaman and Nicobar Islands in the Bay of Bengal.

DEPARTMENT OF BOTANY

Second Floor:—Halls 25-29, East Wing.

Hall 25: Food Plants.—The south side of this hall is occupied by food products of vegetable origin: the small grains and corn with their products, starches, sugars, edible oils and fats, leguminous seeds, nuts, spices, and beverages.

The principal grains such as wheat, rice, and rye, are exhibited, and, in more detail, heads of the chief wheats and barleys of the United States with the United States government grain standards. The exhibit includes primitive cultivated grains, einkorn, emmer and spelt; also samples of ancient barley and wheat from Mesopotamia reputed to be 5,000 years old, and of wheat from the pyramids of Egypt. A miniature mill illustrates the modern process of flour-making, and various samples show the steps in manufacture and the characteristics of the chief commercial grades of flour. The five main types of corn are shown; also ancient corn from the Mound Builders, Cliff Dwellers, and Peruvian burials. Products manufactured from various small grains, and a detailed exhibit of those from corn kernels, are displayed, with material illustrating the steps in their manufacture.

Various forms of sugar from the native markets of many countries are shown. There is also a detailed exhibit representing the steps in the manufacture of cane and beet sugar. Edible vegetable oils, domestic and foreign, are displayed with the seeds or fruits from which they are obtained. The chief commercial starches of the world are shown in conjunction with their respective plant sources. Leguminous seeds from various countries give an idea of the many varieties that are used for food. Exhibits of spices and nuts furnish an interesting study in plant geography. Common beverages are seen to be mostly of vegetable origin, and fall into two main groups. One group includes coffee, tea, cacao, maté, cola, guaraná, etc., with mildly stimulating properties due to caffeine, theine, or similar alkaloid. The other group comprises fermented beverages in use in all parts of the world, such as palm wine, piwari, chicha, awa, and pulque, as well as the more familiar cider, grape wines, etc., with their distilled derivatives. A large variety of tea and coffee is shown, together with an exhibit of the New York Coffee Exchange standard of grading. Enlarged photographs portray the principal steps in the production

of these commodities. In proximity to the collections of coffee and tea samples are dioramas showing on a small scale a modern coffee plantation and a tea plantation. In a separate floor case there is a natural size reproduction of a tea bush in flower and fruit. Near the starch exhibit is a small scale diorama of a South American cassava mill. In a case near the east end of the hall are shown the principal vegetable foods of New World origin. The chief edible fruits are generally omitted from the food plant display, being well represented throughout the botanical exhibits in Hall 29, adjoining.

A series of murals parallels the exhibits and represents scenes pertaining to man's quest of vegetable food; food-gathering, primitive planting, hoe-culture, various types of agriculture, threshing, grinding, sugar growing, oil pressing, the caravan trade in spices, water-borne commerce in food products, a vegetable market in the tropics, a wholesale vegetable market. The last two murals of the series are maps showing the overland trade routes of ancient and medieval times, and the chief centers of origin of the world's principal food plants. These murals are the work of Mr. Julius Moessel.

Palms.—The north side of Hall 25 is devoted to palms and their economic products. The collection includes palm material from almost all tropical parts of the world. It contains many unusual and interesting specimens, such as the so-called double coconut of the Seychelles Islands, which has the largest seed in the plant kingdom. There are also numerous entire clusters of fruit among which those of the South American *Mauritia* and *Orbignya* palms are notable for their size. Most impressive of all for its large size is the fruit cluster of a raffia palm which occupies a separate case. A case is given to a display of the enormous leaf stems of the larger palms in which the entire length of a leaf may be as much as forty feet. A spiny palm from Surinam and a Nipa palm from the East Indies occupy separate cases. At the east end of the hall is shown the flowering and fruiting top of a coconut palm.

Palms furnish many of the necessities of life in the tropics, yielding edible fruits such as dates and coconuts, edible oils, sago, sugar, and drinks both fermented and unfermented; several palms are important sources of fibers, others of wax. The stems are used in construction of dwellings, the leaves for thatching, basket-making, hats, mats, etc., and the fibers for making ropes and textiles.

Hall 26: Charles F. Millspaugh Hall. North American Woods.—The exhibits in this hall represent the principal trees and woods of North America. They are arranged in the order of their botanical relationship, beginning with the conifers at the northwest end of the hall. Each exhibit includes a part of the trunk of a tree, a transverse or cross-section of a trunk, and one or more boards representative of the typical grain and appearance of the wood. Generally there are a quarter-sawed board and a flat-grained one. These specimens are supplemented by photographs of the living tree under summer and winter conditions, and in some cases of a branch in fruit or flower; a map to indicate the area of distribution; and a descriptive label summarizing the principal characteristics of the tree, and properties and uses of the wood. Colored transparencies show North American forest scenes. For this hall a special guide-



ALPINE VEGETATION

A large diorama in Martin A. and Carrie Ryerson Hall (Hall of Plant Life—Hall 29) showing the vegetation above the timber line of the Rocky Mountains. It represents a scene in the Medicine Bow range of southeastern Wyoming.

book, *North American Trees*, may be obtained at the North Entrance of the Museum.

Hall 27: Foreign Woods.—In the east half of this hall are shown selected woods of the Old World. Those of India, Africa, and Australia are on the south side, and those of Europe, the Philippines, and Japan are on the north. The west half of the hall contains West Indian, Mexican, and Central and South American woods. This collection is still incomplete, but contains most of the foreign woods now imported into the United States. Of the new exhibits the most noteworthy are a display of commercial woods of the Amazon Valley, and another of the various species of American mahogany.

Hall 28: Plant Raw Materials and Products.—On one side of this hall are displayed fiber plants such as cotton, hemp, flax, jute, manila hemp, sisal hemp, and their products. On the other side are shown varnish resins, lacquers and lac, wood distillation products, resin and turpentine, cellulose and paper pulp, cork, tanning materials, dyestuffs, rubber, gums, waxes, perfume and flavoring oils, paint and soap oils, tobacco, and crude drugs.

Where possible a specimen or a photograph of the fiber plant, or the part of the plant that yields the raw material for fiber-making, is shown in connection with material illustrating stages in the preparation of the fiber and its products. Basketry, broom, and hat making materials are shown in the same manner.

The display of resins is unusually fine. Wood distillation, although an old industry, has very recently made distinct improvements in methods and in the number and value of its products. These are shown in some detail.

Vegetable dyes and tanning agents, oils, waxes, and rubber are of interest because of their industrial applications. The exhibit of rubber includes many of the principal varieties of crude material, and trunks of several kinds of rubber trees showing methods of tapping.

In the center of the hall are tree trunks incised or boxed for turpentine and rosin, reproductions of a long-staple cotton plant, and of a tobacco plant in flower.

Hall 29: Martin A. and Carrie Ryerson Hall (Hall of Plant Life).—The exhibits in this hall are planned to furnish a general view of the entire range of plant life, including various extinct groups, and to show at the same time as many as possible of the most important useful plants of the world. Beginning at the northeast corner of the hall, the lowest order of plants, the bacteria, are followed by algae, fungi, mosses, and other flowerless plants; next are conifers; and finally the flowering plants, which occupy the greater part of the hall. One of the most noteworthy of the exhibits is a trunk of the curious cannon-ball tree of northern South America, with showy flowers and large spherical fruits, on the east side of the hall. Other interesting plants represented are pepper, breadfruit, the giant waterlily known as *Victoria regia*, pitcher-plants, citrus fruits, poison ivy, ragweed, mango, cacao, passion flowers, anatto, cacti, mangrove, Brazil nuts,

souari nuts, chicle, coffee, banana, pineapple, vanilla and other orchids, etc. In their respective places among the various plant families represented are found also some of the common wild flowers of the United States.

At the north end of the hall is a large group illustrating the alpine vegetation of the north Rocky Mountains; to the left of this is another representing the spring flora of an Illinois woodland, and to the right is a third showing the intertidal seaweeds of the northern Atlantic coast. At the south end of the hall a group of tropical aquatics is the first of a series of three scenes to illustrate plant communities of the southern hemisphere.

Since plants cannot be so preserved as to retain their natural appearance, most of the exhibits in this hall are produced in the laboratories of the Museum. Plants collected in the field serve as models for accurate reproductions, made by skillful employment of plastic materials. New exhibits are being added continually.

DEPARTMENT OF GEOLOGY

Second Floor:—Halls 31 and 34–38, West Wing.

Hall 31: Gems and Jewels. *See page 43.*

Hall 34: Minerals, Crystals, and Meteorites.—The east half of the hall is occupied by the systematic collection of minerals. These are classified and arranged according to the usual classification based upon chemical composition and crystal structure. Those native elements which are each composed of only one kind of atom are placed first at the east end of the hall. They are followed by groups of more complex composition: the sulphides, chlorides, oxides, carbonates, silicates, sulphates, phosphates, and others, ending with the hydrocarbons.

Five individual cases contain specimens of unusual interest: (1) from southern Illinois, a twinned fluorite crystal, probably the largest crystal of its kind in any museum; (2) from western Illinois, a large quartz-filled geode; (3) from Chile, two large, clear selenite crystals; (4) from Peru, what is probably the largest known lapis lazuli; and (5) from Lander, Wyoming, a large nephrite jade boulder weighing 2,490 pounds. Toward the center of the hall are shown a special collection of radio-active minerals accompanied by radiographs made by them, a collection of pseudomorphs, and the William J. Chalmers Crystal Collection. The Chalmers collection illustrates, by means of a large number of selected mineral crystals, the variations in natural external form that result from the different arrangements of the atoms that characterize different minerals. Supplementary cases contain collections of amber, and of ornamental and fluorescent minerals. The fluorescent exhibit, located in the corridor leading to Hall 35, is arranged so that its specimens are alternately exposed to white and ultra-violet light.

Following the minerals, twenty cases are devoted to the exhibition of one of the largest collections of meteorites in the world—in fact, the largest, as regards the number of recorded meteorites represented. Nearly two-thirds of the 1,200 meteorite falls on

record are represented by specimens in this collection. Some of the specimens are in the form of polished or etched slabs, which display the interior structure of meteorites, while others are unbroken and show how the meteorites appeared when picked up immediately after their fall. The larger examples are installed in individual cases. The specimen of greatest size thus shown is an iron meteorite weighing 3,336 pounds. The exhibit also contains two of the largest known individual stone meteorites, one being the largest ever seen to fall and the other the largest ever found. Meteorites, aggregating more than a ton in weight, from the famous locality at Canyon Diablo, Arizona, are shown. They include one weighing 1,013 pounds. Etched faces on many of the specimens of iron meteorites illustrate the peculiar figures which distinguish these meteorites from terrestrial iron. The Benld meteorite, which fell through a garage and damaged an automobile, is shown in an individual case, together with damaged parts of the garage and automobile. It is of more than usual interest because only eleven meteorites are known to have caused property damage. This hall also contains a collection of tektites, peculiar glassy objects of unknown origin which many believe to be meteorites.

Hall 35: Clarence Buckingham Hall. Physical Geology and Lithology.—The east half of this hall contains collections illustrating the structure of the earth, and the effects of the geological agents which affect the formation, alteration, destruction, and disturbance of the rocks. On the east wall there is a model of the solar system and another of the interior of the earth. At the east end of the hall is a collection of volcanic rocks which were ejected in a molten state from the earth's interior. Contorted and ropy lava surfaces from Hawaii, from the Mount Taylor volcanic region in New Mexico, from Vesuvius, and from other well-known volcanoes, as well as volcanic bombs from France and New Zealand, are conspicuous among the volcanic specimens. There are also shown many examples of such frequently mentioned substances as volcanic ash, lapilli, and tuffs.

The volcanic collection is followed by a collection showing features of the igneous rocks which at the time of their formation lay deep within the earth.

A model shows the forms assumed by intrusions of rock from the depths into rock nearer the earth's surface. Another model shows the interior of the earth with greater detail than appears on the larger model on the wall. Also shown is a collection illustrating the several kinds of metamorphism (change of one kind of rock to another). Examples of rocks crumpled, folded into troughs and ridges, or broken and displaced, demonstrate the enormous power of forces which are constantly in operation within the earth. Features of the dikes and veins which fill openings in rock appear in near-by cases.

In one case are exhibited many dendrite specimens. These are branching mosslike forms deposited by water seeping through cracks in rocks. They are objects of unusual delicacy and beauty. In another case are specimens of ripple-marked sandstone of unusual size and perfection. These display large surfaces ripple-marked by wave action in a long distant past, exactly as the sands of lake and sea shores of the present day are scored.

Cave products occupy one case. While these consist largely of lime stalactites and stalagmites, other cave products such as floor deposits and gypsum rosettes are also represented. Caves of an unusual type, found in Utah, containing huge transparent gypsum crystals instead of the usual carbonate of lime stalactites, are represented by a number of crystals which have been so installed as to reproduce the appearance of a cave. Artificial lighting of the exhibit serves to bring out the transparency of the crystals. A large fulgurite or "lightning tube," more than eight feet long, which was formed when lightning struck into an Indiana sand dune, occupies a case by itself. In an adjoining case, smaller fulgurites from other localities show the effects of lightning on both sand and rock.

A large specimen of lodestone, weighing 400 pounds, has unusual magnetic power which is illustrated by metallic objects which cling to it because of its attraction.

A collection which illustrates the changes effected in and the destruction of rocks on the surface of the earth by exposure to the weather fills several cases. Specimens from the Arabian Desert showing stones broken by exposure to the heat of the sun, and the desert varnish covering pebbles from several deserts, merit special attention.

Near the middle of the hall three cases are filled with an unusually large and varied collection of concretions. Another case near the center of the hall contains a collection illustrating the wearing, smoothing, grooving, and scratching of rock by glacial action. The result of this action is shown in unusual perfection on two large rock slabs displayed on bases.

The west half of the hall is filled with a large collection of rocks displayed in specimens of uniform size. These are arranged not in geographical order but according to a system depending upon their texture and mineralogical composition.

Dominating the west end of the hall is a model, nineteen feet in diameter, of the visible hemisphere of the moon. It is much the largest and most elaborate representation of the moon's surface ever made. The characteristic volcanoes, plains, mountain ranges, and other features of the moon are shown in their true positions and relative extent. In order to make the relief more distinct the vertical scale of the model has been made about three times greater than the horizontal.

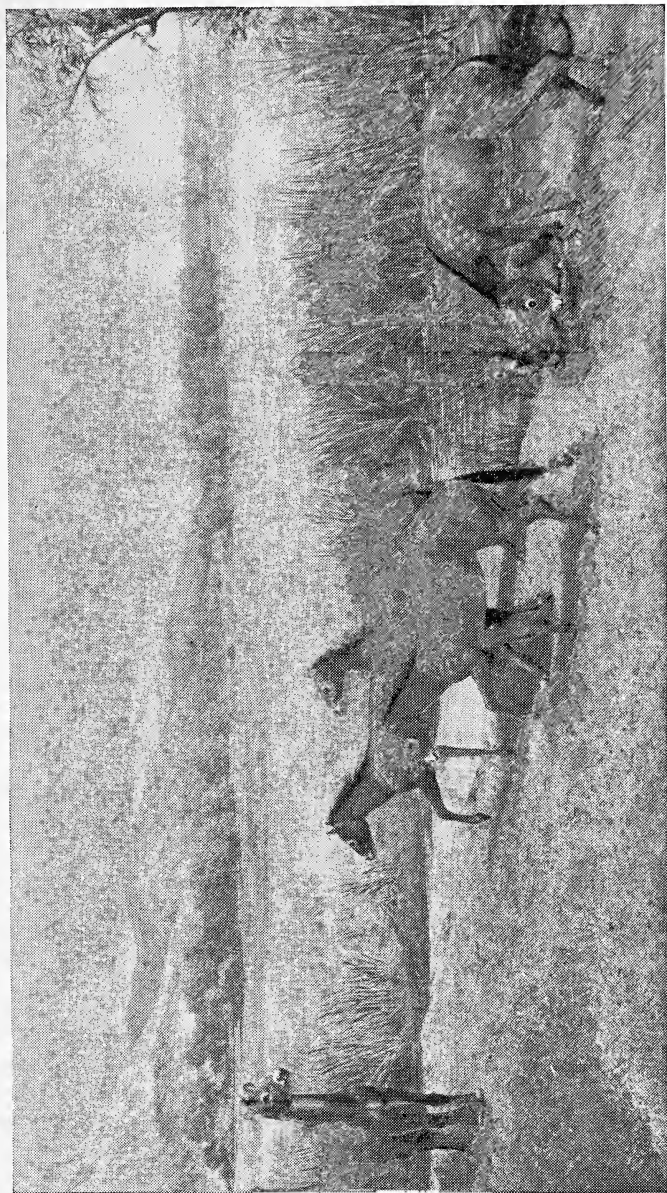
The walls of two corridors connecting Clarence Buckingham Hall with adjacent halls are occupied by exhibits. In the western half there is displayed a collection of relief maps showing the topography of selected portions of the earth's surface. Some of these are representations of well-known scenic areas. Others illustrate the topography of states and other political divisions. Of special geological interest are the relief maps of the region about Chicago, which show the distribution of land and water in this district during a number of stages following the glacial period. In one of these corridors there is a model of the Natural Bridge of Virginia. Besides being a faithful reproduction of the bridge, with the associated scenery, the model illustrates a number of details of rock structure which occur on too large a scale to be shown by specimens.

Hall 36: Non-metallic Industrial Minerals.—This hall is in process of change from a hall of non-metallic industrial minerals to one covering the entire field of Economic Geology. The east half of the hall will be occupied by the ores of the precious and base metals; the west half contains the useful rocks and non-metallic minerals of economic importance. These exhibits include an introductory case illustrating the nature and occurrence of useful rocks and non-metallic minerals; mica and silica; natural and artificial abrasives; building and decorative stones; asbestos minerals; refractory minerals; solid mineral fuels; carbon minerals; alkaline earths; minerals of the alkali group; nitrates; phosphate rocks and minerals; fluorite, and sulphur.

Hall 37: Frederick J. V. Skiff Hall. Ores; Fossil Invertebrates and Plants.—The east half of this hall is occupied by a collection of ores of the precious and base metals. The ores of each metal are grouped separately, with the exception of ores of gold, silver, and lead which occur mixed in the same deposit so frequently that they must be shown together. Under each group the specimens are arranged in geographical order according to country, state, and mining district. In a case against the east wall, examples of those minerals which are frequently mistaken for gold are shown, and with them, for comparison, gold from a variety of occurrences. Interspersed with the groups of ores are models which illustrate methods of mining and treating ores of the more important metals. Among these a model of a gold mine shows ordinary methods of mining vein ores. Treatment of gold ore for extracting the gold is illustrated by two models, one of a stamp mill, the other of a simple form of cyanide plant. A model of a lead blast-furnace illustrates one common method of extracting lead and silver from the ore. A model of an iron blast-furnace and its accessories, partly in section, illustrates the fundamental process in the metallurgy of iron. With this model are shown models of two furnaces which illustrate the simple methods of iron smelting used in earlier times or by primitive peoples. One of the usual treatments for separating ore of any kind from admixed rock is shown by a model of a jig. With many of the lesser known metals, and some others, are placed small collections which illustrate the utilization of these substances.

As the small specimens of which most of the ore collection is composed do not show sufficiently well the appearance of ore in mass, several large specimens of various ores have been placed in individual cases. Near the center of the room a collection of native coppers in a separate case merits attention.

The west half of the hall contains the collections of invertebrate fossils and fossil plants. Extensive reorganization and improvement of this collection is under way and parts of it may be withdrawn at times for revision. The exhibits are temporarily arranged in stratigraphic sequence, consisting of plants and animals of the successive geological periods from the Cambrian to the Pleistocene. This arrangement shows that each important geologic period is characterized by a more or less distinctive group of plants and animals, and that life moved in an orderly succession from the simple to the more complex forms. Furthermore, this series furnished evidence



PREHISTORIC THREE-TOED HORSES

Restoration of equine animals of species *Mesohippus*, which grew no larger than a collie dog. They lived millions of years ago in the Bad Lands of Nebraska and South Dakota. On exhibition in Ernest R. Graham Hall (Hall 38).

needed for determination of the age of the rocks in which the fossils occur, and supplies a record of the distribution of the ancient seas and lands.

Hall 38: Ernest R. Graham Hall. Vertebrate Paleontology.—In this hall are exhibited fossil fishes, amphibians, reptiles, birds, and mammals. They are drawn from various geological periods, Devonian to Recent, covering the Paleozoic, Mesozoic, and Cenozoic eras. These exhibits are at present undergoing complete reorganization and enlargement. Entire groups of collections are withdrawn from exhibition occasionally for revision.

In general, the exhibits are arranged according to the biological relationships of the animals shown. The entire geological sequence of life is illustrated by a series of mural paintings showing the processes of earth formation and various groups of extinct animals and plants in their natural surroundings.

At the south end of the hall is an exhibit of plants and trees belonging to the Carboniferous or Coal period. Life-size restorations of many of these are shown in a large group portraying a portion of a forest of the period, as it appeared in living form. This is by far the most accurate and extensive reproduction of the trees of the Coal period ever made.

At the north end of the hall is a series of three restoration groups. The first shows an extinct species of three-toed horses; the second shows members of the gigantic family of extinct mammals known as Titanotheres; the third shows a Neanderthal cave-man family of Europe in their home. These groups are based upon careful and exhaustive studies of the known skeletons of the species represented. The landscape settings also are carefully prepared reproductions of the kind of surroundings in which the men and animals lived.

The mural paintings, beginning with the earliest period, represent, in this order, the following: The Cooling Earth, The Beginnings of Life, A Sea Beach of Ordovician Time, A Coral Reef of Silurian Time, A Forest of Devonian Time, North American Reptiles of Permian Time, African Reptiles of Triassic Time, Small Flying Reptiles and Birds of Jurassic Time, Large Flying and Marine Reptiles of Jurassic Time, Swimming Reptiles, An Armored Dinosaur, A Plant-eating Dinosaur, Horned and Carnivorous Dinosaurs, Asiatic Horned Dinosaurs, Duck-bill and Crested Dinosaurs, Four-toed Horses and Primitive Hoofed Beasts, Titanotheres, Primitive Whales, Early Camels and Suillines, Early Elephants and Rhinoceroses, Giant Kangaroos and Wombats, New Zealand Moas, South American Ground Sloths and Glyptodonts, Sabertooth Tigers and Vultures, Mastodons, Cave Bears, Mammoths and Woolly Rhinoceroses, and the Great Irish Deer. These paintings, like the models, are based upon exhaustive scientific studies.

Fossil vertebrates are exhibited in upright cases, either arranged in alcoves or in groups of cases placed according to the relationship of the animals exhibited. Through the middle of the hall will be found a series of exhibits consisting of mounted skulls and skeletons of the larger fossil animals.

A series of introductory cases intended to serve as a background for the appreciation of the exhibits has been planned for the north end of the hall.

At the south end of the hall is a double case of fossil fishes, those on one side consisting of specimens of Paleozoic and Triassic fishes, mostly from Europe, while on the reverse side will be found exhibits of Jurassic fishes from Bavarian stone quarries. In a near-by case are exhibited parts of skeletons of European flying reptiles, a cast of the earliest known fossil bird, and a skeleton of the North American flying reptile *Nyctosaurus*. On a large slab are parts of a skeleton of the long-necked swimming lizard *Elasmosaurus*. Below are the shells of two turtles. On the reverse side will be found skulls, and a large skeleton, of marine reptiles belonging to the Mosasaur family. A shell and skeleton of a giant land turtle of Pliocene age is exhibited in a floor case.

A mounted fore leg and two great femora, together with other parts of Jurassic dinosaurs, may be seen near the south entrance of the hall. In the middle aisle is the mounted skeleton of the great dinosaur *Apatosaurus* and specimens of Cretaceous dinosaurs consisting of skulls of *Edmontosaurus*, *Protoceratops*, *Anchiceratops* and *Triceratops*. With these are exhibited a group of fossil dinosaur eggs from Mongolia, and miniature models of various kinds of dinosaurs.

A case on the west side of the hall is devoted to giant flightless birds, and contains skeletons of a Moa from New Zealand, and of a carnivorous phororhacoid from South America. The latter is a typical member of one of the most spectacular bird groups of all time.

Among the exhibits of fossil mammals are several that illustrate how fossil bones are buried, preserved, and found. A bone slab from the well-known Agate Springs quarry is shown in the north half of the hall on the west side. A skeleton of the giant ground sloth *Scelidotherium*, as found buried in the ground, and a group showing skeletons of the giant ground sloth *Mylodon* and the saber-tooth cat *Smilodon* at one of the famous California tar pools, are near the north entrance. A unique aggregation of twenty-five skeletons of the little deer-like animal *Leptomeryx* on a single slab of rock are shown at the north end of the hall on the west side.

Various mammalian groups are displayed in single cases or in entire alcoves. The camels are represented by skeletons of *Oryxactylus* and *Procamelus*, and an evolutionary series of skulls and feet of different forms ranging in age from upper Eocene to Recent. The history of the American rodents is exhibited in considerable detail. A skeleton of the giant beaver, *Castoroides*, included in the rodent case is worthy of special attention.

An alcove is devoted to the titanotheres, those ponderous extinct relatives of the horses and rhinos. Skeletons and skulls of the hornless and horned members of the family are shown. Pig-like mammals and oreodonts are exhibited in a case on the east side of the hall. The elephant group is represented by skeletons of the Columbian Mammoth and American Mastodon, and a case illustrating the elephant and mastodont families.

South American fossil mammals are well represented. They are, for the most part, exhibited on the west side of the hall, in the northerly half. Those of the Eocene and of the Oligocene epochs consist of series of skulls, jaws, and other skeletal parts. Mammals from the Santa Cruz formation, of middle Miocene age, include unique skele-

tons of *Astrapotherium* and *Homalodotherium*, together with a large series of skulls. These specimens are grouped together in the cases of a single alcove. Fossil mammals of the Pliocene epoch of South America include specimens of the armored mammals, *Panochthus* and *Eleutherocercus*; and a skeleton of the smaller ground sloth, *Pronothrotherium*.

The Pleistocene mammals of South America include a skeleton of the great *Megatherium* shown in the middle aisle, and skeletons of the ground sloth *Scelidodon* and the heavily armored *Glyptodon clavipes*.

DEPARTMENT OF ZOOLOGY

First Floor:—Halls 12, 13, and 15-22, West Wing.

Ground Floor:—Halls M, N, N-1, and O, West Wing.

First Floor

Hall 12: Domestic Mammals (Sculptures by Herbert Haseltine).—Hall 12, which opens into the south end of George M. Pullman Hall (Hall 13), is devoted to a special exhibit of British champion domestic animals sculptured in bronze and marble by the noted sculptor Herbert Haseltine. The figures are done in one-fourth natural size, and all are from living subjects especially studied and modeled by the artist. There are nineteen subjects including horses, cattle, sheep, and pigs, many of them internationally famous in their time on the turf or in the paddock. The collection was presented to the Museum by Trustee Marshall Field.

Hall 13: George M. Pullman Hall. Horned and Hoofed Mammals.—This hall, which is immediately west of Stanley Field Hall, is devoted to horned and hoofed mammals—game animals from all parts of the world. Included are gazelles, wild sheep, goats, oxen, and various representatives of the deer family, the antelopes. In a case near the center of the hall are shown some of the smaller hoofed animals, the dik dik, musk deer, mouse deer, and others. Of special interest are: the European red deer, shown in a case near the north end of the hall; and, in the south end, a case with a series of American mountain sheep, and another with a fine male American bison. Four cases at the north end exhibit the mammals of Illinois.

Hall 15: Mammals—Systematic.—West of the north end of George M. Pullman Hall is Hall 15. With the exception of the hoofed mammals, it contains members of the principal groups of mammals of the world, arranged according to their relationships. At the east end of the hall are a few hoofed animals including zebras, wild ass, tapirs, wild pigs, and the llama and alpaca. Beginning with the monotremes or egg-laying mammals of Australia and the pouched mammals or marsupials, there are shown various groups, such as rodents, edentates (sloths, anteaters, etc.), fur-bearing mammals, the cat family, the civet family, and the dog family, terminating with the highest mammals, the monkeys and man-like apes. Two cases contain a noteworthy series of North American cats, and black bears and their allies. On the south side a case of North American foxes exhibits the beautiful color phases of the red fox. A similar case exhibits the color phases of the red and arctic foxes, familiar as furs.

Hall 16: Richard T. Crane, Jr., Hall. American Mammals—Habitat Groups.—Hall 16 contains habitat groups of American mammals. Flanking the entrance at the east end of the hall are groups of Rocky Mountain goats and Stone's mountain sheep, both of which may also be seen from Pullman Hall. Thence westward are four groups of the Virginia deer showing the difference in its appearance and habits in the four seasons. These are followed by groups of the American pronghorn antelope, mule deer, Olympic elk, Alaska moose, grizzly bear, and glacier bear. In the western half of this hall are further American groups, including the Alaska brown bear, polar bear, musk-ox, bison, caribou, mountain lion, and beaver. These are followed by groups of some of the more important mammals of South America, the guanaco, tapir, great anteater, and marsh deer. Opposite the North American beaver group is a group of capybara and jaguar in a tropical jungle scene.

Hall 17: William V. Kelley Hall. Asiatic Mammals—Habitat Groups.—An extensive series of habitat groups showing the principal large mammals of Asia and adjoining islands is in course of preparation in this hall. Eighteen of these have been completed out of a total of twenty-one, and another is in course of preparation. Among them are some of the more striking results of the expeditions conducted by Theodore and Kermit Roosevelt, sons of former President Theodore Roosevelt, during the James Simpson-Roosevelts Expedition of 1925 and the William V. Kelley-Roosevelts Expedition of 1929. In the eastern half of this hall are groups of Marco Polo's sheep, Asiatic ibex, Indian rhinoceros, Bengal tiger, the large antelope known as the nilgai or blue bull, and three Indian species of deer—the sambar, swamp deer, and axis deer.

Facing the center of the hall, on the north side, is a group of the very rare giant panda, showing two of these animals in a setting representing bamboo and mountain forest in western China. Opposite this, on the west, is a group of the curious, long-snouted, ant-eating sloth bears of India. On the south side and facing the center of the hall are shown separately the common Indian leopard crouching on a limb of a tree, and the rarer snow leopard with two young.

In the center of the west half of the hall are two large groups of Indian wild oxen or "buffalo." On the south side are water buffalo, shown in a lowland scene, and accompanied by white "cow-herons" and several small hog deer. Opposite are the gaurs or seladangs, magnificent animals of rich coloration and imposing stature. Adjoining these is a group of blackbuck and chinkara—common antelopes of India. A notable group on the south side of the hall is that of the large heavy-bodied goat-antelope known as the takin, from the mountains of western China.

A group of oranges, showing a family party in the treetops of Borneo, occupies a space in the northwest corner of the hall. Near-by on the south side of the west entrance to the hall, is another group of apes in the treetops, showing the bizarre species from Borneo known as the proboscis monkey.

Hall 18: Albert W. Harris Hall. Reptiles and Amphibians.—The east half of this hall is devoted to reptiles and amphibians and there are two habitat groups of insects at the western end. The

two entomological habitat groups illustrate the insect life of the Indiana dunes, and the life history of the tomato worm moth. Three cases of North American and exotic butterflies form the nucleus for more extensive entomological exhibits in preparation.

The east half of this hall is devoted to the collection of reptiles including representatives of the lizards, snakes, turtles and crocodiles. Of particular interest are lifelike reproductions in celluloid of amphibians and reptiles. Noteworthy among these are an American alligator with nest and eggs, a South American anaconda installed in a natural setting, the so-called dragon lizard of Komodo, and a reticulated python shown coiled about its eggs. One of the two large habitat groups of reptiles at the entrance to the hall exhibits a group of American crocodiles on a rocky reef in a lake in Honduras. The other case shows a sea turtle laying its eggs on a Florida beach. A case exhibiting the striking modifications of the tadpole stage in frogs occupies a wall space in one of the alcoves.

Hall 19: Vertebrate Anatomy.—This hall contains skeletons of the principal vertebrates or backboned animals. These include fishes, frogs and their relatives, birds, and mammals. At the right of the east entrance are the lower forms—fishes, etc.—and at the left, the higher apes and man. Near these is a case illustrating the history of the human skull. In the center toward the west end is the huge skeleton of a right whale. East of this is the skeleton of an Indian elephant. Of particular interest among the bird skeletons is an assembled skeleton of the extinct great auk. An alcove in the southwest corner of the hall contains four cases illustrating the processes of reproduction and birth in animals.

Hall 20: Birds—Habitat Groups.—Sixteen bird groups with painted backgrounds are shown in the east half of Hall 20. The majority of the groups are of North American birds, conspicuous among which are the northern loon, golden eagle, California condor, whooping crane, wild turkey, white pelican, and ruffed grouse. There are also groups from tropical America including the flamingo, the jabiru stork, horned screamer, and scarlet ibis.

In the west half of the hall a series of groups is being prepared to illustrate the natural environment or habits of interesting foreign birds. Fourteen of these groups are completed. On the north side the first contains eight emperor penguins obtained in "Little America" by the Second Byrd Antarctic Expedition, and it portrays in an admirable manner the frigid home of these odd-shaped birds. Adjoining the penguins on the north is a recessed series of three groups showing birds of different environments in various parts of Africa. In one of these are represented the typical birds of the dense, rain-forest belt on the slopes of Mount Cameroon, Africa. In the next group the village weaver birds and their communal nesting places are shown in a setting depicting the banks of the Niger in French Sudan, and in the third group are displayed the characteristic birds found in the Kalahari Desert in Africa. Five other groups occupy the western part of the north side of the hall. Three of these are devoted to birds of tropical America in settings showing a wealth of tropical vegetation. In central position is a group of the long-tailed quetzal, national

bird of Guatemala and one of the most brilliantly colored of all birds. On the right is a group of toucans and smaller birds in a lowland forest; and on the left of this recess is shown a colony of *Montezuma oropendulas* or giant weaver birds, with their long nests hanging from a treetop in Guatemala. In the northwest corner of the hall is a group of the familiar European stork, specimens and accessories for which were presented by the Polish-American Chamber of Commerce in Warsaw, Poland. A pair of adult storks are shown, together with their young and a roof-top nest in a Polish village. On the south side is a group of sea birds shown at their nesting grounds on Laysan Island in the mid-Pacific. Conspicuous among them are albatrosses, gannets, and man-o'-war birds. West of the Laysan Island birds is a group of red grouse in a setting depicting the moors of Selkirkshire, Scotland. Two adjacent groups represent birds of the northern part of the Old World; these are a scene in the Netherlands showing the dance-ground and remarkable courtship behavior of the shore bird known as the ruff, and a Manchurian eagle owl being mobbed by jays and titmice, as is the habit of small birds the world over. In the next alcove to the west the North Island kiwi of New Zealand is shown with its nest and eggs. The kiwi is flightless and its eggs are of unusual size. The southeastern case in the hall exhibits a pair of the exceptionally beautiful green pea fowl waking at dawn on their roost on the limb of a dead tree in the Indo-Chinese forest.

Hall 21: Birds—Systematic.—A systematically arranged collection of birds in this hall includes representatives of the more important orders and families. Cases on the north side of the hall are devoted to North American birds, and those on the south side to birds of foreign countries. The North American series, especially, has undergone revision by which the birds are arranged on natural perches or bases instead of on shelves. Installation is completed for the diving birds, gulls, shore-birds, ducks, hawks, owls, woodpeckers, sparrows, warblers, thrushes, wrens, etc. Species known to occur in the state of Illinois are marked with a red star. Foreign birds occupy the entire south side of the hall and are in process of revision. Among them are several noteworthy cases recently reinstalled, one devoted to ostriches and their allies, others to the parrot family, the birds of Paradise, the pheasants, grouse, etc., the ducks, herons and their allies, and the vultures and eagles. On the north side of the east end of the hall are two wall cases containing extinct North American birds and birds introduced into America. In the east end and in the middle of the south side of the hall are two cases containing restorations of fossil birds. In the large case are eight models of extinct species, the remains of which were found in various parts of the world. The smaller case contains a life-size model of the Mauritius dodo, which became extinct in 1681. In the alcove north of the entrance to this hall is a case of albino birds and mammals. A case at the east end of the hall is designed to answer the question "What is a bird?" Models show the minute structure of the feather and various anatomical characters distinctive in birds.

Hall 22: Carl E. Akeley Memorial Hall. African Mammals—Habitat Groups.—This, the largest hall devoted to zoology, occupies the entire west end of the building and is divided in the

middle by the stairway leading to the west entrance of the building and the James Simpson Theatre. North of the stairway are many groups of African mammals—lions, koodoos, zebras, buffaloes, and various antelopes, including a group of the diminutive antelopes known as dik diks. In the north end, in addition to a group of greater koodoos, are reproductions of a hippopotamus and of a white rhinoceros. These are made in cellulose-acetate by a process originated and developed in the Museum. More life-like results are obtained by this method than by mounting the skins of animals of this type.

On the south side of the stairs is a group of the rare and strikingly colored antelope known as the bongo, shown in a bamboo forest. Also noteworthy is a very fine example of the giant sable antelope from southwest Africa, as well as the rare giraffe-like okapi. Still other groups are those of hyenas, cheetahs, warthogs, white-tailed gnu, and the curious ant-eating aardvark. Of interest also is a group of Abyssinian dassies or coneys—small animals resembling rodents but related to the hoofed mammals. In temporary position in this hall is a family of gorillas next to the central west wall, and adjacent to it is a group of the distinctly marked guereza monkeys of Ethiopia. At the south end of the hall is a very large group showing various large mammals gathered at a water-hole in Abyssinia. Features of this group, which is the largest in the Museum, are five beautiful giraffes and a black rhinoceros with young.

Ground Floor

Hall M: Lower Invertebrates.—Seven cases in this hall contain exhibits of marine invertebrates such as sea-stars, sea-urchins, protozoans or single-celled animals (represented by models), sponges, millepores, sea-fans, and various kinds of corals. Most of these specimens, however, are necessarily only the limy or horny skeletons of the animals and therefore some of them give no indication of their bright colors in life. But the form and color of such soft-bodied creatures as jellyfish, sea-anemones, and sea-cucumbers are well represented by glass models. There are five cases with typical examples of more than a hundred families of mollusks arranged in their systematic order. A small case on the south side protects the largest known bivalve, the giant clam of the Pacific and Indian oceans. From the ceiling are suspended models of a record size squid and octopus.

Hall N: Marine Mammals.—This hall, devoted to habitat groups of marine mammals, is planned to accommodate nine large groups, of which eight have been completed. In central position as approached from the stairway leading to the ground floor, is a very large and imposing group of northern sea lions, including thirteen animals and occupying a case forty feet in width and seventeen feet deep. The painted background shows a scene on the coast of Washington where the animals were collected. North of this and also on the west side of the hall is a group of Pacific walrus in a setting of Arctic ice floes suffused by the light of the midnight sun. The elephant seal, largest of all seals, occupies a space south of the

sea lions. An enormous bull and four other animals are shown on the beach of Guadalupe Island off the northwest coast of Mexico.

On the north side of the hall is a group of Pacific harbor seals variously disposed on kelp-covered rocks. On the east side, opposite the walrus, is a group, modeled in cellulose acetate, of the peculiar cetacean known as the narwhal. Four animals are shown swimming about the submerged base of an iceberg. On the south side of the hall, to the left of the elephant seals, is another undersea group showing a pair of manatees or sea cows. Adjoining this on the left is an Antarctic scene of snow and ice with a large female Weddell's seal and her young in the foreground, while others are seen scattered in the distance. Specimens for the last were collected by Rear-Admiral Richard E. Byrd's last expedition to "Little America." East of the Weddell's seal group the northern fur seal is shown on its breeding grounds in the Pribilof Islands off Alaska. Among the forty mounted specimens in the group are bulls, cows, pups, and bachelor seals.

Hall N-1: Whales.—The hall of whales, adjacent to the habitat groups of marine mammals in general, exhibits models of the principal types of whales and porpoises. The larger whales are shown in models one-tenth natural size, while the dolphins and porpoises are life size models. A large mural shows a sperm whaling scene of sailing ship days, and decorative murals contribute information about the natural history of whales.

Two supplementary cases, showing features of the anatomy and natural history of whales, are in preparation.

Hall O: Fishes.—This hall contains a comprehensive collection of fishes arranged in systematic order in built-in cases on the north and south walls. These exhibit the sharks and rays, various primitive fishes appropriately labeled "Living Fossils," and a large series of the bony fishes ranging from the herrings and salmon-like fishes to the spring-rayed fishes and such bizarre forms as the trigger fishes and angler fishes.

The west end of the hall is occupied by a large three-panel habitat group showing the fishes of the Bahama coral reefs. Other groups show the rocky coast of Maine, the sandy ocean floor of the Texas coast, and a lava-walled cove in the Galapagos Islands with its bright colored and peculiar fishes. Two large alcoves are required to exhibit the gigantic whale shark, a half-grown specimen of which measures 25 feet in length. With the whale shark is shown the largest of the rays, the devil-fish or manta, a half-grown specimen of which measures 12 feet across the wing-like fins.

H. N. HIGINBOTHAM HALL

Hall 31, Second Floor: Gems and Jewels.—At west head of staircase leading from the south end of Stanley Field Hall.

This hall has been completely remodeled and its exhibits of a large and valuable collection of gems and jewels have been re-installed in cases of the most modern type. There are shown many examples of nearly every known gem, represented by both cut and uncut specimens. Many of the specimens are of historic interest

and of high intrinsic value. Attention may be called especially to the DeVrees engraved diamond, the Hope, Tiffany and Crane aquamarines, the Russian topazes, the series of cut amethysts, and the Sun God opal.

In the series of diamonds there are shown, besides the engraved diamond already mentioned, four cut stones and rough diamonds from nearly all the important fields of the world. Emeralds are illustrated by crystals from Colombia, Russia, and Brazil. There is a fine series of star sapphires, and both blue and yellow sapphires are represented by large and attractive stones, the largest weighing $99\frac{1}{2}$ carats.

The Crane aquamarine, weighing 341 carats, and several other cut aquamarines of exceptional quality and size, illustrate this variety of beryl in unusual completeness and beauty. Gem topaz, both cut and rough, is illustrated in a variety of colors. Blue, yellow, rose, and colorless stones are shown, the finest of these being the Crane rose topaz of 97 carats. A transparent, nearly colorless crystal of topaz from Brazil, weighing 90 pounds, is also included in the series. Tourmaline, zircon, garnet and peridot are other gem minerals well represented by cut and rough stones. Many cut and crystallized amethysts from Brazil and other countries show the rich purple color and other qualities of this stone at its best. A bowl, nine inches in diameter, cut from one piece of rose quartz, is noteworthy for its rich color and size.

Precious opal is illustrated in a wide variety of colors from all the important fields of the world. Besides the Sun God opal some exquisite specimens of black opal are worthy of special notice. Pearls are illustrated by pearl and shell from several regions, and a collection showing range in color and size of culture pearls, with natural Oriental pearls for comparison.

Several crystal balls and various carvings of rock crystal, some of which are of historic interest, illustrate the ornamental and other uses of this semi-precious stone. Many other semi-precious stones are illustrated in the collection both by cut and rough specimens. Gold and platinum are represented by nuggets and other specimens showing modes of occurrence of these metals in nature. There are shown also worked forms of gold and silver, representing the use of these materials in jewelry among primitive and Oriental peoples in both early and later times. Here are to be seen a number of examples of pre-Columbian gold ornaments from South America, of Egyptian and classical jewelry, and of jewelry from India and Algeria.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

The N. W. Harris Public School Extension Department prepares small portable cases containing natural history and economic exhibits, and lends them to the schools of Chicago.

This service was made possible by the late Norman Wait Harris, who in 1911 provided an endowment of \$250,000. This endowment has been supplemented in later years by contributions of more than \$268,000 from Mr. Albert W. Harris, son of the founder, and other members of the family.

Approximately 1,100 cases are at present available for this educational work. During the school year two cases are sent to

each school at frequent, regular intervals. Deliveries and collections are made free of charge by two Museum motor trucks.

In addition, collections of study skins of birds and small mammals, pressed plants of the Chicago area, specimens of rocks and minerals, and sundry other materials may be borrowed upon request by schools.

Examples of these cases are exhibited in Stanley Field Hall.

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

Various educational activities for school children of Chicago are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures. An endowment of \$500,000 was provided for this purpose in 1925 by Mrs. James Nelson Raymond. Since that time, additional contributions totaling more than \$87,000 have been made by Mrs. Raymond.

During the spring and autumn, and often also in the summer, the Foundation provides series of programs consisting of educational motion pictures, lectures, and demonstrations. These programs are presented in the James Simpson Theatre of the Museum. During the school year members of the Raymond Foundation staff are sent to the public schools of Chicago to give illustrated lectures. As many as 600 such lectures are given during a year. Throughout the year, classes of children from both elementary and high schools, and groups from community centers and other organizations, are conducted on tours of the Museum exhibits by Raymond Foundation lecturers. By arrangement with the Board of Education of Chicago, a correlation of Museum exhibits with the curriculum prescribed for the schools has been effected, whereby children, brought to the Museum by their teachers, study exhibits having a direct bearing on their current classroom work. Raymond Foundation lecturers assist these groups.

THE MUSEUM LIBRARY

The Museum maintains a specialized reference Library containing approximately 125,000 books and pamphlets on anthropology, botany, geology, zoology and related subjects. Among these are the proceedings, transactions and publications of learned societies, academies, and universities throughout the world, constituting a collection invaluable in research work.

The Library is strictly a reference library, available for the use of scientists, students, teachers, and others engaged in research work. It is open weekdays from 9 A.M. to 4 P.M., except Saturdays when it closes at noon.

BEQUESTS

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

FORM OF BEQUEST

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

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

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

