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ANNUAL REPORT

1950

Chicago Natural History Museum



SAMUEL INSULL, JR.

Third Vice-President of the Museum

Member of the Board of Trustees since 1929

Chairman of the Pension Committee

Member of the Executive Committee

CHICAGO NATURAL HISTORY MUSEUM

Report of the Director

to the

Board of Trustees

for the year 1950



CHICAGO, ILLINOIS

JANUARY 1951

THE LIBRARY OF THE

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UNIVERSITY OF ILLINOIS

PRINTED IN THE UNITED STATES OF AMERICA
BY CHICAGO NATURAL HISTORY MUSEUM PRESS

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Chicago Natural History Museum, formerly Field Museum of Natural History, faces Roosevelt Road at Lake Shore Drive. It is open every day except Christmas and New Year's Day and may be reached by elevated or surface railways, South Shore and Illinois Central suburban trains, or bus. There is ample free parking space.

MICHIGAN AVENUE SKY LINE, FROM THE MUSEUM

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* Deceased, 1950

† Resigned, 1950

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[‡] Retired, 1950

[†] Resigned, 1950

^{*} Deceased, 1950

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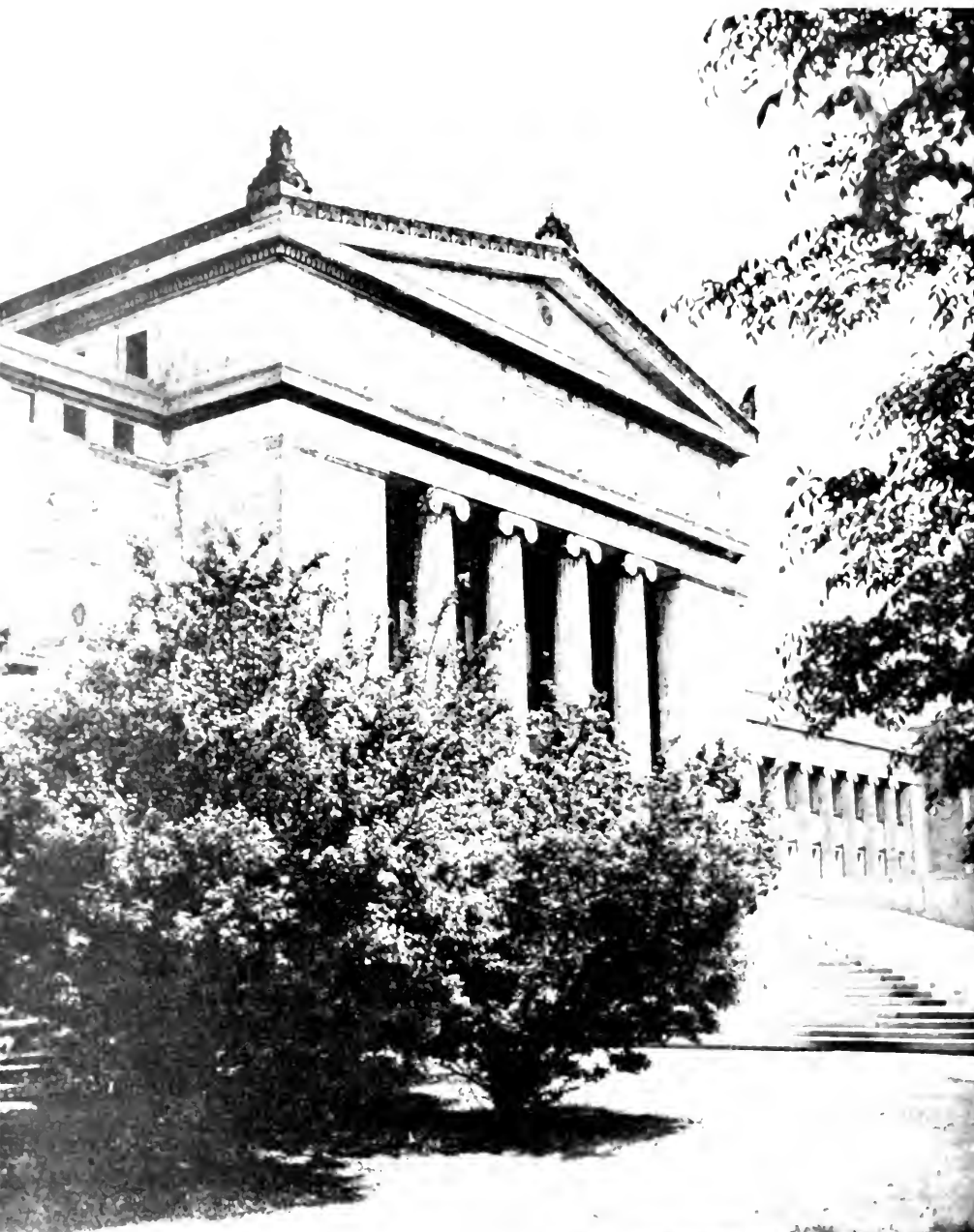
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GEORGE WOODWARD, *Captain*

* Deceased, 1950



Chicago Natural History Museum
South Entrance

Annual Report

of the Director

To the Trustees:

I have the honor to present a report of the operation of the Museum for the year ending December 31, 1950.

This year brought about the completion of the modernization of the boiler plant. The total cost of the improvement amounted to \$183,424.46, which expenditure reduced the Reserve for Depreciation of Mechanical Plant to \$36,213.55. An appropriation of \$10,000 to the Depreciation Reserve during the year brought the total of that fund at the end of the year to \$46,213.55.

The continuous expansion of the Museum's collections has brought about acute storage problems in many of the departments and divisions. In the Division of Fishes the situation had become such that immediate action to provide additional space was necessary. Not only was space limited but, in addition, the increasing weight of steel shelving, fish specimens, and the heavy glass jars of alcohol in which the specimens are preserved had so nearly reached the safety limits that the Board of Trustees decided to move the entire Division of Fishes to a location on the ground floor. During the year this tremendous move was accomplished, and the Division of Fishes is now housed in the ground-floor area formerly designated as Hall B. The construction includes the addition of several built-in concrete tanks for large specimens, chain and pulley equipment for handling, steel shelving and cases, and new modern offices. The

increase in storage capacity for our rapidly expanding collection of fishes will amount to at least fifty per cent. The sum of \$22,726.44 was spent during the year in preparing the new area for occupancy. Other plans have been developed that contemplate the moving and expansion of the Division of Vertebrate Anatomy and of the Division of Insects.

The death on May 5 of Boardman Conover, a Trustee of the Museum, was a severe blow both to the Board of Trustees and to the staff. Mr. Conover was also a Research Associate of the Museum in the Division of Birds and spent most of his time in acquiring, studying, and describing his outstanding collection of game birds of the world. This collection of some eighteen thousand specimens, together with his extensive library, was left to the Museum. In addition, Mr. Conover's will provides a fund of \$50,000 to continue in perpetuity the vitally important work in which he was engaged. In recognition of his many contributions and services the Board of Trustees elected Mr. Conover posthumously a Benefactor of the Museum (see page 103), having honored him in the past by electing him, at various times, a Life Member, a Patron, a Contributor, and a Corporate Member. The Board of Trustees acted further to honor the memory of Mr. Conover by voting to name Hall 21, the hall housing collections of birds in systematic arrangement, Boardman Conover Hall. At its meeting in May the Board of Trustees adopted the following resolution:

BOARDMAN CONOVER, 1892-1950

"It is with profound regret that the Board of Trustees of Chicago Natural History Museum records the death on May 5, 1950, of their fellow member, Boardman Conover.

"Mr. Conover has long been associated with Chicago Natural History Museum. As early as 1920 his interest in the study of birds brought him into contact with members of the scientific staff. In 1924, he became a Life Member of the Museum and in recognition of his research in the field of ornithology he was placed on the staff as an Associate. In 1936, he was appointed Research Associate.

"Mr. Conover's interest in the work of the Museum also found expression at various times in field exploration and study in Venezuela, Chile, Alaska, the Belgian Congo, Tanganyika, and Uganda. In later years, in lieu of expeditionary work, he established contact with field collectors in all parts of the world. Through his own efforts and at his own expense he accumulated one of the world's outstanding collections of game birds.



DuBois-Drake Studio

BOARDMAN CONOVER

1892-1950

Associate in Ornithology, 1924; Life Member, 1924; Patron, 1926; Contributor, 1930; Research Associate in Birds, 1936; Member of the Board of Trustees, 1940; Corporate Member, 1940; Benefactor, 1950

"In recognition of his work for the Museum, he was elected in 1926 to the honorary classification of Patron of the institution. In 1940, he was invited to become a member of the Board of Trustees, on which he served until his death. He was elected a Corporate Member in the same year.

"For many years, he maintained an office at the Museum, where he conducted research on his famous collection of game birds. After the death of Dr. Charles E. Hellmayr in the spring of 1944, Mr. Conover undertook the arduous duty of completing the *Catalogue of Birds of the Americas*, which had been begun by Charles B. Cory in 1909, and he brought that notable work to completion in August, 1949. His deep interest in the Museum is further indicated by the fact that his gifts to the institution total more than \$100,000.

"He will be missed not only by the members of the Board of Trustees but by the members of the staff, with whom he was a co-worker for so many years. In appreciation of his long association with the Museum and his notable service to the institution, and in recognition of his fine friendship and outstanding character, we pay tribute to the memory of Boardman Conover.

"Therefore, be it resolved that this testimonial of our esteem and affection be placed on the permanent records of the Board of Trustees of Chicago Natural History Museum;

"And be it further resolved that our deep sympathy be conveyed to the members of his bereaved family and that a copy of this resolution be sent to them."

ATTENDANCE

The total number of visitors at the Museum in 1950 was 1,173,661, of which number 1,052,420 were admitted without charge because they came on free admission days or belonged to classifications admitted free on all days—school children, students, teachers, members of the armed forces of the United Nations, and Members of this Museum. (For comparative attendance statistics and door receipts for 1949 and 1950, see page 90.)

The number of out-of-Chicago schools using the Museum continued to increase until in May the number reached an all-time high of 177 groups totaling 5,517 students. The fall (October and November) attendance of students in the Museum was the highest since before the war (1941). Many Boy Scout troops on their way to the 1950 Boy Scout Jamboree at Valley Forge, Pennsylvania, stopped between trains at the Museum for special tours of the

exhibition halls. Boys and girls from the farms of America, chosen in each locality for excellence of achievement and sent to Chicago at the time of the International Livestock Exposition as delegates to the National Congress of 4-H Clubs, made their annual visit to the Museum in November. The Museum was host also to a number of organizations, among them the American Horticultural Council, the American Malacological Union, the Illinois Audubon Society, and the Kennicott Club of Chicago. In May the Museum entertained a group of supervisory personnel of the Chicago Park District at a buffet dinner and program in the cafeteria, after which the guests were taken on guided tours of the Museum. The facilities of the Museum were used in September for day and night sessions of government officials who met to analyze plans for civil defense.

TRUSTEES AND OFFICERS

Stanley Field, president of Chicago Natural History Museum, was re-elected at the Annual Meeting of the Board of Trustees in January to serve for his forty-second consecutive year. All other officers were likewise re-elected. They are: Marshall Field, first vice-president; Albert B. Dick, Jr., second vice-president; Samuel Insull, Jr., third vice-president; Solomon A. Smith, treasurer; Clifford C. Gregg, secretary; and John R. Millar, assistant secretary.

MEMBERSHIP

An expression of gratitude is here conveyed to the many public-spirited citizens who, as Members of this Museum, support the scientific and educational work being done here and help to make possible its successful continuance. In recognition of their past support, appreciation is here expressed also to those Members who found it necessary to discontinue their membership. When conditions are favorable for them to do so, it is hoped that they will resume membership and association with the cultural work of the Museum. The total number of Members at the close of 1950 was 4,775. The number of Members in each membership classification was as follows: *Benefactors*—24; *Honorary Members*—8; *Patrons*—17; *Corresponding Members*—6; *Contributors*—172; *Corporate Members*—40; *Life Members*—161; *Non-Resident Life Members*—16; *Associate Members*—2,274; *Non-Resident Associate Members*—11; *Sustaining Members*—21; *Annual Members*—2,025. The names of Members of the Museum during 1950 are listed at the end of this Report.

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

The James Nelson and Anna Louise Raymond Foundation continued in 1950 its presentation of lectures, tours, programs, stories, and motion pictures to groups of people in the Museum and, by means of its extension-lecture service, in the schools. As in the past the entire program of this educational division of the Museum has been kept flexible in order to meet the requirements of school groups and students of all kinds. Closer co-operation between the Museum and the Chicago Public Schools and a study of the needs of the schools resulted in the publication of a folder of general information about the Museum and its educational services. Seasonal flyers with suggested tours were added for the teacher's reference. These were sent to all the Chicago Public Elementary Schools, with the result that these schools have made greater use of the Museum.

A group of children from one of the many organized school groups that visit the Museum view the great ground sloth in the Hall of Fossil Vertebrates (Hall 38).



Two series of Museum Stories for Children were published in connection with the spring and fall series of motion-picture programs for children. The spring series, "Children of Long Ago," tells how children of ancient Egypt, Babylonia, and China lived. The fall series, "Adventures of a Pebble," takes a pebble from its very beginning to the present time. All extension lectures were re-organized and brought up to date with the addition of new pictures, either still or motion. One entirely new lecture, "The Natural History of Chicagoland," was offered in 16mm natural-color film. A one-day conference on nature-study was given in September for forty-three instructors and supervisors of the Chicago Park District. Raymond Foundation again co-operated with the Radio Council of the Chicago Public Schools in presenting four programs in the Museum following radio broadcasts. Dr. Austin L. Rand, Curator of Birds, was guest-speaker for the broadcast "Feathered Architects" on the Science Story-Teller series.

A summary of all activities of Raymond Foundation for the year, with attendance figures, follows:

RAYMOND FOUNDATION ACTIVITIES

ACTIVITIES WITHIN THE MUSEUM

For children	Groups	Attendance	Groups	Attendance
Tours in Museum halls.....	927	29,234		
Radio follow-up programs.....	4	455		
Lectures preceding tours.....	87	5,436		
Motion-picture programs.....	29	21,339		
TOTAL.....			1,047	56,464
For adults				
Tours in Museum halls.....	380	6,672		
TOTAL.....			380	6,672

EXTENSION ACTIVITIES

Chicago public schools				
Elementary schools.....	102	33,461		
Chicago private schools.....	3	310		
Suburban schools.....	2	430		
Miscellaneous.....	2	650		
TOTAL.....			109	34,851
TOTAL FOR RAYMOND FOUNDATION ACTIVITIES.....			1,536	97,987

SPECIAL EXHIBITS

"Stories in Hair and Fur," a special exhibit in Stanley Field Hall during August and September, was prepared as a series of thirty panels by the Cranbrook Institute of Science, of Bloomfield Hills, Michigan. The exhibit presented information about the structure of hair and the qualities and kinds of fur, the gathering of furs, the near-extermination of many fur-bearing animals, and the modern business of breeding animals for their fur. Late in October one of the Mogollon "mummies" found in Tularosa Cave, New Mexico, by the 1950 Southwest Archaeological Expedition was placed on exhibition. Representative artifacts of perishable materials from the Mogollon culture were included in the exhibit. Other special exhibits during the year were "Animals in Action," a collection of photographs by Roman Vishniac, of New York; the Fifth Chicago International Exhibition of Nature Photography, held under the auspices of the Nature Camera Club of Chicago and the Museum; and paintings and drawings of Museum exhibits by students of the School of the Art Institute of Chicago.

THE N. W. HARRIS PUBLIC SCHOOL EXTENSION

The adjusted delivery schedule of portable Museum exhibits instituted at the beginning of the school year 1949-50 continued in operation during the school months of 1950. Under this schedule each school on the circulation list of the Department of the N. W. Harris Public School Extension received, every tenth school day, two Museum exhibits that could be used for direct study and general discussion in the classrooms or, if preferred, as display material. During each period of ten school days the drivers of the two Harris Extension trucks delivered and exchanged exhibits for nine days and served in the workshop on the tenth day. From its inception the schedule was found to be satisfactory. It permitted more efficient use of the drivers' time for assisting the preparators.

At the close of 1950 the circulation list numbered 508. Of these, 487 were schools (96 per cent of total circulation) and 21 were social-service institutions (4 per cent of total circulation). Of the 487 schools, 390 were public schools (80 per cent of school circulation), 87 were parochial schools (18 per cent of school circulation), and 10 were private schools (2 per cent of school circulation). Inasmuch as each school or social-service institution on the list received on loan 34 different exhibits during the year, routine loans of portable Museum exhibits in 1950 totaled well over 17,000.



This is one of six new portable exhibits of the N. W. Harris Extension Department designed to acquaint Chicago school children with different types of bird nests.

In addition to the Museum exhibits of natural-history material installed in standard portable cases Harris Extension also lends, upon request for specific material, insect specimens, rock and mineral collections, bird and mammal skins, bird eggs, and American Indian artifacts, which can be handled by pupils for study purposes. Thirty-seven loans of such material were made in 1950. Harris Extension received from the Department of Zoology an extensive collection of eggs of birds of the Chicago area. The Department of Botany gave invaluable advice and guidance in the preparation of botanical exhibit material. Six new exhibits were completed during the year, and five old exhibits were completely revised. Two hundred and eighty-five cases were repaired and reconditioned in the workshop. The number of cases damaged in circulation was 32. Outside activities of staff members consisted of local collecting trips.

LECTURE PROGRAMS FOR ADULTS

Seventeen Saturday afternoon lectures were presented to the public during March, April, October, and November. A total of 16,672 persons attended. Timely subjects, such as postwar rehabilitation in Japan and the mingling of ancient and modern in Korea under various fortunate and unfortunate influences, were well received by the audiences. It is gratifying to be able to report that a substantial number of letters of appreciation for various lectures in the series has been received in the Office of the Director. Helpful comments are always welcome because they serve as guides in the selection of the material presented in the two series.

GIFTS TO THE MUSEUM

Elmer J. Richards, of Chicago, again gave \$5,000 to the Museum to be used to purchase specimens for the cryptogamic herbarium. Donald Richards, Research Associate in Cryptogamic Botany, gave \$3,182.95 for the purchase of laboratory equipment and cryptogamic specimens. S. C. Johnson and Sons, Incorporated, of Racine, Wisconsin, again gave \$4,000 for research on wax-bearing palms. Walther Buchen, of Chicago, gave \$2,000 for an expedition to Africa and the purchase of zoological specimens. Dr. Maurice L. Richardson, of Lansing, Michigan, added \$2,000 to The Maurice L. Richardson Paleontological Fund. The Museum received \$10,500 from Stanley Field, its President; \$500 from C. Suydam Cutting, of New York, a Patron of the Museum; \$1,000 from an anonymous friend; \$301.94 from the estate of Mrs. Abby K. Babcock; \$1,666.67 from the estate of Mrs. Joan A. Chalmers; and \$65,216.51 from the estate of Mrs. Anna Louise Raymond. Other gifts of money were received from Peder Christensen, of Seattle, Clarence B. Randall, Trustee of the Museum, and anonymous givers.

Donors who give or devise to the Museum between \$1,000 and \$100,000 in money or materials are elected by the Board of Trustees to a special membership classification designated as "Contributors" and their names are enrolled in perpetuity (see page 104 for names of Contributors). Contributors elected in 1950 are: Emil Eitel, posthumously elected (gift of money); Mrs. Susie I. Grier, posthumously elected (gift of anthropological specimens and books); Henry W. Nichols, former Chief Curator of the Department of Geology, posthumously elected (gift of botanical specimens, geological specimens, books, and periodicals); Dr. William C. Ohlendorf, Park Ridge, Illinois (gift of botanical specimens, zoological speci-

mens, and books); Miss Lillian A. Ross, Associate Editor of Scientific Publications (gift of money, botanical specimens, zoological specimens, and books); and Dr. R. H. Whitfield, Associate in the Division of Fossil Plants (gift of geological specimens). A complete list of gifts of materials from individuals and institutions in 1950 appears elsewhere in this Report. Some of the collections are described under the headings of the scientific departments.

PERSONNEL

Curator William J. Gerhard, in charge of the Division of Insects from the time of its establishment in 1901, retired on December 31 with the longest service record of any staff member of the Museum now living. He will continue scientific research in the Museum as Curator Emeritus. Paul C. Standley, Curator of the Herbarium, who joined the staff in 1928 as Associate Curator of the Herbarium and became Curator in 1937, retired on December 31. He will live in Honduras, where, as Curator Emeritus, he will continue for the Museum his studies of Central American plants. Mrs. Emily M. Wilcoxson, who was given the title of Librarian Emerita in 1946 after forty-one years on the staff, left the service of the Museum in March. Herman Abendroth, Photographer, and Mrs. Edna T. Eckert, Assistant Recorder, retired during the year. Robert Kanazawa, Assistant in the Division of Fishes, Kenneth Woehlek, Assistant Taxidermist, Leonard Rosenthal, Preparator in the Department of the N. W. Harris Public School Extension, and Miss Mary E. Babcock, Assistant in the Library, resigned. Dr. José Cuatrecasas, Curator of Colombian Botany, terminated his contract with the Museum and accepted a John Simon Guggenheim Memorial Foundation Fellowship.

Dr. John B. Rinaldo, Assistant in Archaeology, was promoted to Assistant Curator, and Miss Elaine Bluhm was appointed Assistant. Dr. Julian A. Steyermark, Associate Curator of the Herbarium, was promoted to Curator to succeed Curator Emeritus Standley. Samuel H. Grove, Jr., Assistant in Plant Reproduction, was made Artist-Preparator, Frank Boryca, Assistant in Plant Reproduction, was made Preparator, and Miss Phyllis Wade was appointed Secretary of the Department of Botany. George Langford, Assistant Curator of Fossil Plants, was promoted to Curator, and Mrs. Priscilla F. Turnbull was appointed Assistant in the Division of Fossil Vertebrates. Rupert L. Wenzel, Assistant Curator of Insects, was promoted to Curator to succeed Curator Emeritus Gerhard,

and Henry S. Dybas, Assistant Curator of Insects, was made Associate Curator. August Ziemer was appointed Assistant in the Division of Insects, Hymen Marx was promoted to Assistant in the Division of Amphibians and Reptiles, and George Steinhardt, a new employee, became Assistant in the Department of the N. W. Harris Public School Extension. Carl W. Cotton, Assistant in the Division of Vertebrate Anatomy, was made Assistant Taxidermist. Miss Ruth Debus, assistant in the Library in 1947, rejoined the staff as Reference Librarian. John Bayalis, Assistant Photographer, was promoted to Photographer, E. Leland Webber and Miss Jeannette Forster were made Assistant Recorders, Mrs. Jessie Dudley was placed in charge of the Museum Book Shop, and George Woodward was promoted to Captain of the Guard.

It is with regret that I record the death of Evan Andrews, Museum employee in the Division of Maintenance; Dr. Louis B. Bishop, Research Associate in the Division of Birds since 1939; Benjamin Bridge, Auditor Emeritus, in continuous service of the Museum since 1897; David J. Conwill, Captain of the Guard, member of the Museum guard force since 1931; Henry W. Nichols,

A group of Sioux Indians, who came to the Museum to look at the Indian exhibits and the animals of the plains, attracts a following of entranced children visitors.



former Chief Curator of the Department of Geology, in the service of the Museum for fifty years until his retirement in 1944; Paul J. Warner, Preparator in the Department of Anthropology since 1937; and Albert B. Wolcott, assistant in the Division of Insects and then Assistant Curator in the Department of the N. W. Harris Public School Extension until his retirement in 1942 after thirty-four years in the service of the Museum.

VOLUNTEER WORKERS

The Museum thanks its volunteer workers for their faithful contribution of time and effort. Names of some of them are included in the List of Staff at the beginning of this Report, where they are designated by the titles Research Associate, Associate, and, in one case, The Layman Lecturer. Other volunteers in 1950, not in that list, are : *Department of Anthropology*—Miss Vivian Broman; *Department of Botany*—Miss Margaret Feigley, Dr. George D. Fuller, Philip Garrett, Floyd Swink; *Department of Geology*—Mrs. George Langford, Miss Nancy Robertson, Lloyd Soley; *Department of Zoology*—Mrs. Diane Burnett, Rodger D. Mitchell, George Moeller, Edward Palincsar, Miss Barbara Rohrke.

THE LAYMAN LECTURER

After a leave of absence of two years Paul G. Dallwig, The Layman Lecturer of the Museum, returned in November to resume his course of Sunday afternoon lectures. A new subject, "Life, What Is It," brought an avalanche of requests for reservations. Only the limitations of space in the halls of the Museum, where his lectures were conducted, prevented him from reaching far more than the average attendance of 183 for each Sunday of the month. A long waiting list at the end of the month prompted Mr. Dallwig to repeat this same lecture on the afternoons of December 23 and December 24, dates on which the Director of the Museum feared that there would be slight response. However, the attendance on these two dates totaled 341, so that the newest presentation of The Layman Lecturer actually reached 1,071 persons. The December lectures, on pre-historic man, also taxed to the limit the available space, and with real regret many applicants for tickets were refused. The sincere thanks of the Museum are extended to Paul G. Dallwig, Chicago business man who contributes his time and effort to the education and entertainment of Museum visitors.

EXPEDITIONS

The Museum had twenty-four expeditions in the field during 1950. Their work is described in this Report under the headings of the scientific departments. Expeditions of 1950 and their leaders are:

DEPARTMENT OF ANTHROPOLOGY: *Micronesia Anthropological Expedition, 1949-50*—Dr. Alexander Spoehr, Curator of Oceanic Ethnology; *Southwest Archaeological Expedition*—Dr. Paul S. Martin, Chief Curator.

DEPARTMENT OF BOTANY: *Cuba Botanical Expedition*—Dr. B. E. Dahlgren, Curator Emeritus; *European Study Trip*—Dr. Francis Drouet, Curator of Cryptogamic Botany; *Middle Central America Botanical Expedition, 1948-50*—Paul C. Standley, Curator of the Herbarium.

DEPARTMENT OF GEOLOGY: *Alabama Paleontological Field Trip*—Dr. Rainer Zangerl, Curator of Fossil Reptiles; *Eastern States Geological Field Trip*—Dr. Sharat K. Roy, Chief Curator; *Mississippi Valley Geological Field Trip*—Robert K. Wyant, Curator of Economic Geology; *Tennessee Paleobotanical Field Trip*—George Langford, Curator of Fossil Plants; *Texas Paleontological Expedition*—Bryan Patterson, Curator of Fossil Mammals; *Utah Paleontological Expedition*—Dr. Robert H. Denison, Curator of Fossil Fishes; *Wilmingtton (Illinois) Paleobotanical Field Trips*—Curator Langford; *Wyoming Invertebrate Paleontological Field Trip*—Eugene S. Richardson, Jr., Curator of Fossil Invertebrates.

DEPARTMENT OF ZOOLOGY: *Appalachian and Ouachita Mountains Zoological Field Trip*—Clifford H. Pope, Curator of Amphibians and Reptiles; *Arkansas Zoological Field Trip*—Colin C. Sanborn, Curator of Mammals; *Bermuda Zoological Expedition*—Dr. Fritz Haas, Curator of Lower Invertebrates; *Borneo Zoological Expedition*—D. Dwight Davis, Curator of Vertebrate Anatomy; *Colombia Zoological Expedition, 1948-51*—Philip Hershkovitz, Assistant Curator of Mammals; *Field Work for Cave Fishes*—Loren P. Woods, Curator of Fishes; *Florida Keys Fish-Collecting Trip, 1949-50*—Curator Woods; *Gulf States Zoological Field Trip*—Leon L. Walters, Taxidermist; *Texas Zoological Field Trip*—Karl P. Schmidt, Chief Curator; *United States Navy Medical Research Unit No. 3, Cairo, Egypt, 1949-51*—Harry Hoogstraal (in charge of Sudan Substation), Field Associate, Museum representative; *West Africa Zoological Expedition, 1950-51*—Harry A. Beatty, of New York.

Department of Anthropology

Research and Expeditions

Archaeological excavations in a cave were undertaken for the first time in the history of the Department of Anthropology. The cave was high up on the side of a hill in the Apache National Forest of western New Mexico. Excavations were again carried out under a permit issued to Chicago Natural History Museum by the Forest Service, United States Department of Agriculture. This research program undertaken in the Apache National Forest is one of the most exhaustive and prolonged in the record of excavation in the Southwest. The 1950 field season, the seventh, occupied the months of June to September. Dr. Paul S. Martin, Chief Curator, who was in charge of the expedition, was assisted by Dr. John B. Rinaldo, Assistant Curator of Archaeology, Dr. Ernst Antevs, Research Associate in Glacial Geology, W. T. Egan, photographer and surveyor, and James Barter and Miss Elaine Bluhm, Assistant in Archaeology, classifiers and cataloguers.

A dry cave (Tularosa Cave) was selected for field research this season because from it Chief Curator Martin and Dr. Rinaldo hoped to secure artifacts of perishable materials that could be identified as pertaining to the Mogollon culture, a relatively new culture that has been intensively studied by them during the past decade. All the materials recovered from previous digs consisted of tools of stone and bone and some pottery. Perishable materials such as clothing, basketry, vegetable products, and objects of wood and leather were lacking. And because of this lacuna, a complete story of the daily life of the Mogollon Indians could not be reconstructed.

The excavations of 1950 were more successful than had been anticipated. A total of about 2,200 specimens was recovered, not counting broken pieces of pottery and odd ends of cordage. The deposits in the cave represent a classic example of stratigraphy or the dating of layers by position. That is to say, the earliest remains were found on the floor of the cave, the latest on the surface. Since such a vast quantity of material was recovered, a detailed analysis of it has not yet been completed. A few general statements, however, may safely be made.

The earliest occupation of the cave probably took place several centuries before Christ. The first settlers were Indians who lived by gathering wild foods, who snared or hunted (with spear-thrower and spear) deer, rabbits, mountain sheep, and antelopes, and who

farmed. Corn of a somewhat primitive nature (see Department of Botany, page 43) and squash were the only crops grown by these early farmers. Somewhat later, beans were added to the crop roster, thus completing the well-known crop triad—corn, beans, and squash

known later to many of the North American Indians. The collection of vegetal materials recovered from Tularosa Cave is the largest in the New World. The art of pottery-making was unknown to these earliest cave people. The absence of this skill is significant because it was previously assumed that pottery and corn were contemporaneous in the time of their first appearance. The stone implements from the lowest or earliest level of the cave are similar to those found in Wet Leggett Canyon and reported on in the Annual Report for 1947.

Chief Curator Martin and Dr. Rinaldo conjecture that the first dwellers in Tularosa Cave were probably Indians who are called Cochise. The Cochise people wandered into the Apache Forest region from southern Arizona 1,500 or 2,000 years before Christ. Their culture is generally held to be ancestral to the Mogollon culture. In later levels of the cave the archaeologists found nearly every stage of the Mogollon culture. These later layers are dated as running from about A.D. 300 to A.D. 1200. Pottery was introduced into the area about A.D. 300, and a complete series was found: plain brown and red wares at the bottom of the deposit; these wares plus

The excavation of Tularosa Cave, Apache National Forest, western New Mexico, was the first cave project to be undertaken by the Department of Anthropology.



a decorated type, Mogollon Red-on-Brown, in the middle layers; and textured brown wares, smudged wares, and a different decorated type, Reserve Black-on-White, in the uppermost layers.

The list of perishable materials, preserved because of dry conditions in the cave, is impressive: sandals, spear-throwers of wood, spear foreshafts, bows and arrows, snares, rabbit nets, digging sticks for planting corn, rush mats, cradles, whistles or flutes, fragments of cotton textile, fur and feather blankets, aprons or "skirts" made of cotton(?) strings, bags made from animal skins, tobacco pipes, reed-cigarette butts, wooden spoons, ceremonial prayer sticks, hair nets, baskets, cloth bags, cordage, fetishes, and a medicine man's bag containing herbs and paraphernalia. In an early level, which is dated at about A.D. 600 or A.D. 700, were found the remains of two desiccated adults. These had been placed intentionally in burial pits.

A brief analysis of the materials by levels (that is, by the different periods of time involved) shows clearly that there were styles in types of sandals and basketry, in the tools of bone and stone, and in types of pottery and that these styles changed from time to time. For example, in the earliest layer were found wickerwork sandals (2 to 4 warp, over-one, under-one weave) made of coarse yucca leaves. In the latest layer that type of sandal had been replaced by one of a plaited or twilled weave with a herringbone effect.

The 1950 excavations show that Tularosa Cave was occupied for about two thousand years. The materials that were recovered are new in the sense that they represent the first perishable specimens surely identified with the Mogollon culture. When the results of this work are published, students will have at their disposal an unparalleled series of articles used in daily life by the Mogollon Indians. It will then be possible to make conjectures and inferences not now possible. John W. Moyer, staff cinematographer, spent three weeks with the expedition making documentary films in color of the excavations in the cave and of other archaeological features, all of which will be incorporated into a unified film-story.

Dr. Antevs, while with the expedition, continued climatological studies of Pine Lawn Valley. When working in Wet Leggett Canyon, where the earliest remains of man in the Valley have been discovered, he found an ancient hearth. Charcoal from this hearth was sent to the carbon-14 project of the Institute for Nuclear Studies, University of Chicago. Dr. Willard F. Libby, in charge of the project, processed this charcoal and assigned to it a date of 4,508 years ago ± 680 years. This means that Pine Lawn Valley was inhabited

about 2000 B.C. or 3000 B.C. This carbon-14 date is very close to the estimated dates of 3000 B.C. to 1500 B.C. made several years ago by Dr. Antevs on the basis of his climatic sequences. Whether the earliest layer in Tularosa Cave, excavated in 1950, will also date at about 2000 B.C. is not yet determined.

In August the Museum Press issued *Turkey Foot Ridge, A Mogollon Village, Pine Lawn Valley, Western New Mexico* and, in October, *Sites of the Reserve Phase, Pine Lawn Valley, Western New Mexico*. These reports, written by Chief Curator Martin and Dr. Rinaldo, present in detail the results of archaeological field work in the seasons of 1948 and 1949. *Sites of the Reserve Phase* contains a conjectural section on the social organization of the Mogollon Indians who inhabited Pine Lawn Valley in ancient times. This chapter is an effort to interpret raw data (such as location of house sites, kind and number of houses per period) in order to see if they would lead to probable inferences concerning social organization and culture growth. The authors have thus, in an effort to emphasize interpretation as an important part of archaeological work, proceeded one step beyond the mere presentation of raw data.

Until November Dr. Alexander Spoehr, Curator of Oceanic Ethnology, was absent from the Museum on a year's program of field work in the Mariana Islands, Micronesia. The expedition to the Marianas was financed and conducted by the Museum but it was arranged and sponsored by the Pacific Science Board of the National Research Council, which has acted as a clearing agency for scientific field projects in Micronesia. The work of the expedition was also actively assisted by the Navy Department. Headquarters of the expedition were maintained on Saipan, from which periodic visits were made to Tinian, Rota, and Guam.

The objectives of the expedition were twofold: (a) an archaeological project, designed to investigate the prehistory of the Mariana Islands, and (b) an ethnological project, whose purpose was to examine the processes of change operative in the contemporary culture of the present inhabitants. For the student of prehistory in the Pacific the Mariana Islands hold particular interest because they represent the farthest penetration of rice agriculture into the Pacific from its Asiatic source while they also lie in the Oceanic pottery-making area. Pottery, because it is very sensitive to innovation and change, is a mainstay of the archaeologist in reconstructing sequences of cultural development. The Marianas therefore present important possibilities in unraveling the story of man's past in this corner of the Pacific world.



Archaeological excavations are begun at one of the prehistoric sites on Saipan in the Mariana Islands by the Anthropological Expedition to Micronesia, 1949-50.

The archaeological work of the expedition was concentrated on Saipan and Tinian. A thorough survey was first made of the archaeological sites on the two islands. Although it was found that prewar Japanese agricultural operations, followed by the destruction caused by the World War II invasion of Saipan and Tinian and their use as American bases, had destroyed a great many archaeological sites, enough remained so that a series of sites could be selected for excavation. The most important of these sites belonged to the Marianas *latte* period (*latte* is the local name given to prehistoric stone columns, which are in actuality the foundation pillars of ancient houses). A number of *latte* sites were carefully mapped and dug, and the characteristics of the culture pattern of this period, as expressed in stone, bone, shell, and pottery artifacts, were delineated. From documentary sources we know that this *latte* culture endured until the time of the first contact with the Spanish. How long a time-span the entire period covered remains conjectural; after the materials recovered by the expedition have been fully studied, we may be able to state a reliable approximation.

In any case, the expedition did unearth artifacts that preceded the *latte* culture in time and that strongly suggest that man was established in the Marianas at least 750 to 1,000 years ago.

Following the completion of the archaeological work on Saipan and Tinian, Curator Spoehr made a brief archaeological survey of Rota, the most promising remaining island in the southern Marianas for archaeological work. In October, through the assistance of the Navy Department, he was also enabled to conduct a survey of the Palau Islands, which lie at the southwestern corner of Micronesia and which form the probable funnel through which passed the migrations into Polynesia and Micronesia. Curator Spoehr was able to ascertain the characteristics of the principal types of sites in the Palaus, as well as to determine the conditions of field work.

The ethnological project of the expedition was concentrated on Saipan, with brief periods of work on Tinian and Rota. The focus of interest was the Chamorro and Carolinian inhabitants of Saipan. The Chamorros, as the natives of the Marianas are called, are a Europeanized group that developed a stable hybrid culture in the eighteenth and nineteenth centuries, when they existed under Spanish domination. The Carolinians are a small ethnic minority that migrated to Saipan from the Carolines during the nineteenth century. Both Chamorros and Carolinians have been subjected to the pressures of culture change wrought by successive Spanish, German, Japanese, and American administrations, while during World War II the invasion of Saipan completely destroyed their homes and possessions and seriously disrupted their lives. How this community is re-forming today, the areas of its culture that present either marked stability or marked instability, and the underlying processes of culture change operative in the present situation formed the principal fields of examination. The results of the ethnological project as well as of the archaeological study will be published by the Museum at a later date.

During the year Donald Collier, Curator of South American Ethnology and Archaeology, continued work on the collection excavated by the 1946 Archaeological Expedition to Peru. He made a study of Huari-style ceramics in the Museum's collection of pottery from the south highlands of Peru, an extension of the study of the important Tiahuanaco-period site of Huari near Aya-cucho that was investigated during the 1946 expedition (see page 83). He also made an inventory of wooden specimens in the collections from early Peruvian cultures in order to select suitable samples for carbon-14 dating, and two Early Nazca samples were chosen and

submitted to Dr. Libby. The dates obtained show the Early Nazca culture to be about two thousand years old. A similar survey was made of the Paleolithic collection for suitable antler samples. Curator Collier supervised an intensive study by Miss Vivian Broman, a volunteer, of the Mexican and Mayan archaeological collections. The purpose of this study was to place all of the materials in the new cultural groupings and time phases developed in Middle American archaeology during the past fifteen years. Miss Broman produced an extensive descriptive outline and inventory that will be invaluable when the Hall of Mexican Archaeology (Hall 8) is revised. This revision may be possible after consummation of the exchange of collections with the National Museum of Anthropology in Mexico City, which will fill many gaps in our Mexican archaeological collection. Curator Collier devoted considerable time to supervision of the packing of the collection to be sent to Mexico from this Museum. It is hoped that the exchange will be completed within a short time.

Dr. A. L. Kroeber, Research Associate in American Archaeology, began a study, to be published by the Museum, of material of the Early Lima period excavated by him during the Museum's 1926 Archaeological Expedition to Peru. To facilitate this study Curator Collier went over this collection, shipped type specimens to Dr. Kroeber in New York, furnished data from the catalogue, and supervised the photographing of specimens.

Dr. Wilfrid D. Hambly, Curator of African Ethnology, continued his research in craniometry and brought to completion a work entitled "Craniometry of Malekula and New Caledonia," one of a series that will eventually cover a wide field of research on the Museum collection of five hundred crania from Melanesia. The volumes published by the Museum to date are *Craniometry of New Guinea*, *Craniometry of Ambrym Island*, and *Cranial Capacities, A Study in Methods*.

George I. Quimby, Curator of Exhibits, conducted research in North American ethnology in connection with the exhibition program and undertook research on the archaeology of the lower Mississippi Valley preparatory to completing portions of reports dealing with the Plaquemine and Natchezan culture periods. Considerable progress was made on a report of the Bayou Goula site in Iberville Parish, Louisiana, where a Plaquemine period ceremonial center consisting of a plaza and temple mounds was overlaid by a historic Natchezan-period fortified village that was successively occupied by the Bayougoula, Quinipissa, Acolapissa, Tiou, Taensa, and Houma.

Some research time was devoted to the subject of silver ornaments made for trade with Indians in the seventeenth and eighteenth centuries. A report on trade silver is in preparation.

During the first months of the year Dr. Rinaldo collaborated with Chief Curator Martin in preparing a report on the excavations during the summer of 1949 of three Indian ruins located in Pine Lawn Valley of west-central New Mexico. He prepared a series of graphs illustrating the increase in population density in the Mogollon area from A.D. 500 to A.D. 1050 and other illustrations for this report. In July the Museum Press issued *An Analysis of Culture Change in the Ackmen-Lowry Area* by Dr. Rinaldo, an analysis of trends and rates of change in the culture of the prehistoric Pueblo Indians of southwestern Colorado. He continued research on and cataloguing of the extensive Herzfeld collection of Near Eastern antiquities. During the summer he assisted Chief Curator Martin in the excavation of three caves formerly occupied by the Indians in west-central New Mexico and, after his return from the field in the fall, made a detailed analysis of the pottery and stone and bone artifacts from the summer's excavations preliminary to the preparation of a report on the season's field work. He collaborated with Chief Curator Martin in preparation of a paper on "The Southwestern Co-Tradition," a study of developments in common among the prehistoric Indian cultures of the Southwest.

Accessions—Anthropology

More than 2,000 artifacts were obtained by the 1950 Southwest Archaeological Expedition. The most valuable and significant of these are the sandals, basketry, cloth, bows, arrows, darts, and prayer sticks because they are the only specimens of such perishable materials that have been recovered from sites of the prehistoric Mogollon Indians. These unique materials are now being classified and studied. In addition, corn on the cob and corncobs were found in abundance, some of which is the earliest yet discovered. The 1949-50 Anthropological Expedition to Micronesia returned with an archaeological collection consisting of about 500 pieces. Stone, bone, and shell tools and ornaments and some very early and some rare pottery were recovered from surveys and excavations on Saipan, Tinian, and Rota in the Mariana Islands. These materials are now being studied, preparatory to publication of the results of the work of the expedition to Micronesia.

Exhibits—Anthropology

Under the direction of Curator of Exhibits Quimby thirty-five new exhibits (including six dioramas) were completed during the year for Mary D. Sturges Hall (Hall 5) by Alfred Lee Rowell, Dioramist, and Gustaf Dalstrom, Artist, with the assistance of Walter C. Reese, Preparator, and John Pletineckx, Ceramic Restorer. The new exhibits were planned by the curatorial staff of the Department of Anthropology to show the culture of historic Indians (ethnology) of the woodlands and prairies of eastern North America. The hall, which will contain, when complete, fifty-nine exhibits (including seven dioramas), is divided into seven sections: Indians of the Eastern Prairies, Indians of the Western Prairies, Indians of the Southern Prairies, Indians of the Northern Woodlands, Indians of the Southern Woodlands, Indians of the Eastern Woodlands, and Indians of the Chicago Region of the Central Woodlands. Eighteen exhibits were completed for the hall in 1949, and, with the addition of six exhibits in 1951, the hall will be open to the public.

"Pawnee Thunder Ceremony" will be shown in Hall 5 (Woodland and Prairie Indians).



Department of Botany

Research and Expeditions

During the year Paul C. Standley, Curator of the Herbarium, continued his expedition to middle Central America, exploring mainly in Honduras. In the early summer he returned for a brief stay at the Museum, where he identified many of his collections. He was in residence in Honduras at the Escuela Agrícola Panamericana, near Tegucigalpa, and from there he made numerous collecting trips to the departments of Morazán and El Paraíso, which continue to furnish many new species of plants and others new to middle Central America. In January and February he collected in the department of Intibucá in the vicinity of La Esperanza and Intibucá, the highest large towns of Honduras, a region that yielded many plants previously unknown south of Guatemala; in October he spent two weeks about Pespire, in the department of Choluteca near the Pacific coast; and in December he collected about Nueva Ocotepeque, near the point where El Salvador, Honduras, and Guatemala meet. These three regions had never been visited before by a botanist. Curator Standley has now visited all the departments of Honduras for botanical exploration, but vast areas of the country have never yet been seen by any botanist. During the year he made more than three thousand collections of flowering plants and cryptogams.

Dr. B. E. Dahlgren, Curator Emeritus, continued his studies of American palms and collected for several months in Cuba. Dr. Theodor Just, Chief Curator, studied fossil Cycadaceae and Mesozoic plant microfossils as well as the fossil floras of the southern hemisphere. J. Francis Macbride, Curator of Peruvian Botany, carried on studies of the flora of Peru at various herbaria in California. Dr. Earl E. Sherff, Research Associate in Systematic Botany, continued his studies of Hawaiian plants, particularly the genus *Noto-trichium* and related plants such as pigweed, celosia, and coxcomb, and carried on monographic studies of various genera of *Compositae* for publication in "North American Flora." Llewelyn Williams, Associate in Forest Products, spent the greater part of the year in the Far East, studying forest products in various countries and collecting woods for exhibition purposes.

Dr. Hugh C. Cutler, Curator of Economic Botany, spent March and April in Cuba assisting Curator Emeritus Dahlgren with the Cuban palm project. During the remainder of the year he made a study of native American food plants and their wild relatives,



Corn from Tularosa Cave, New Mexico. The three lower ears are pod corn, which is believed to be similar to the kind of corn from which modern corn was developed. These ears came from the deepest (earliest) levels of the cave. The eight ears above, from an upper (more recent) level, show greater development and variation.

based on collections by Museum expeditions and on a large loan collection of Peruvian archaeological material made by Dr. Junius Bird, of the American Museum of Natural History. In order to provide reliable material for comparison, a collection of all available legumes used for food was grown near Chicago during the summer. After July Curator Cutler was engaged in research on plant materials recovered from Tularosa Cave by the Museum's 1950 Southwest Archaeological Expedition. The excavated material is in amount, condition, and diversity of cultivated plant material the best collection that has ever been made. Of most interest is the corn, com-

prising about thirty-eight thousand cobs, fragments, and a few ears complete with grains and husks. Some of the corn, the most primitive yet unearthed, is believed to be the oldest corn yet discovered. The study of this valuable collection is expected to require at least another year.

Dr. Julian A. Steyermark, Associate Curator of the Herbarium, continued the study of his collections from Venezuela and Ecuador and those from Venezuela made by Associate Williams. Associate Curator Steyermark's collections from Venezuela continued to yield a large proportion of species new to science as well as numerous records of plants previously unknown from that country. The report on new species from Venezuela, prepared by Associate Curator Steyermark and many specialists, is soon to be issued by the Museum. Many of these Venezuelan collections represent important additions to our knowledge of plant geography and have yielded valuable information on plant evolution and endemism. The proportion of species new to science collected by him is higher than that resulting from any previous expedition sponsored by the Museum. It is hoped that future expeditions will be made in order to bring forth additional botanical novelties.

A number of field trips to Missouri were made by Associate Curator Steyermark in connection with his work as Research Associate of Missouri Botanical Garden. Important new herbarium collections were made that throw new light on the ranges of eastern and southern species in the United States, and several virgin forests and a virgin prairie in the heart of the Ozarks, previously uncollected, yielded valuable botanical data. One of the rarest plants in North America, *Geocarpon minimum*, was rediscovered by him in company with its original collector, E. J. Palmer, in Jasper County, southwestern Missouri. Results of a reinvestigation (see page 84) showed that the genus had been misplaced in the *Aizoaceae*, the family to which it had previously and rather uncertainly been referred, and instead should be placed in the *Caryophyllaceae*. In addition Associate Curator Steyermark spent considerable time identifying numerous collections that were sent in for determination from the United States, Mexico, and Central and South America. Special attention was given to certain families, such as the *Rubiaceae*, *Euphorbiaceae*, *Lentibulariaceae*, and *Compositae*.

Work was begun in the summer on the separation of type specimens from the regular mounted herbarium sheets. This is being done in order to make these important specimens upon which the concept of the species is based readily available to workers as well

as immediately accessible for evacuation in case of fire or emergencies brought on by the contingencies of war. Type specimens are the most valuable specimens a herbarium possesses, and they must be saved at all cost. The Museum possesses a splendid collection of such specimens, especially from Central and South America.

During 1950, as the year before, many specimens sent to the Museum by collectors and various institutions were identified by Dr. José Cuatrecasas, Curator of Colombian Botany. Of these the most important collections are those of Woytkowski, Yepes, Castañeda, Schultes, Patiño, Daniel, Uribe-Uribe, Sneider, Brother Apolinar-María, Facultad Agronomía Medellín, Acosta Solís, Espinosa, Paredes from Ecuador, Cárdenas from Bolivia, and Leon from Costa Rica. Loans received for naming from other institutions (United States National Herbarium, New York Botanical Garden, Gray Herbarium, and University of California) were identified by Curator Cuatrecasas, chiefly collections of Andean *Compositae*, *Cunoniaceae*, *Rosaceae*, *Guttiferae*, *Bombacaceae*, *Moraceae*, *Tiliaceae*, and *Sterculiaceae*. Approximately four thousand specimens of such collections and special groups were thus named.

In addition Curator Cuatrecasas identified or described as new many species in his large collection of Colombian plants, containing more than twenty-four thousand numbers of phanerogams, many of which are accompanied by wood and bark samples of undescribed trees. Because many groups found in tropical America are incompletely known or specimens often come from previously unexplored areas, much research and critical work must be done in order to identify such a collection, including extensive studies of type collections in American and European herbaria, and descriptions of new species must be prepared before studies of a more general character can be undertaken. This fundamental taxonomic work must be supplemented by data obtained from material deposited in other American and European herbaria in preparation of a critical catalogue of all species of flowering plants found in Colombia, which will be the basis of a descriptive flora of Colombia and of future studies on plant distribution and ecology. Because of the special geographical position of Colombia this catalogue of its flora will be of great use to all those interested in the biogeography of other South and Central American countries. The flora of Colombia is estimated to contain around twenty-five thousand species or more than ten times the number of species found in Illinois. Work on this catalogue will be started in 1951 under the auspices of the John Simon Guggenheim Memorial Foundation of New York.



This desert scene near Tucson, Arizona, appears in a recent Museum publication, "Natural Landscapes of the United States," by J. Francis Macbride (Popular Series).

Dr. Francis Drouet, Curator of Cryptogamic Botany, spent most of the year in naming specimens of algae received from many sources and in curating the collections of cryptogams. In April he left for four months of study of types of microscopic algae in European herbaria, a project made possible with funds provided by Elmer J. Richards, of Chicago. Visits were made at the British Museum (Natural History), Royal Botanic Gardens at Kew, Linnean Society of London, University of Birmingham, Muséum d'Histoire Naturelle in Paris, Conservatoire Botanique in Geneva, University of Geneva, Eidgenössische Technische Hochschule in Zurich, University of

Zurich, University of Vienna, Natural History Museum in Vienna, the private collections of the de Toni family in Brescia, Rijksherbarium in Leiden, Botanical Museum in Copenhagen, University of Lund, Natural History Museum in Stockholm, University of Uppsala, and the Botanical Museum in Oslo.

This project was in continuation of work on a revision of the coccoid blue-green algae being carried on in collaboration with William A. Daily, of Butler University. Mr. and Mrs. Daily spent some days at the Museum during the year studying the collections of Myxophyceae and Characeae. Dr. Hanford Tiffany and Donald Richards, Research Associates, continued work on the cryptogams, the latter taking charge of the collections during the absence of Curator Drouet. Miss Margaret Feigley, volunteer worker, identified large numbers of bryophytes. Dr. Maxwell S. Doty and Miss Dorothy E. Fensholt, of Northwestern University, made considerable use of the collections of algae in their research.

Under the direction of Mrs. Effie M. Schugman more than thirteen thousand specimens and photographs of cryptogams were mounted on sheets. These were filed in the herbarium cases by Curator Drouet. More than three thousand duplicate cryptogams were distributed to other institutions and individuals in exchanges. Approximately thirty-six thousand specimens and type photographs were mounted and distributed in the phanerogamic herbarium. More than eight thousand specimens of ferns and flowering plants were sent in exchange to other institutions and individuals. From its large collections of negatives of type and historical specimens of American plants in European herbaria the Department of Botany sold and sent in exchange during the year more than six thousand prints to other institutions and to botanists for study purposes.

Accessions—Botany

Several important additions to the phanerogamic herbarium were made during the year. The most noteworthy of these are: the herbarium of Johns Hopkins University containing more than 7,000 ferns and flowering plants and about 2,600 cryptogams (received as a gift through the efforts of Chief Curator Just); 2,788 plant specimens from Dr. William C. Ohlendorf (gift); 1,987 plants of Hawaii from Research Associate Sherff (gift); 1,874 plant specimens from the University of Illinois, Chicago (gift); 2,300 plant specimens of southern Mexico from Dr. Margery Carlson (purchase); 1,256 type photographs from the Museo Nacional de Historia Natural,

Santiago, Chile (exchange); 5,161 plant specimens from the Escuela Agrícola Panamericana, Tegucigalpa, Honduras (exchange); 3,755 plant specimens of Europe and Paraguay from Missouri Botanical Garden (exchange); 1,077 plant specimens of South Africa and Lower California from the University of California (exchange); and 1,617 plant specimens of Sweden from Naturhistoriska Riksmuseet, Stockholm, collected by Dr. Gunnar Samuelsson (exchange). In addition to material collected on Museum expeditions more than 13,000 cryptogams were accessioned, of which some 3,000 were purchased with the Donald Richards Fund. An important addition to both the phanerogamic and cryptogamic herbaria was made by the Middle Central America Botanical Expedition of 1948-50 with the accessioning of 30,000 plants collected by Curator Standley. Forty wood specimens were received as a gift from the Natural Resources Section, Division of Forestry, San Francisco.

Exhibits—Botany

A noteworthy addition to the synoptic exhibit of flowering plant families in Martin A. and Carrie Ryerson Hall (Hall 29, Life Plant) is a reproduction of a ginger lily (*Hedychium Gardnerianum*) from India, a showy member of the Ginger family with fragrant golden yellow flowers in large terminal spikes. A flowering stem of powdery thalia, a tall aquatic or marsh herb native of semitropical America, was added during the year to the adjacent exhibit of the Arrowroot family (*Marantaceae*). Both models were made by Emil Sella, Curator of Exhibits, with the assistance of Samuel H. Grove, Jr., Artist-Preparator, and Frank Boryca, Preparator. Real progress was made in the rearrangement and reconditioning of the exhibits in Hall 29. A total of thirty-four families was reinstalled, in some instances partial restoration being necessary. Two exhibition cases were rebuilt by Preparator Mathias Dones to provide greater depth. In Charles F. Millspough Hall (Hall 26, North American Trees) several new reproductions were installed. Of these, branches of red ash (*Fraxinus*), sugar maple (*Acer*), white oak (*Quercus*), American elm (*Ulmus*), and hackberry (*Celtis*) were prepared by Artist-Preparator Milton Copulos and Preparator Boryca. Included in the series is a branch of wild black cherry (*Prunus*) assembled by Artist-Preparator Grove. Collecting of suitable living material for the preparation of these exhibits was facilitated by the generous assistance of Clarence E. Godshalk, Director, and E. Lowell Kammerer, Arboriculturist, of the Morton Arboretum.

Department of Geology

Research and Expeditions

In conjunction with the studies of meteorites, Robert K. Wyant, Curator of Economic Geology, made detailed quantitative chemical analyses of one iron (Smithonia) and three stone (Pantar, Paragould, and Potter) meteorites and determined the mineralogical composition of the stone meteorites from the bulk chemical analyses. He also made physical and chemical examinations of forty-seven carbonate and silicate rocks from the Museum's collections. In collaboration with Curator Wyant, Dr. Sharat K. Roy, Chief Curator, completed the descriptive, metallographical, and petrographical studies of the four meteorites and made further studies of the Benld and La Porte meteorites. The results of the studies of La Porte and Smithonia were published by the Museum during the year. Papers on the other four meteorites will be ready for the press early in 1951.

The exciting discovery of Early Cretaceous mammals in northern Texas in November, 1949, by a Museum party was made known in last year's Annual Report. Since then Bryan Patterson, Curator of Fossil Mammals, has completed a paper on the specimens collected, which has been scheduled to appear early in 1951. In addition, Curator Patterson continued his work on the latest Eocene or earliest Oligocene mammals of trans-Pecos Texas. He also completed the first draft of a paper with Dr. Albert Elmer Wood, of Amherst College, on the earliest South American Tertiary rodents. Curator Patterson's studies on the auditory regions of the edentates, in collaboration with Dr. Walter Segall, of Northwestern University, have progressed satisfactorily during the year. Dr. Rainer Zangerl, Curator of Fossil Reptiles, worked primarily on a revision of the turtles of the family Toxochelyidae, a complicated, time-consuming undertaking that is now nearing completion. Curator Zangerl also continued his studies on the comparative morphology of the turtle shell and on the reclassification of this order of reptiles.

Dr. Robert H. Denison, Curator of Fossil Fishes, continued his study of the Late Devonian fresh-water fishes of the Rocky Mountain states. Work on the armored placoderm *Bothriolepis* has been completed, and the various lobe-finned fishes and lung fishes that inhabited the same streams and estuaries are now occupying his attention. In addition Curator Denison has prepared a large portion of the Early Devonian fishes from Utah and has begun a study of one of the groups of jawless ostracoderms, the Heterostraci.



George Langford, Curator of Fossil Plants, collects plant nodules near Wilmington.

Eugene S. Richardson, Jr., Curator of Fossil Invertebrates, has been occupied chiefly in identifying, checking, and selecting specimens for the new exhibits of invertebrate fossils and fossil plants for Frederick J. V. Skiff Hall (Hall 37, Fossil Invertebrates and Fossil Plants). He also spent considerable time writing the general labels and case headings for these exhibits. Several months were devoted to reidentifying and checking the specimens purchased from the Hovey Museum at Wabash College. He also identified the fossils collected in 1919 from the Ordovician and Devonian rocks of New York by Chief Curator Roy.

George Langford, Curator of Fossil Plants, who for the past several years has been engaged in preparing a comprehensive account of the flora and fauna of the Pennsylvanian deposits near Wilmington, Will County, Illinois, completed his manuscript early this year. It consists of the descriptions and illustrations of 550 species of fossil plants and 110 species of the fauna, chiefly invertebrates. This

may be regarded as a remarkable total to be recovered from a single deposit. Since completing his monograph, Curator Langford has been busy identifying the Mesozoic and Cenozoic fossil plants recently collected in the Gulf region.

Curators Patterson and Zangerl conducted an expedition, undertaken in collaboration with the Texas Memorial Museum, to northern Texas during April, May, and June. Curator Zangerl carried out a general survey of the Early Cretaceous Trinity Group in that region, while Curator Patterson concentrated his work at the locality from which mammals had been obtained in 1949. The remains of the mammals and of the infinitely more numerous fishes, amphibians, and reptiles occur sporadically in a bed of poorly consolidated sand some twelve to eighteen inches thick. The sand breaks down readily in water and it was therefore decided to attempt washing operations on a fairly large scale.

Some sorting of the coarsest grade was possible in the field, but the finer grades had to be brought back to the Museum and sorted under a binocular microscope in the laboratory, a task that is still in progress. It proved possible to process some tons of sand by this means. Several specimens of the extremely rare mammals were detected in the field and additional fragments have since been found in the laboratory, together with gratifying numbers of frogs and lizards. The majority of the mammals are triconodonts of the same

Among the fossil plant specimens collected near Wilmington, Illinois, were found a few relatively rare scorpions, spiders, myriapods, and shrimp-like arthropods.



species as those found in 1949, but at least one, regrettably very incomplete, appears to be referable to the group from which it is believed nearly all living mammals have descended.

Curator Zangerl left for Alabama during the latter part of August to complete the excavation of a large sea turtle, previously discovered and partially collected by Allan Hard, of Tuscaloosa, Alabama, and Robert Hard of Flint, Michigan. Curator Denison made a return visit to northeastern Utah to obtain a more complete collection of the Early Devonian fish fauna of the Water Canyon formation. He was assisted in the field by William D. Turnbull, Preparator, and Mrs. Turnbull, Assistant in Fossil Vertebrates, and for part of the time by Curator Patterson. Partial preparation of the specimens collected reveals that there is a wide variety of ostracoderms, placoderms, and acanthodians as well as certain of the earliest lobe-finned fishes and lung fishes. The material collected not only will add substantially to the present collection of primitive fishes but also will furnish additional information regarding the anatomy of these early vertebrates.

Curator Langford made several short trips to the Pennsylvanian deposits near Wilmington, Illinois, and two trips totaling three weeks to the Mesozoic and Cenozoic formations of the Gulf regions (western Tennessee and northern Mississippi). The purpose of these trips was chiefly to collect fossil plants, and Curator Langford, a veteran collector, has been most successful in his efforts to enrich the present collection. Curator Richardson spent a month in the West doing reconnaissance work and collecting trilobites and hyolithids in the Cambrian Gros Ventre shale of Wyoming. During the month of May Curator Wyant visited several mining districts in southern and northwestern Illinois and southeastern Missouri and made a representative collection from each locality. He also collected, from the areas adjacent to these mining districts, those rock types that were not represented in the Museum's lithological collection.

Exhibits—Geology

During 1950 a total of twenty-nine new exhibits and three restoration groups were completed. Seventeen exhibits and three restoration groups dealing with the life and geologic events of the earth's history from Pre-Cambrian time through the Ice Age were installed in the new Hall of Fossil Invertebrates and Fossil Plants (Hall 37, Frederick J. V. Skiff Hall). The restoration groups are the work of George Marchand, a noted sculptor-artist of Ebenezer, New York.

All other work in this hall was done under the able direction of Curator Richardson and Harry E. Changnon, Curator of Exhibits, with the assistance of Preparators Henry Horback and Henry U. Taylor. Hall 37 is not yet complete, but plans call for its completion in July, 1951.

Three new exhibits devoted to amphibians and primitive reptiles were installed in Ernest R. Graham Hall (Hall 38, Fossil Vertebrates). These exhibits illustrate, among other things, the evolution of limbs from fins and the diversity of form attained by amphibians. They also demonstrate the advances of the reptilian egg over the amphibian, which made true land-life possible, and display the evolutionary radiation of the reptiles. Reptilian radiation is illustrated by means of a series of reconstruction models executed by Artist Joseph B. Krstolich, of the Department of Zoology. Other models, the mounting of the skeletons, and the installation of the cases were the work of Chief Preparator Orville L. Gilpin and Preparators Turnbull and Stanley Kuczek. Nine new exhibits are on display in the Hall of Economic Geology (Hall 36).

Accessions—Geology

The largest new accession of fossil invertebrates this year was the collection of the Hovey Museum, obtained by purchase from Wabash College, Crawfordsville, Indiana. This collection, which was brought together about eighty years ago, includes a great many fine specimens from classic collecting localities no longer accessible. For example, there are 208 lots of Mississippian crinoids, chiefly from Crawfordsville, a locality renowned for the many complete crinoid heads collected there in the past. The specimens are painstakingly prepared. To assemble a similar collection today, even were the specimens still readily available, would require the services of a collector for several months and of a skilled preparator for more than a year. Another noteworthy addition to the fossil invertebrate collection, made by exchange with the University of Michigan, was 32 lots of Devonian corals, bryozoans, and brachiopods.

In addition to the fossil vertebrate material collected by Museum expeditions, a number of specimens were obtained by gift, exchange, or purchase. The University of Chicago donated a number of specimens of Permian fish, amphibians, and reptiles, collected in Texas by Dr. Everett C. Olson, Research Associate in Fossil Vertebrates. Allen M. Hard and Robert H. Hard presented turtle fragments from the Cretaceous deposits of Alabama, the University of Ten-

nessee a cast of a fossil turtle, and the Provincial Museum of Saskatchewan a lower jaw of the Oligocene rhinoceros *Hyrcodon*. By exchange Early Devonian fish were obtained from Dartmouth College Museum and a skeleton of the Triassic reptile *Trilophosaurus* from Texas Memorial Museum. The collection of the Hovey Museum contains a series of fossil vertebrates, chiefly mammals, and includes type and figured specimens featured in the work of Dr. Joseph Leidy, one of the founding fathers of American vertebrate paleontology. The Museum was again fortunate to record a valuable gift of 950 fossil plants from Dr. and Mrs. R. H. Whitfield, Associates in Fossil Plants, and their son, Jon S. Whitfield.

In economic geology the more interesting additions from sources other than the Museum's collecting include gifts of 140 rocks and ores from the Colombian government and a large group of dolomite sand crystals from Morgan Davis, Director of the Humble Oil Company. The Colombian specimens, which were exhibited at the International Trade Fair in Chicago, form an excellent representation of the economic geology of Colombia.

This fine skeleton of *Bradysaurus bairdi*, a sizable pariasaur reptile from the Karroo Formation of South Africa, was lately remounted and installed in Hall 38.



Department of Zoology

Research and Expeditions

In the Division of Mammals Curator Colin C. Sanborn continued research on mammals (chiefly bats) from various parts of the world, especially those represented in the rich material newly received from South America and Africa. Frank C. Wonder, Taxidermist, was engaged for most of the year in the preparation and reconditioning of study skins. In the Division of Birds Dr. Austin L. Rand, Curator, was occupied with studies of the taxonomy of Old World birds, the distribution of birds of the Yukon, the anatomy of certain shore birds from Asia and America, the moult of the cassowary, social behavior in birds, and the habits of the peculiar Madagascan birds of the family Nesoenatidae. The acquisition of the notable van Someren Collection of East African birds lays a foundation for effective further researches in African ornithology. Emmet R. Blake, Associate Curator, prepared material on birds of British Guiana for technical publication and did essential background research for a semipopular book on Mexican birds. Melvin A. Traylor, Jr., Research Associate, studied Peruvian and Paraguayan birds and aided Curator Rand in preliminary studies of birds of El Salvador. In addition to her work with exhibits Mrs. Ellen T. Smith, Associate, carried on considerable curatorial work.

In the Division of Reptiles Clifford H. Pope, Curator of Amphibians and Reptiles, continued his detailed study of North American salamanders. He returned to his interest in the striking of venomous snakes and, aided by Jay B. Leviton, made high-speed electronic flash photographs of striking rattlesnakes. In connection with research on African reptiles Curator Pope visited the Museum of Comparative Zoology, Harvard University, for several weeks in July for consultation with Arthur Loveridge. Robert F. Inger, Assistant Curator of Fishes, continued his study of amphibians of the Philippines, in which he was engaged before his transfer from the Division of Reptiles. While at the University of Frankfurt in Frankfurt-on-Main, Germany, as member of the faculty exchange group from the University of Chicago, Karl P. Schmidt, Chief Curator, was able to advance the manuscript of the sixth edition of *Checklist of North American Amphibians and Reptiles*.

In the Division of Fishes Curator Loren P. Woods continued his work on the supplementary volume for the Museum's extremely useful three-volume work, *The Marine Fishes of Panama*. The

receipt of a collection of fishes from the edge of the continental shelf in the Gulf of Mexico, through the co-operation of Dr. Hurst Shoemaker, of the University of Illinois, greatly stimulated his studies of the fishes of the Gulf region, with emphasis on a revision of the damselfishes, family Pomacentridae. Robert Kanazawa, Assistant before his departure to a position in the United States National Museum, studied conger eels and the available material of African fishes, in which he found an interesting new genus of cichlids. Mrs. Marion Grey, Associate, completed the description of three new species of deep-sea fishes collected in the course of the Bermuda Deep-Sea Expedition of 1918. In the Division of Vertebrate Anatomy Curator D. Dwight Davis, after his return from Borneo, resumed his studies of the anatomy of the Carnivora, grouped around his research toward a monograph on the giant panda. Dr. R. M. Strong, Research Associate, continued his studies of the anatomy of the mud-puppy *Necturus*.

The time for research salvaged from their increasing curatorial duties in the Division of Insects was used by Rupert L. Wenzel and Henry S. Dybas, Assistant Curators, in studies respectively of the beetle families Histeridae and Ptiliidae. Assistant Curator Wenzel spent several weeks early in the year in the examination of types and in other studies of histerid beetles at eastern museums. As in former years Research Associate Charles H. Seevers devoted spare time to study of the rove-beetles or Staphylinidae and contributed much time to the arrangement of the collections. Eugene Ray, of Wells High School, Chicago, temporary assistant at the Museum during the summer, gave his attention to the family Mordellidae, on which he has published a number of papers. Dr. Sidney Camras, a Chicago physician, spent considerable time in studying the Museum's collection of the big-headed flies, Conopidae. Harry Nelson, of Herzl Junior College, Chicago, studied the beetle family Dryopidae and increased and improved the Museum's collection of this interesting group. In the Division of Lower Invertebrates the identification of the new material received during the year and the reclassification of the Webb Collection (purchased in 1943) produced various minor research papers by Dr. Fritz Haas, Curator. Miss Margaret G. Bradbury, Artist, by the preparation of scientific drawings to illustrate technical publications gave important aid to the research programs in several Divisions.

During the year there were expeditions in the field in Borneo, Colombia, Bermuda, and, at the end of the year, West Africa, together with field work by the staff in various parts of the United



The Division of Fishes is now housed in new quarters on the ground floor. Left: storage range, showing mezzanine and dumb-waiter. Right: library, with map case.

States. Philip Hershkovitz, Assistant Curator of Mammals, continued his mammalogical survey of Colombia, working mainly from a base established at Medellín. Though hampered by disturbed political conditions and by adverse weather, he accumulated more than one thousand specimens of mammals representing about ninety species. Late in the year headquarters were transferred to Bogotá.

The expedition to Borneo, conducted by Curator Davis, who was accompanied by Assistant Curator Inger, left the Museum in March and returned in October. Headquarters were established at Sandakan, British North Borneo, which gave direct access to extensive areas of tropical rain-forest. The primary aim of the expedition was to gather information on the habits, behavior, and general ecological relations of the vertebrate life of the rain-forest. Extensive notes, supplemented by motion pictures and still photographs, stomachs of specimens preserved for food analysis, and various anatomical preparations will form the basis for detailed studies in the Museum

laboratories. Records were made of rainfall, temperature, and humidity in the rain-forest; and the ecological structure of the forest in which the animals live and to which they are adapted was studied and recorded. A secondary aim of the expedition was to collect a representation of the fauna of Borneo to be used for comparison in studying the collections made by the Philippine Islands Zoological Expedition of 1916-47. The expedition to Borneo collected more than three hundred mammals, nearly five hundred birds, several hundred reptiles and amphibians, and several thousand fishes and invertebrates (including insects). On the way to and from North Borneo stops were made at Singapore, Kuching, Paris, and London to study material in museums and other institutions.

Taxidermist Leon L. Walters and Assistant Taxidermist Ronald J. Lambert made a field trip to the Gulf states for material for exhibits of turtles. Specimens of turtles, especially a fine living alligator snapper, accessory material and notes, and colored photographs of habitats were obtained. They worked especially at New Orleans and at Beachton, Georgia, where they enjoyed the generous hospitality of Herbert L. Stoddard, former member of the Museum staff.

Curator Pope collected salamanders and other amphibians and reptiles in Arkansas and Oklahoma for the Division of Reptiles. Chief Curator Schmidt consulted with herpetologists in Texas in April on the occasion of his lecture at Rockport and seized various occasions to collect amphibians and reptiles while he was in Germany. Assistant Curator Inger, aided by Miss Laura Brodie and by other staff members, continued the marking and observation of

The floor of the rain-forest in North Borneo teems with bloodthirsty land leeches. The slender leech is searching for a meal; the bloated one is filled with blood.



blue racers in the Indiana dunes area. For the Division of Lower Invertebrates Curator Haas, accompanied by Joseph B. Krstolich, Artist, again visited Bermuda to work from the Bermuda Biological Station for Research in the interests of the exhibition program. Curator Haas combined collecting and study of the fresh-water and brackish-water mollusks of the islands. It is essential to make such studies now because, since the marshes of Bermuda are being drained and converted into arable land, the whole animal community in question is likely to become extinct very soon. Noel Burlang, of Hamilton, Bermuda, who is well informed on the physical geography of the islands, gave effective aid in these studies.

Especial mention may be made of an activity that operates as an effective aid to research, exhibition, and public service. The file of animal photographs in the Department of Zoology, the reorganization of which has been continued by Miss Brodie, consists of approximately five thousand mounted photographs and reproductions housed in eight steel files and indexed so that any illustration can be located at a moment's notice. In addition there are twenty-five albums of photographs taken by various Museum expeditions (sixteen albums of animal photographs have not yet been transferred to the new system). In 1950 approximately seven hundred photographs and five hundred animal pictures clipped from magazines were mounted, including nearly two hundred new photographs that were added during the year. The file consists chiefly of animal portraits, but a special effort is being made to preserve photographs representing documentary records of animal behavior. The usefulness of the file is shown by the fact that it was consulted by more than one hundred persons during 1950.

Accessions—Zoology

The major accession of specimens for the year was the acquisition by the will of the late Boardman Conover, Research Associate in the Division of Birds since 1924, of his entire collection of more than 18,000 game birds. Game birds are mainly of medium or large size and are correspondingly difficult to prepare in the field. For this reason the Conover Collection forms a complement of major importance to the Museum's research collections of birds. Other gifts of special importance are: 481 birds, 301 mammals (in addition to unaccessioned material), 56 amphibians, and 321 reptiles of Egypt and the Anglo-Egyptian Sudan from the Museum's Field Associate, Harry Hoogstraal; 39 birds and 26 mammals from the

Chicago Zoological Society; 1 bird and 14 mammals from the Lincoln Park Zoo; 257 birds from Dr. William C. Ohlendorf; 83 birds from Richard E. Tashian; a specimen of the rare Congo peacock from the New York Zoological Society; 132 specimens of bats of Kenya and Uganda from Walther Buchen; and 100 bats of Angola from the Companhia de Diamantes. Important gifts of amphibians and reptiles included 51 amphibians and 61 reptiles of Patagonia from Princeton University; 216 frogs of the Philippine Islands from Dr. William H. Stickel; 20 snakes from Dr. Eduardo Vaz, of the Instituto Butantan, Sao Paulo, Brazil; 142 salamanders of Arizona from Dr. Charles A. Reed; 211 amphibians of South Carolina from Miss Brodie and Miss Bradbury, of the staff; and 21 amphibians and 72 reptiles from Harvey M. Goldschmidt.

The principal gifts of fishes were 95 specimens of fishes of the family Clinidae, of which 55 are paratypes, from Dr. Clark Hubbs, and 92 specimens from the John G. Shedd Aquarium. Notable gifts of insects, in which mounted and determined material was especially important, further enriched the collections of insects. Field Associate Hoogstraal gave 6,802 specimens from various parts of the world, including nearly 5,000 mosquitoes from the United States, New Guinea, and the Philippines; Assistant Curator Dybas gave 3,456 specimens collected in the New World tropics and in the Pacific islands; Dr. C. Andresen Hubbard gave 206 specimens of 86 species of fleas, of which 20 are paratypes; and Major Robert Traub gave 69 fleas, including 40 types, from Mexico and Melanesia. Mollusk specimens continue to flow to the Division of Lower Invertebrates. The more notable gifts include 191 marine shells from Dr. Jeanne S. Schwengel, who has contributed systematically to the collection in former years; a collection of 217 Amazonian mollusks from Dr. Harald Sioli; and a collection of 550 lots of marine shells, mostly from the Pacific coast of the United States, from Mrs. Charlotte Doty, of Chicago.

Exhibits—Zoology

Exhibition programs for most Divisions in the Department of Zoology are now directed toward explanatory or illustrative cases intended to show what is interesting or remarkable or biologically important about the animal forms placed on exhibition in previous years. In the Division of Mammals the existing labels for exhibits were surveyed by Curator Sanborn and many were revised or corrected. The acquisition of a new-born hippopotamus early in the year



Loren P. Woods, Curator of Fishes, and Robert F. Inger, Assistant Curator, collect blind and white fishes, crustaceans, flatworms, insects, and spiders in Wild Cat Cave, Crawford County, Indiana. Photograph by George F. Jackson, of Evansville.

enabled Taxidermist Walters to make the necessary molds for the future preparation of a baby hippo. A special case at the end of the Hall of Whales (Hall N-1) presents salient facts about the anatomy of whales. A mounted skeleton of a porpoise shows the vestiges of the hind limbs, the transformation of the forelimbs into paddles, and the multiplication of teeth and their reduction to a uniform series. Models point out that the most essential characteristic of water-inhabiting animals is streamlining. The row of seven hairs on each side of the snout in a porpoise embryo marks it as a mammal (not a fish) quite as sharply as does the suckling of the young by the mother porpoise. Other models show how whales breathe and their division into two contrasting types, those that have teeth and feed on large prey and those with a baleen or whale-bone strainer by means of which they sieve relatively small animal food from the sea. Models and illustration, planned by Curator Davis, are by Artist Krstolich.

The systematic presentation of birds of the world in Boardman Conover Hall (Hall 21) is being supplemented by cases dealing with more general topics. A case with the heading "Young Birds: Their

Development" shows the precocial type of development of the bob-white, in which the hatchling bird is able to follow its mother from the nest; the altricial type, in which the baby bird is hatched naked and helpless, illustrated by the English sparrow; and an intermediate type represented by the common tern. This case, begun before his resignation by Assistant Taxidermist Kenneth Woehlek, was completed by Assistant Taxidermist Carl W. Cotton with the aid of Leon R. Aboulafia, visiting fellow. The system for periodic poisoning of both exhibition and mammal and bird storage cases was reorganized during the year and placed under the direction of Curator Sanborn. Taxidermist Wonder gave assistance to the Division of Maintenance in this operation.

In the east part of Albert W. Harris Hall (Hall 18, Reptile and Amphibian Section) the models illustrating the salamanders, frogs, lizards, and snakes of the Chicago region were completely reinstalled in three cases that form an alcove. This alcove, long planned by Curator Pope, is especially designed for the use of school children and for groups under the guidance of the Raymond Foundation, but it meets also a broad popular interest. The models are supplemented by maps showing distribution of the species and by colored photographs of typical environments. The models are largely the work of Taxidermist Walters, aided by Assistant Taxidermist Lambert, and the reinstallation was also by them, with carefully designed labeling by means of pasted-on letters. The wall case showing enlarged models of tadpoles, prepared by Artist Krstolich, was reinstalled with the new style of labeling. Two other screens, "Where Snakes Live" and "Salamanders," were reinstalled.

The new wall case in the west part of Hall 18 (Insect Section) with the title "Some Mosquitoes Carry Malaria" is the first of a long-planned series to present topics from insect life that have broad popular and scientific interest. The life cycles of the malaria-causing organism *Plasmodium* and of the malaria-transmitting mosquito *Anopheles* are shown in enlarged models and diagrams. The eggs, larva, pupa, and adult of an *Anopheles* mosquito are the meticulous work in plastic of James B. Trott, former Artist-Preparator. They are supplemented by diagrammatic models of blood vessels and of the mosquito body to show the malaria cycle from man to mosquito to man. These insect models are among the most accurate and effective ever made. A painting showing a typical anopheles habitat and a map of the world distribution of malaria are the work of Miss Bradbury, Artist, who also took over the work of installation with pasted-on lettering of the labels.

LIBRARY OF THE MUSEUM

The ever-widening range of Chicago Natural History Museum's scientific endeavors in departmental and field research automatically expands the resources of the Museum Library. Needed tools for research are secured either by purchase, after careful analysis of ultimate requirement, or by exchange of publications with other scientific organizations. We are fortunate, also, in receiving as gifts many rare and valuable publications. This highly selective process is building the Library into one of the finest research centers in the world, not from the standpoint of size but as a storehouse of essential material concentrated in the fields of natural history.

Because serial publications (proceedings, memoirs, reports, journals, etc., of scientific societies and research organizations) contain data of first interest to scientists here, they continue to form the major part of the Library's holdings. Physical evidence of the growing importance of this material is the fact that the Library has found it necessary to add a fifth Kardex file to take care of recording additional incoming serials. Another indication of the emphasis placed on serial publications in research is the increase in interlibrary loan service, both borrowed and lent, the greater part of which is concerned with this type of material.

The Library's holdings were notably increased by the additional transfer on permanent loan from John Crerar Library of many volumes of two scientific journals, namely the *Wiener Entomologische Zeitung* and the *Deutsche Entomologische Zeitschrift*. The Museum takes this opportunity to express its profound appreciation of the outstanding co-operation and courtesy extended to it by John Crerar Library, not only in this transfer but in daily relations in exchanging reference aid. The foresight of the Crerar Library in placing this important material in a focal location has served the twofold purpose of making it easily accessible to the curatorial staff for taxonomic research as well as to scholars and students in general.

Substantial progress in recataloging the Library's collection according to the Library of Congress classification has been made to date, as the following figures indicate: total number of volumes classified (to the end of November, 1950)—23,457; total number of cards in new catalogue—44,761. The process of reclassification has presented the means of weeding out of the collection material not related to the concentrated interests of this Museum, material of ephemeral interest only, and unnecessary duplicates. Gradually all the material of no interest or value that had been added through



The cataloguing department of the Museum Library has been moved to new quarters.

the years as permanent acquisitions will be removed, thus freeing much-needed shelf space. At the same time, overerowed departmental libraries are being relieved by the assimilation of material of more general nature in the general library.

Another important function of reclassification is that it permits the same judgment now used in selecting current acquisitions for binding to be applied to older materials. Evidence uncovered by reclassification, showing that much material of only temporary value to the Museum was bound in the past, serves to point up the need for constant care in bindery selection. As in all other libraries contributing to the listing of their holdings in the Union List of Serials, work on the revision of the new Supplement continues with the careful checking of the sections sent periodically by its publishers.

The overerowed condition in one section of the Library partially occupied by book stacks (with its remaining area given over to the cataloguing department, the Kardex division, and operational space for preparation of all bindery material as well as for mechanical operations involved in labeling, marking, and minor repair jobs on books) was relieved by removal of the cataloguing department into an unoccupied area in the adjacent room that houses the new book

stacks. By shifting the tier of map cases closer to the stacks, this extremely necessary transfer provided the proper working accommodations for the cataloguers, the nature of their work requiring an atmosphere of quiet, free from constant interruption. The section vacated by the catalogue department is an ideal location for the newly installed shelf list. With the Kardex arranged directly opposite the shelf list, the checking of incoming serials is expedited through simultaneous consultation of both records. Another important feature is the proximity of the shelf list to both the reading and cataloguing rooms, thereby providing quick access to the information it contains.

The total number of accessions for the year, both books and serials, to the end of November, 1950, aggregated 2,149 items. The following books and serials have been selected from among the acquisitions because of their significance to research:

BOOKS

- Baerends, G. P., and J. M. Baerends-Van Roon, *An introduction to the study of the ethology of cichlid fishes* (1950)
- Baker, Frank Collins, *The molluscan family Planorbidae* (1945)
- Baldacci, Elio, *Die Systematik der Actinomyceten* (1947)
- Bernardi, A. C., *Monographie des genres Galatea et Fischeria* (1860)
- Bews, John William, *An introduction to the flora of Natal and Zululand* (1921)
- Bosworth, Thomas Owen, *Geology of the Tertiary and Quarternary periods in the northwest part of Peru* (1922)
- Bourguignat, Jules René, *Methodus conchyliologicus denominationis sine quo chaos* (1860)
- Brauer, August, ed., *Die Süßwasserfauna Deutschlands*, 19 pts. in 17 v. (1909-12)
- Brehm, Alfred Edmund, *Illustriertes Thierleben. Eine allgemeine Kunde des Thierreichs*, 6 v. (1864-69)
- Cazin, F. J., *Traité pratique et raisonné des plantes médicinales indigènes*, 2nd ed. (1858)
- Cobb, Arthur F., *Birds of the Falkland Islands* (1933)
- Connolly, Cornelius Joseph, *External morphology of the primate brain* (1950)
- Cooke, Theodore, *Flora of the Presidency of Bombay*, 2 v. (1901-8)
- De Beer, Gavin Rylands, *Development of the vertebrate skull* (1937)
- Deyl, M., *Study of the genus Sesleria* (1946)
- Ellenberger, Wilhelm, *An atlas of animal anatomy for artists* (1949)
- Etheridge, Robert, *Fossils of the British Islands stratigraphically and zoologically arranged, v. 1. Palaeozoic comprising the Cambrian, Silurian, Devonian, Carboniferous, and Permian species, with supplementary appendix brought down to the end of 1886* (1888)
- Fritsch, Anton, *Palaeozoische Arachniden* (1904)
- Furon, Raymond, *La paléogéographie, essai sur l'évolution des continents et des océans* (1941)
- Giebel, Christoph Gottfried Andreas, *Die Fische der Vorwelt, mit steter Berücksichtigung der lebenden Fische* (1848)
- Gould, Augustus Addison, *Otia conchologica: descriptions of shells and mollusks, from 1839 to 1862* (1862)

BOOKS (*continued*)

- Henrard, Jan Theodoor, *Monograph of the genus Digitaria* (1950)
- Hertwig, Richard, *Abstammungslehre; Systematik; Paläontologie; Biogeographie* (1914)
- Herzfeld, Ernst Emil, *Archaeologische Mitteilungen aus Iran*, v. 1-10 (1929-39)
- Hultén, Eric, *Atlas över växternas utbredning i Norden; fanerogamer och ormbunksväxter* (1950)
- International Commission for the Scientific Exploration of the Mediterranean Sea, *Faune et flore de la Méditerranée*, 2 v. (1928-34)
- , *Rapports et procès-verbaux des réunions*, 7 v. (1926-38)
- Kuroda, Nagamichi, *Birds of the island of Java*, 2 v. (1933-36)
- Lindley, John, *The fossil flora of Great Britain; or, figures and descriptions of the vegetable remains found in a fossil state in this country*, 3 v. (1831-37)
- Loudon, John Claudius, *Arboretum et fruticetum Britannicum; or, the trees and shrubs of Britain, native and foreign . . .* 2nd ed., 8 v. (1844)
- Lowe, Edward Joseph, *A natural history of new and rare ferns* (1862)
- Malbrant, René, *Faune de l'Equateur Africain Français*, tome 1. Oiseaux (*Encyclopédie biologique*, tome 35) (1949)
- Oppenheimer, Hans C., *Neuere Daten zur Genetik der Pflanze* (1932)
- Seguy, Eugéné, *Le Microscope, emploi et applications*, 2 v. (1942, 1949)
- Shuttleworth, R., *Notitiae malacologicae, oder Beiträge zur Näheren Kenntniss der Mollusken*, Heft 2: I. Monographische Versuche . . . (1877)
- Silveus, William Arents, *Texas grasses; classification and description of grasses* (1933)
- Sprengel, Kurt P. J., *Kurt Sprengel's Anleitung zur Kenntniss der Gewächse*, 2nd ed. rev., 3 v. (1817-18)
- Tierreich, Das, Dr. H. G. Bronn's *Klassen und Ordnungen des Thier-reichs wissenschaftlich dargestellt in Wort und Bild*. Bd. 3, Abt. 2, Mollusca, Buch 2, Lief. 136-151 (1912-27); Bd. 6, Abt. 1: Pisces, Buch 1 (1924)
- Wehmer, Carl, *Die Pflanzenstoffe botanisch-systematisch bearbeitet. Phanerogam*, 2 v. (1929-31)
- Westerlund, Carl Agardh, *Fauna der in der paläarktischen region (Europa, Kaukasien . . .) lebenden Binnenconchylien*, 7 pts. (1886-90)
- Winckler, E., *Geschichte der Botanik* (1854)

SERIALS

- Acta Zoologica*, v. 1-7 (1920-36)
- African affairs, journal of the Royal African Society*, v. 1-6 (1901-7), v. 39— (1940—)
- Anatomischer Anzeiger; Centralblatt für die gesamte wissenschaftliche anatomie*, Bd. 89, Hft. 19, 21, 23, 24 (1940), Bd. 90-95 (1940-48), Bd. 96, 97, Hft. 1, 9 (1949)
- Arbeiten über physiologische und angewandte Entomologie aus Berlin-Dahlem*, v. 1-11 (1934-44)
- Archaeology; a magazine dealing with the antiquity of the world*, v. 1— (1948—)
- Australasian herbarium news*, no. 1— (1947—)
- Berlin. Deutsches Entomologisches Museum. *Supplementa entomologica*. Herausgegeben und redigiert von Walther Horn, no. 1-17 (1912-29)
- Cuadernos Americanos*, v. 1— (1942—)
- Entomological Society of British Columbia. *Proceedings*, no. 2, 1901—; no. 6, 1915; no. 8, 1916—; v. 46, 1950
- . *Quarterly Bulletin*, nos. 1-10 (1906-8)
- Entomological Society of Southern Africa. *Journal*, v. 1-10 (1939-48)
- Entomologische Beihefte aus Berlin-Dahlen*, nos. 1-10 (1934-43)

SERIALS (continued)

Gegenbaurs morphologisches Jahrbuch, eine Zeitschrift für Anatomie und Entwicklungsgeschichte, v. 27-32, 39-52, 55, 59, 67-69, 73-75, 81, 83 (1899-1923, 1926, 1928, 1931-32, 1933-35, 1938, 1939)

Geologists' Association, London. *Proceedings*, v. 13-32 (1895-1921)

Insecta; revue illustrée d'entomologie, v. 1-13 (1911-24)

Linnean Society of London. *Transactions*, v. 20, pts. 2-3 (1847, 1851); v. 21; v. 23-24; v. 26, pts. 1-3 (1869)

Madrid. Instituto Español de Entomología. *Eos*, v. 1- (1925-)

Münchener Entomologischer Verein. *Mitteilungen*, v. 1-5 (1877-81)

Palaontographica, Abt. A: *Paläozoologie-Stratigraphie*, v. 81-99 (1934-50) and continuation

———, Abt. B: *Paläophytologie*, v. 79-88 (1934-48) and continuation

———, supplement (1934-41) and continuation

Palaontologia Polonica, tome 1, 2 (1929-32), tome 3 (1948)

Palaontologische Zeitschrift, v. 1-21 (1914-39)

Royal Dublin Society. *The scientific transactions of the Royal Dublin Society*, ser. II, v. 1-9 (1877-1909)

Société Zoologique de France. *Mémoires de la Société Zoologique de France*, v. 1-16 (1888-1903)

ON PERMANENT LOAN FROM JOHN CRERAR LIBRARY

Deutsche Entomologische Zeitschrift, v. 3-24 (1859-80), v. 26-30 (1882-86), v. 31-75 (1887-1933)

Wiener Entomologische Zeitung, v. 1-50 (1882-1933)

PUBLIC RELATIONS

The Museum again acknowledges its debt to the newspapers of Chicago and to the national press, press wire-services, and periodical publications for splendid co-operation in giving generous space to news of its activities. Several times a week, both locally and over the country, reminders were printed that kept the public aware of the existence of the Museum, the scope of its exhibits and research, and the current events on its expeditions, in its laboratories, and in its lectures and other educational programs.

During the year the Public Relations Counsel released 254 news stories directly to the press. This publicity was augmented in various ways: by issuing advance proofs of principal stories to be published in the Museum *Bulletin*, by follow-up assignments made to reporters and photographers by newspaper editors upon receipt of Museum releases, and by co-operation of the Museum and the publicity divisions of other organizations in enterprises that would bring mutually valuable notice in the press. The large metropolitan dailies were not the only targets of Museum publicity. Additional notice was received through releases to a special list of several

hundred community and foreign-language newspapers of various neighborhoods within Chicago as well as to the dailies and weeklies of the suburbs and the regional area. Wire and mail national news agencies expanded this coverage to a coast-to-coast basis, and releases of unusual importance and interest often received international circulation. Special acknowledgment is made to the publishers, executives, and editorial staffs of the following: *Chicago Daily Tribune*, *Chicago Sun-Times*, *Chicago Daily News*, *Chicago Herald-American*, City News Bureau of Chicago, Associated Press, International News Service, United Press Association, Acme News Pictures, International News Photos, and Science Service. In several instances the daily newspapers of Chicago and of other cities, notably St. Louis, have given Museum pictures and stories full-page spreads in Sunday features.

Radio and television continued to be sources of additional publicity. Through them the Museum was represented in news broadcasts and in feature programs and educational forums. Local stations contributing time to the Museum were WMAQ, WGN, WGN-TV, WMBI, WIND, WBBM, WENR, WLS, and WJJD. Network programs on which the Museum was represented included

A new exhibit in Boardman Conover Hall (Hall 21) sets forth contrasts in types of development among birds, illustrated by the bobwhite, English sparrow, and tern.

YOUNG BIRDS: THEIR DEVELOPMENT

AT HATCHING THEY VARY FROM NAKED TO DOWN COVERED: FROM COMPLETELY DEPENDENT TO COMPLETELY INDEPENDENT IN A FEW WEEKS OR MONTHS THEY BECOME FULL GROWN



both radio and television by the Columbia Broadcasting System, the National Broadcasting Company, and the Mutual Broadcasting System, and radio via American Broadcasting Company.

Publicity contacts were maintained between the Museum and its own Members through the news, features, and picture-coverage of the institution's monthly *Bulletin*. The *Bulletin* serves also as an exchange medium in the Museum's relations with other scientific and civic institutions and as an additional source of material for the newspapers. Other publicity routines were continued. Thousands of folders, as usual, were distributed through co-operating agencies such as hotels, travel bureaus, department stores, civic bureaus, and libraries, and through seven Chicago museums in other fields of science and art. Through the co-operation of the Illinois Central System, Chicago and North Western Railway, the Chicago, Aurora and Elgin Railroad, and the Chicago Transit Authority, posters were displayed in railway stations and on suburban trains to advertise the Museum's lecture courses for adults and the Raymond Foundation programs for children.

PHOTOGRAPHY AND ILLUSTRATION

The Division of Photography made during the year a total of 16,100 negatives, prints, enlargements, lantern slides, and transparencies for the Museum, other institutions, the press, and general sales. More than 107,000 negatives are now in the files.

Douglas E. Tibbitts, Staff Illustrator, prepared for the departments and divisions of the Museum drawings, lettering, and other art work that amounted to a total of approximately 165 separate pieces of finished work by the end of the year. Silk-screen printing apparatus was added to the equipment of his office for rapid duplication of designs in color, thereby increasing the scope of his work.

MOTION PICTURES

After being in production for nearly two years the Museum's motion-picture film "Through These Doors" (changed from the temporary title "Treasure House") was completed and plans were worked out for its distribution. The first showing of this film was before the annual conference of the Museums Association (Great Britain) in Aberdeen, Scotland. The following week it was shown to the scientific staff of the British Museum (Natural History) and at a later date to the members of the Natural History Section of the

International Council of Museums, whose biennial conference was held in London. Complimentary reports were received from the three showings. The subject matter, especially the techniques illustrated, proved of great interest to these audiences. During the coming year it is anticipated that many organizations will avail themselves of the opportunity to see this film for a better understanding of the Museum's work in scientific, educational, and public services. In addition, one motion-picture was produced from material in the Museum's film library. Such films are used in the schools and by other interested organizations.

At the request of the Department of Anthropology the Division of Motion Pictures participated in the Museum's archaeological expedition to the Southwest. A total of 2,200 feet of color film was exposed during a period of five weeks in the field, and this material is now being edited into a new film that will tell the story of the Museum's work in that area over a period of years. The new film will replace one made three years ago, although some scenes from the old film will be incorporated into the new one. Color transparencies and motion-picture records of various natural-history subjects were made for the scientific departments of the Museum to use both in research problems and as visual aids. This work has become an important function of the Division of Motion Pictures.

PUBLICATIONS AND PRINTING

The publications of the Museum were generously distributed during 1950 to institutions and scientists. Ninety-five new names were added to the mailing lists, and a total of 17,704 copies of publications was distributed to domestic and foreign exchanges. Sales totaled 3,909 copies in the Scientific Series, 10,266 in the Popular Series, and 26,827 copies of miscellaneous publications, such as guides, handbooks, memoirs, and technique papers (see page 90). For future sales and other distribution an additional 11,196 copies of publications were wrapped, labeled, and stored.

The Museum Press issued during the year fifteen titles in the Scientific Series of publications, one in the Popular Series, two in the Memoirs Series, one Annual Report, and one reprint. The total number of copies printed was 32,569, of which 31,669 copies were printed by letterpress, with a total of 1,748 pages of type composition, and 900 copies were printed by the Vari-type offset process, with a total of 113 pages by Vari-type composition. Twelve numbers of Chicago Natural History Museum *Bulletin* were printed, averaging

6,000 copies an issue. Other work by letterpress included posters, price lists, lecture schedules, Museum labels, post cards, Museum stationery, and specimen tags, totaling 1,012,540 impressions. Two series of Museum Stories for Children (Raymond Foundation) and miscellaneous work were printed by the Vari-type-offset process, with a total of 197,802 impressions.

A list of titles in the publications series issued in 1950 by Chicago Natural History Museum Press follows:

DEPARTMENT OF ANTHROPOLOGY

BRAIDWOOD, ROBERT J.

Prehistoric Men, Popular Series, Anthropology, no. 37, 117 pages, 37 text figures (reprint)

MARTIN, PAUL S., AND JOHN B. RINALDO

Turkey Foot Ridge, A Mogollon Village, Pine Lawn Valley, Western New Mexico, Fieldiana: Anthropology, vol. 38, no. 2, 164 pages, 65 text figures
Sites of the Reserve Phase, Pine Lawn Valley, Western New Mexico, Fieldiana: Anthropology, vol. 38, no. 3, 178 pages, 78 text figures

RINALDO, JOHN B.

An Analysis of Culture Change in the Ackmen-Lowry Area, Fieldiana: Anthropology, vol. 36, no. 5, 14 pages, 2 text figures

DEPARTMENT OF BOTANY

CUATRECASAS, JOSÉ

Contributions to the Flora of South America: Studies on Andean Compositae—I, Studies in South American Plants—II, Fieldiana: Botany, vol. 27, no. 1, 113 pages, 12 text figures

MACBRIDE, J. FRANCIS

Natural Landscapes of the United States, Popular Series, Botany, no. 27, 47 pages, 31 text figures, 6 maps
Flora of Peru, Botanical Series, vol. 12, part 3, no. 3, 221 pages

DEPARTMENT OF GEOLOGY

OLSON, EVERETT CLAIRE

The Temporal Region of the Permian Reptile Diadectes, Fieldiana: Geology, vol. 10, no. 9, 15 pages, 6 text figures

RICHARDSON, EUGENE S., JR.

A Middle Devonian Octactinellid Sponge from New York, Fieldiana: Geology, vol. 10, no. 10, 10 pages, 5 text figures

ROY, SHARAT KUMAR, AND ROBERT KRISS WYANT

The Smithonia Meteorite, Fieldiana: Geology, vol. 7, no. 9, 6 pages, 4 text figures
The La Porte Meteorite, Fieldiana: Geology, vol. 7, no. 10, 10 pages, 9 text figures

DEPARTMENT OF ZOOLOGY

BLAKE, EMMET R.

Report on a Collection of Birds from Guerrero, Mexico, Fieldiana: Zoology, vol. 31, no. 39, 19 pages

Report on a Collection of Birds from Oaxaca, Mexico, Fieldiana: Zoology, vol. 31, no. 40, 25 pages

Birds of the Acary Mountains, Southern British Guiana, Fieldiana: Zoology, vol. 32, no. 7, 59 pages

CONOVER, BOARDMAN

A Study of the Spotted Tinamons, Fieldiana: Zoology, vol. 31, no. 37, 24 pages

A Study of the Elegant Tinamons, Fieldiana: Zoology, vol. 31, no. 38, 12 pages

LIU, CH'ENG-CHAO

Amphibians of Western China, Fieldiana: Zoology Memoirs, vol. 2, 423 pages, 11 plates, 100 text figures

TRAUB, ROBERT

Siphonaptera, from Central America and Mexico, Fieldiana: Zoology Memoirs, vol. 1, 238 pages, 54 text figures

SANBORN, COLIN CAMPBELL, AND A. J. NICHOLSON

Bats from New Caledonia, the Solomon Islands, and New Hebrides, Fieldiana: Zoology, vol. 31, no. 36, 26 pages, 4 text figures, 1 map

ADMINISTRATIVE PUBLICATIONS

Report of the Director to the Board of Trustees for the Year 1949, 140 pages, 26 illustrations

CO-OPERATION WITH OTHER INSTITUTIONS

Through interlibrary loans the resources of the Library of the Museum were available to other institutions and, as in past years, the laboratories and research collections of the Museum were open to visiting scientists. The Museum continued its co-operative educational plans with the University of Chicago, Northwestern University, Antioch College, and the Art Institute of Chicago.

Art students constantly use the Museum exhibits as source materials for sketching, modeling, and design. These students, who come in supervised classes from the various art schools in Chicago, range in age from children of six years to adults. Their quiet earnestness as they work in the Museum halls attracts the attention of many visitors. Represented are the Art Institute of Chicago, Chicago Academy of Fine Arts, Academy of Applied Art, and the Institute of Design. Greatest in number are the students from the School of the Art Institute of Chicago. Many of these classes come regularly, and their interpretations of the natural history of the

world are unique and interesting. Selected examples of their work form a special exhibit in Stanley Field Hall of the Museum for one month each summer.

Another type of adult student who comes to the Museum in supervised classes is the teacher-in-training. As future teachers these students, in education classes from several universities and colleges in the Chicago area (Roosevelt College, Pestalozzi-Froebel Teachers College, National College of Education, and De Paul University), are interested in learning how to use the resources of a museum. This instruction for teachers is one of the most hopeful signs of better educational use by the schools of Museum exhibits. Frequent use of Museum exhibits is made by individual students from Roosevelt College, for whom the Museum certifies attendance at the Museum. Unusual student-visitors in the Museum are officers from the Quartermasters Corps of the United States Army, who, although they come especially to see and study spices and food plants, usually become interested in the entire Museum. The co-operative educational plan adopted in 1946 by this Museum and Antioch College, Yellow Springs, Ohio, provides for the temporary employment by the Museum of successive groups of undergraduate students who alternate periods of study on the college campus with periods of work with pay. Under this plan fourteen young men and women were employed in 1950 by the Museum in its scientific departments and administrative offices.

A five-year contract for scientific co-operation between the Universidad Autonoma de El Salvador and Chicago Natural History Museum was signed on January 26, 1950. Under the agreement the Museum will send each year to the Instituto Tropical de Investigaciones Cientificas of the Universidad Autonoma a botanist, a geologist, and a zoologist for scientific research and exploration. All collections resulting from the contract are available to the Museum, which will, in turn, build representative collections for retention by the Tropical Institute. The results of these studies will be published by the Museum, by the Tropical Institute, or by both. The plan was inaugurated in September with the departure for El Salvador of Dr. Norman C. Fassett, professor of botany on leave from the University of Wisconsin, who will collect and study aquatic plants.

The Museum continued to co-operate with Dr. Willard F. Libby, of the Institute for Nuclear Studies, University of Chicago, in his research on carbon-14 dating (see pages 35 and 38). In return for assistance by the Navy Department to the 1949-50 anthropological expedition to Micronesia, Dr. Alexander Spoehr, Curator of



Supervised classes from the art schools of Chicago sketch in the Museum's halls.

Oceanic Ethnology, devoted a share of his time in the field as anthropological consultant on administrative problems to the local Navy Civil Administration Unit in the northern Marianas district. He was concerned mainly with land use, ownership, inheritance, and the establishment of a more effective machinery of local self-government among the Chamorros, and recommendations were made for the preservation and care of archaeological sites on Saipan, Tinian, and Rota in connection with the conservation program of the Trust Territory. A research program of studies on the distribution of the mammals of Arkansas involving co-operation with the Department of Zoology of the University of Arkansas has been developed by Colin C. Sanborn, Curator of Mammals, during repeated visits to the state of Arkansas. In the fall of 1950 he spent three weeks in the central and southern parts of the state in the interests of this program.

Members of the staff continued to lecture before classes and seminars at various universities and to conduct classes at the Museum. Dr. Paul S. Martin, Chief Curator of Anthropology, Donald Collier, Curator of South American Ethnology and Archaeology, and George I. Quimby, Curator of Exhibits, gave a course at the Museum

in New World archaeology for the University of Chicago. During the spring quarter Chief Curator Martin, aided by Dr. John B. Rinaldo, Assistant Curator of Archaeology, held a seminar in Southwestern archaeology for University of Chicago students. Curator Collier supervised a research course at the Museum on Andean archaeology for graduate students and, with Curator Quimby, gave a course in world ethnology at the University of Chicago. Curator Quimby gave a course in ethnology of North and South America at Northwestern University.

Classes in botany from the University of Chicago, Northwestern University, the State University of Iowa, and Valparaiso University visited the Department of Botany at various times during the year and were conducted through the laboratories and herbaria. Dr. Theodore Just, Chief Curator of Botany, held a seminar at Northwestern University in March on divergent mutation and at the University of Illinois in December on fossil cycads and on fossil floras of the southern hemisphere. He conducted a class in paleobotany at Northwestern University in the summer session. Dr. Hugh C. Cutler, Curator of Economic Botany, lectured at the University of Illinois on culture and foods of the Andes and held a seminar on the history of corn and, during the fall, conducted a graduate class in ethnobotany for the University of Chicago.

The advanced course in vertebrate paleontology offered by the University of Chicago was, as in former years, held at the Museum. During the course Dr. Rainer Zangerl, Curator of Fossil Reptiles, lectured on protorosaurians, nothosaurs, and turtles, and Dr. Robert H. Denison, Curator of Fossil Fishes, on primitive fishes. Curator Zangerl discussed the function of comparative anatomy in evaluation of structural characters at a symposium in physical anthropology at the University of Chicago, and Curator Denison gave two lectures on the origin and early history of the chordates before a class in biological sciences. Bryan Patterson, Curator of Fossil Mammals, spoke before the graduate class in physical anthropology at the University of Chicago on variation in animals and the principles of taxonomy. By invitation he visited the University of California, Berkeley, in October to hold seminars and to participate in a symposium on continental drift.

Karl P. Schmidt, Chief Curator of Zoology, as Lecturer in the Department of Zoology at the University of Chicago, took part in the exchange of faculty between the University of Chicago and the University of Frankfurt, Frankfurt-on-Main, Germany, where he was in residence from late April to the last day of July. In addition

to a seminar for advanced students in zoology, using as textbook the *Principles of Animal Ecology* (Allee, Schmidt, and others), he held conferences with students and staff at Senckenberg Museum, which has relations with the University of Frankfurt essentially parallel to those between Chicago Natural History Museum and the University of Chicago. He was received with great cordiality at the museum by Director Robert Mertens, who had been guest of this Museum on a similar faculty exchange. After his return from Germany Chief Curator Schmidt lectured informally on various occasions to classes and other groups at the University of Wisconsin and the University of Chicago. In December he served as consultant on museum problems at the University of Florida, lectured to the Society of Sigma Xi, and took part in a conference on the Caribbean at mid-century. D. Dwight Davis, Curator of Vertebrate Anatomy, was appointed Lecturer in Zoology at the University of Chicago, and in March delivered a lecture at a symposium on the evaluation of characters in classification and evolution.

Scientists from other institutions continued to make use of the study collections in the scientific departments of the Museum. Georges Henri Rivière, Associate General Director of the International Council of Museums, visited the Museum in January and conferred with the Director, Chief Curator Martin, and Dr. Sharat K. Roy, Chief Curator of Geology. Dr. Guy Stresser-Pean, of Paris, spent two days looking over the Mexican collections in the Department of Anthropology in preparation for a year's ethnological work among the Huastec Indians. He also consulted with the Department of Botany concerning food plants of the Huastec. Mrs. Kamer Aga-Oglu, of the Museum of Anthropology of the University of Michigan, spent six weeks in the Museum examining the Hester Collection of Chinese ceramics from the Philippines. She made important additions to the catalogue of this collection and selected type specimens for photographing. Dr. Sigurd Erixon, of the Institute of Folk Life Investigation, Nordic Museum, Stockholm, and Dr. Ake Campbell, of the Folk Culture Archive, University Library, University of Uppsala, studied exhibits, consulted with Curators Collier and Quimby on the nature of anthropological studies in the United States, and received assistance in assembling data on American Indian houses, wooden utensils, and foods.

Many visiting botanists used the Museum's botanical collections and laboratories. Dr. Edgar Anderson, of Missouri Botanical Garden, studied in the herbaria; Dr. S. A. Cain, of Cranbrook Institute, studied ferns of Michigan; Hugh Iltis, of Missouri Botanical



The Raymond Foundation held a one-day course on natural history of the Chicago region for forty-three supervisors and instructors of the Chicago Park District.

Garden, identified his palm collection from Central America; Dr. Duane Isely, of Iowa State College, studied legumes; Professor Dwight M. Moore, University of Arkansas, ferns of Arkansas; Dr. Robert W. Schery, Missouri Botanical Garden, legumes; and Dr. Eula Whitehouse, Southern Methodist University, cryptogams.

The collections and facilities of the laboratories in vertebrate paleontology were used by several investigators, among whom were Professor Claude W. Hibbard and John Dorr, Jr., of the University of Michigan; Dr. Charles A. Reed, of the University of Illinois; Dr. Walter Segall, of Northwestern University; and Walter Wheeler, of Yale University. Miss Suzanne Leclerque, professor of paleontology at the University of Liège in Belgium, came to the Museum in the spring to examine the study collection of fossil plants. Dr. Roland Brown, paleobotanist at the United States Geological Survey, visited the Museum in the fall to study the collection of *Paleoxyris* from the Pennsylvanian deposits near Wilmington, Illinois, and the fossil plants collected in the Gulf regions.

Many scientists from other institutions used the laboratories of the Department of Zoology and studied its collections. Javier Ortiz de la Puente, of the Museo de Historia Natural "Javier Prado" in Lima, Peru, worked from March to September on the Peruvian collections of mammals and birds. Frank Porter, engineer of Cook Research Laboratories, studied sea lampreys and discussed the problems presented by their invasion of the Great Lakes with Loren P. Woods, Curator of Fishes. Brief visits for study were made by Dr. Alexander Wetmore, secretary of the Smithsonian Institution; William H. Phelps, of Caracas, Venezuela; Dr. James P. Chapin and Dr. G. H. H. Tate, of the American Museum of Natural History; Reverend A. I. Good, of Wooster, Ohio; Dr. Robert Storer, of the University of Michigan; Harold Hanson, of the Illinois Natural History Survey; Dr. Arthur C. Twomey, of the Carnegie Museum; Dr. P. E. Vanzolini, of Sao Paulo, Brazil; Dr. L. M. Klauber, of San Diego, California; and Richard Spieler, of Rochester, New York. Among those using the laboratory and collections of the Division of Anatomy were Dr. E. L. Du Brul, of the College of Dentistry, University of Illinois, Dr. Waldemar Meister, of the Chicago College of Osteopathy, and Dr. Robert L. Miller, of the University of Chicago.

Leon R. Aboulafia, who holds a fellowship from the Biological Institute of the Teachers Seminary at Tel Aviv, Israel, arrived at the Museum in June to study the techniques of museum exhibition and organization, with this Museum as his principal host. At the end of the year D. S. Rabor, of Silliman University, Dumaguete, Negros Island, John Simon Guggenheim Memorial Foundation Fellow from the Philippine Islands, came to the Museum. He had been contributing collections of vertebrates from Negros and other islands of the Philippines since his participation in the Museum's expedition to the Philippines in 1946-47 under Harry Hoogstraal, Field Associate. It is hoped that he may be able to prepare handbooks for use in the Philippines, especially in university classes, by working with the Museum staff and by reviewing the Philippines material in the Museum's collections.

Students working independently or under the direction of a university or college have made good use of the exhibits and study collections in African ethnology and physical anthropology. Several students specializing in studies of Angola (Portuguese West Africa) have found the Museum exhibits particularly helpful. Assistant Curator Rinaldo supervised graduate students from the University of Chicago who were making a study of wood and fiber artifacts

of the Mogollon culture. Graduate students in zoology of the University of Chicago who are engaged in studies at the Museum are Robert F. Inger (of the staff), under the direction of Chief Curator Schmidt; Robert Sokol and Ronald Ward, under the direction of Alfred E. Emerson, Research Associate in Insects; and William J. Beecher and Robert Smolker, under the direction of Curator Davis.

Other special activities of staff members included lectures before general groups and radio talks. Assistant Curator Rinaldo gave a movie-lecture on Southwestern archaeology before the Earth Science Club of northern Illinois; Dr. Julian A. Steyermark, Associate Curator of the Herbarium, talked before the Barrington Women's Club, Chicago Aquarium Society, Conservation Council, and Men's Garden Club of Mundelein and Libertyville; Harry E. Changnon, Curator of Exhibits in Geology, addressed the Chicago Lapidary Club; Chief Curator Schmidt lectured before the spring seminar of the Texas Game, Fish, and Oyster Commission in Rockport; Curator Davis talked on his recent expedition to Borneo at the annual dinner of the employees of the Chicago Zoological Society; and Dr. Austin L. Rand, Curator of Birds, discussed the Museum's exhibit of bird eggs and nests over radio station WJJD (Chicago). Curator Rand was invited to accompany a group from the Armour Livestock Bureau on an air-tour of the northwestern states to study urgent conservation problems. Rupert L. Wenzel, Assistant Curator of Insects, and Curator Sanborn attended the Fifth Army Insect and Rodent Control Conference at Fort Sheridan, Illinois, and Assistant Curator Wenzel addressed the conference on insect control. Dr. R. M. Strong, Research Associate in Anatomy, president of the Illinois Audubon Society, was appointed by Governor Adlai E. Stevenson to the chairmanship of a committee for consultation on problems relating to the Illinois Beach State Park near Waukegan. Associate Curator Steyermark was named a member of the committee.

ACTIVITIES OF STAFF MEMBERS IN SCIENTIFIC SOCIETIES

Dr. Paul S. Martin, Chief Curator of Anthropology, attended the annual meetings of the American Anthropological Association held in December in Berkeley, California, to commemorate the fiftieth anniversary of the founding of the Department of Anthropology at the University of California and presented a paper on "The Southwestern Co-Tradition." With Dr. John B. Rinaldo, Assistant

Curator of Archaeology, and Miss Elaine Bluhm, Assistant in Archaeology, he attended the Pecos Conference on Southwestern archaeology at the Museum of Northern Arizona in Flagstaff in August. Donald Collier, Curator of South American Ethnology and Archaeology, attended the annual meeting of the Division of Anthropology and Psychology of the National Research Council. He presented papers at the symposium on techniques in archaeology and the seminar on physical anthropology held by the Viking Fund, Inc., in New York in March and June, respectively. He continued to serve as a member of the Committee on Carbon-14 Dating of the American Anthropological Association and the Geological Society of America and as a representative of the American Anthropological Association to the Division of Anthropology and Psychology of the National Research Council. He is a member of the executive committee of the National Research Council and second vice-president of the Society for American Archaeology. George I. Quimby, Curator of Exhibits, attended in May the joint annual meetings of the Society for American Archaeology, of which he is secretary, and the Central States Branch of the American Anthropological Association at the University of Oklahoma, Norman.

Dr. Theodore Just, Chief Curator of Botany, attended the meeting of the Society of Economic Paleontologists and Mineralogists in Chicago in April and read a paper before the symposium on applied paleobotany. Dr. Julian A. Steyermark, Associate Curator of the Herbarium, Dr. Earl E. Sherff, Research Associate in Systematic Botany, and Chief Curator Just attended the annual meetings of the American Institute of Biological Sciences in Columbus, Ohio, in September. Chief Curator Just presented papers before the Society for the Study of Evolution, of which he is secretary, and the Systematic Section of the Botanical Society of America. During the year he was appointed chairman of the Committee on Paleobotany, Division of Geology and Geography, of the National Research Council. Associate Curator Steyermark is secretary of the Systematic Section of the Botanical Society of America and secretary of the Systematic Section of the Society of Plant Taxonomists. Dr. Francis Drouet, Curator of Cryptogamic Botany, represented the Museum at the Seventh International Botanical Congress held in Stockholm, Sweden, in July and presented a paper. Dr. José Cuatrecasas, Curator of Colombian Botany, was appointed corresponding member of the Ecuadorian Institute of Natural Sciences. Dr. Hanford Tiffany, Research Associate in Cryptogamic Botany, is president of the Phycological Society of America.



A reproduction of a ginger lily has been added to the plant exhibits in Hall 29.

Dr. Sharat K. Roy, Chief Curator of Geology, Robert K. Wyant, Curator of Economic Geology, Bryan Patterson, Curator of Fossil Mammals, Dr. Rainer Zangerl, Curator of Fossil Reptiles, and Dr. Robert H. Denison, Curator of Fossil Fishes, attended the meetings of the Geological Society of America in Washington, D.C., in November. Curators Patterson, Zangerl, and Denison also attended the meetings of the Society of Vertebrate Paleontology held concurrently, where Curator Patterson discussed the Early Cretaceous mammals found in northern Texas. Eugene S. Richardson, Jr., Curator of Fossil Invertebrates, and Curator Wyant attended the meetings of the American Association of Petroleum Geologists in Chicago in April. In September Curator Wyant attended the meetings of the National Chemical Exposition held also in Chicago.

Dr. Fritz Haas, Curator of Lower Invertebrates, presided as president at the annual meeting of the American Malacological Union, which was held in the Museum in June. Colin C. Sanborn,

Curator of Mammals, attended the meetings of the American Society of Mammalogists in Yellowstone National Park in June and was elected to the society's board of directors. During the year he was elected a member of the Washington Academy of Sciences, Washington, D.C., with the citation, "In recognition of his contributions to systematic zoology, particularly in the classification of the Chiroptera, and faunal studies in South America." Dr. Austin L. Rand, Curator of Birds, attended the meetings of the American Ornithologists' Union in St. Paul and was elected a member of the International Committee, the governing and operating board for the International Ornithological Congresses. Clifford H. Pope, Curator of Amphibians and Reptiles, was elected president of the Kennicott Club of Chicago, an organization that includes most of the active workers in the museum fields of zoology and botany in the Chicago region. D. Dwight Davis, Curator of Vertebrate Anatomy, was elected vice-president of the Society for the Study of Evolution, and Chief Curator Schmidt continued as treasurer.

The Director of the Museum attended the annual meeting of the American Association of Museums held in Colorado Springs, Colorado, in May. He also attended the meeting of the Council of that organization and visited the Denver Museum of Natural History with that body. At other times during the year he visited the Los Angeles County (California) Museum, Arizona State Museum at Tucson, and the university museums at Stanford University, California, and at Michigan State College. Mrs. Meta P. Howell, Librarian of the Museum, and Mrs. Eunice M. Gemmill, Associate Librarian, attended the midwinter conference of the American Library Association in Chicago in January. They also attended during the year sessions of various professional organizations such as the Special Libraries Association, the Illinois Regional Group of Cataloguers, and the Chicago Library Club.

A number of staff members serve in editorial capacities on scientific journals. Dr. Alexander Spoehr, Curator of Oceanic Ethnology, resumed the review editorship of the *American Anthropologist* in December upon his return from his expedition to Micronesia, Curator Collier having served as review editor during his absence. Chief Curator Just continued as editor of *Lloydia* and member of the editorial board of *Evolution* and was appointed editor of *Paleobotanical Report*. Research Associate Sherff continued as a member of the editorial committee of *Brittonia*. Curator Patterson was appointed associate editor of *Evolution* and Curator Zangerl was made foreign editor of the *Society of Vertebrate Paleontology News*

Bulletin. Chief Curator Schmidt continued as herpetological editor of *Copeia*, section editor (amphibians and reptiles) of *Biological Abstracts*, and consulting editor (cold-blooded vertebrates) of *American Midland Naturalist* and was elected during the year to the editorial board of *Ecology*.

Publications of staff members during 1950 other than those issued by Chicago Natural History Museum included the following titles:

DEPARTMENT OF ANTHROPOLOGY

ALLEN, T. GEORGE

Occurrences of Pyramid Texts, with Cross Indexes of These and Other Egyptian Mortuary Texts (University of Chicago Press, No. 27 in Oriental Institute "Studies in Ancient Oriental Civilization"), vii+149 pages

COLLIER, DONALD

"Reconnaissance Notes on the Site of Huari, Near Ayacucho, Peru," *American Antiquity*, vol. 16, no. 2, pp. 120-137 [with John H. Rowe and Gordon R. Willey]

QUIMBY, GEORGE I.

"Archaeology, Western Hemisphere," in *1950 Britannica Book of the Year, A Record of . . . Events of 1949* (Chicago: Encyclopaedia Britannica, Inc.), pp. 54-56

"Historic Creek Pottery from Oklahoma," *American Antiquity*, vol. 15, no. 3, pp. 249-251 [with Alexander Spoehr]

SPOEHR, ALEXANDER

"Observations on the Study of Kinship," *American Anthropologist*, vol. 52, no. 1, pp. 1-15

DEPARTMENT OF BOTANY

CUATRECASAS, JOSÉ

"Frailejónal, típico cuadro de la vida vegetal en los páramos andinos.," *Revista de la Academia Colombiana de Ciencias*, vol. 7, pp. 457-461

"Gutíferas nuevas o poco conocidas de Colombia," *Anales del Instituto de Biología de México*, vol. 20, pp. 91-112

"Les espècies del gènere *Espeletia*," *Bulletí de la Institució Catalana d'Història Natural*, vol. 37, pp. 30-41

"New and Noteworthy Colombian Trees," *Tropical Woods*, no. 96, pp. 37-47

"New Species of *Cecropia* and *Quararibea*," in "Plantae Colombianae XII" by Richard Evans Schultes, *Botanical Museum Leaflets* (Harvard University), vol. 14, pp. 24-27, 30-32

"Notas a la Flora de Colombia, *Guttiferae*," *Revista de la Academia Colombiana de Ciencias*, vol. 8, pp. 32-69

CUTLER, HUGH C.

"Methods of Popping Corn and Their Historical Significance," *Southwestern Journal of Anthropology*, vol. 6, no. 3, pp. 303-308, 1 plate, 2 figures [with Edgar Anderson]

DEPARTMENT OF BOTANY (continued)

DROUET, FRANCIS

"Myxophyceae" (identifications and descriptions), in *Plants of Bikini and Other Northern Marshall Islands* by William Randolph Taylor (University of Michigan Press, Volume 18 in University of Michigan Studies, Scientific Series), pp. 103-116

"Nomina Conservanda of genera of Myxophyceae" (note), in "Nomenclatural Principles and Rules in Reference to Certain Fungal and Algal Generic Names" by Maxwell S. Doty, *Lloydia*, vol. 13, no. 1, pp. 9-10

JUST, THEODOR

"Carpels and Ovules," in *Families of Dicotyledons* by Alfred Gunderson (Waltham, Massachusetts: Chronica Botanica Company), pp. 12-17

"Mesozoic Plant Microfossils and Their Geological Significance" (abstract), *Annual Meetings, 1950* (The Society of Economic Paleontologists and Mineralogists), p. 39

Review of *Phyton, Annals Rei Botanicae* (edited by F. Weber and F. Widder), in *Quarterly Review of Biology*, vol. 25, no. 3, pp. 327-328

Review of *Practical Plant Anatomy* by Adrianne S. Foster, in *Quarterly Review of Biology*, vol. 25, no. 2, p. 225

STANDLEY, PAUL C.

"A New Cycad from Honduras," *Ceiba*, vol. 1, no. 1, pp. 36-38 [with Louis O. Williams]

"El Cipres Centroamericano," *Ceiba*, vol. 1, no. 3, pp. 180-185

"Henri François Pittier en Costa Rica," *Ceiba*, vol. 1, no. 3, pp. 131-135

"New Plants from Honduras," *Ceiba*, vol. 1, no. 1, pp. 38-49

"Plantae Centrali Americanae, 1," *Ceiba*, vol. 1, no. 3, pp. 141-170 [with Louis O. Williams]

"Plantas Nuevas Hondureñas y Nicaraguenses," *Ceiba*, vol. 1, no. 2, pp. 74-96 [with Louis O. Williams]

"Teosinte in Honduras," *Ceiba*, vol. 1, no. 1, pp. 58-61

STEYERMARK, JULIAN A.

"Flora of Guatemala," *Ecology*, vol. 31, no. 3, pp. 368-372

"Missouri Towns with Plant Names," *Missouri Botanical Garden Bulletin*, vol. 38, no. 3, pp. 55-60

"Notes on *Geocarpon minimum* Mackenzie," *Bulletin of the Torrey Botanical Club*, vol. 77, no. 4, pp. 268-273

"Scarlet Oak in Missouri," *Missouri Botanical Garden Bulletin*, vol. 37, no. 8, pp. 143-145

"Wild Orchids of Missouri," *Missouri Botanical Garden Bulletin*, vol. 38, no. 4, pp. 61-64

"Yellow in the Early Spring," *Missouri Botanical Garden Bulletin*, vol. 38, no. 4, pp. 71-73

DEPARTMENT OF GEOLOGY

DENISON, ROBERT H.

"A New Arthrodire from the New York State Devonian," *American Journal of Science*, vol. 248, pp. 565-580

ZANGERL, RAINER

"Discovery of Early Cretaceous Mammals and Frogs in Texas," *Science*, vol. 112, no. 2898, p. 61 [with Robert H. Denison]

DEPARTMENT OF ZOOLOGY

HAAS, FRITZ

- "Hermit Crabs in Fossil Snail Shells in Bermuda," *Ecology*, vol. 31, p. 152
- "On Fresh Water Mollusks from the Amazonian Region," *Anales del Instituto de Biología de México*, vol. 20, pp. 301-316, 6 figures
- "On Some Deepsea Mollusks from Bermuda," *Butlletí de la Institució Catalana d'Historia Natural*, vol. 37, pp. 69-73, 6 figures
- "Some Land and Freshwater Mollusks from Pará State, Brazil," *Nautilus*, vol. 64, pp. 4-6

HERSHKOVITZ, PHILIP

- "Mammals of Northern Colombia, Preliminary Report No. 6: Rabbits (Leporidae), with Notes on the Classification and Distribution of the South American Forms," *Proceedings of the United States National Museum*, vol. 100, pp. 327-375, 2 maps

INGER, ROBERT F.

- "Distribution and Speciation of the Amphibians of the Riu Kiu Islands," *American Naturalist*, vol. 84, pp. 95-115, 4 maps, 3 figures

POPE, CLIFFORD H.

- "A Statistical and Ecological Study of the Salamander *Plethodon yonahlossee*," *Bulletin of the Chicago Academy of Sciences*, vol. 9, pp. 79-106, 5 figures
- "Reptiles," in *The Care and Breeding of Laboratory Animals*, edited by Edmond J. Farris (New York: John Wiley and Sons), pp. 299-330 (chapter 12)

RAND, AUSTIN L.

- "A New Race of Owl, *Otus bakkamoena*, from Negros, Philippine Islands," *Natural History Miscellanea*, no. 72, pp. 1-5
- "A New Race of the Philippine Creeper *Rhabdornis inornatus* (Class Aves)," *Natural History Miscellanea*, no. 59, pp. 1-3
- "Critical Notes on *Limnodromus semipalmatus*," *Condor*, vol. 52 pp. 228-231
- "Feather Replacement in Cassowaries," *Auk*, vol. 67, pp. 378-379
- "Notes on van Someren Collection," *Auk*, vol. 67, p. 258
- "On the Name *Francolinus sephaena spilogaster* Salvadori," *Auk*, vol. 67, pp. 384-385
- "The Amount of Overlap Allowable for Subspecies," *Auk*, vol. 67, pp. 169-183 [with Melvin A. Taylor, Jr.]
- "Three Rare Philippine Birds," *Natural History Miscellanea*, no. 60, pp. 1-5

SANBORN, COLIN CAMPBELL

- "A Nepal Record of the Long-eared Bat (*Plecotus homochrous* Hodgson), *Natural History Miscellanea*, no. 69, pp. 1-2
- "Chiroptera from Dundo, Lunda, Northeastern Angola," *Publicações Culturais da Companhia de Diamantes de Angola*, no. 10, pp. 51-62, 5 figures
- "New Philippine Fruit Bats," *Proceedings of the Biological Society of Washington*, vol. 63, pp. 189-190
- "Notes on the Malay Tapir and Other Game Animals in Siam," *Journal of Mammalogy*, vol. 31, pp. 430-433 [with A. Rush Watkins]
- "Small Rodents from Peru and Bolivia," *Publicaciones del Museo de Historia Natural "Jarier Prado"*, Lima, Peru, Ser. A., Zoologica, no. 5, pp. 1-16

SCHMIDT, KARL P.

- "The Concept of Geographic Range, with Illustrations from Amphibians and Reptiles," *Texas Journal of Science*, vol. 2, pp. 326-334
- "Modes of Evolution Discernible in the Taxonomy of Snakes," *Evolution*, vol. 4, pp. 79-86, 2 figures
- "Wilfred Hudson Osgood, 1875-1947," *Auk*, vol. 67, pp. 183-189

THE BOOK SHOP

The popularity of the Book Shop was demonstrated by the fact that net sales for the year totaled more than \$42,000. It is worthy of note that sales each week between mid-May and mid-September amounted to more than \$1,000. The inventory was necessarily increased somewhat because of a number of authoritative new books that have appeared during the year and for which there has been an almost constant demand. An unexpected trend is the increase in the sale of novelties, particularly during the summer months when Museum visitors are to a large extent from outside the Chicago area. The increase in sales by mail indicates that there is a growing recognition by out-of-town purchasers that the Museum Book Shop can serve their needs through its good selection of authoritative books in the fields of natural history and anthropology.

CAFETERIA

Again the Museum achieved a new record in the number of persons served in its cafeteria and lunchroom. An increase of more than 25,000 persons brought the total number served this year to 281,954. Total receipts also increased but not in proportion to the increase in attendance. Changes in the service areas in the lunchroom have noticeably cut down the length of time needed to serve each individual. Procedures are constantly under study in order that the greatest number of persons may be served with the least delay.

MAINTENANCE, CONSTRUCTION, AND ENGINEERING

It is difficult to report accurately the tremendous volume of work done by the Division of Maintenance and the Division of Engineering. Every change in the exhibition halls, every office alteration, and every special exhibition make demands upon them. Exhibition cases must be constructed and moved into position, electrical circuits must be provided in accessible locations, every large shipment leaving the Museum must be boxed or crated, and even changes in weather place new duties on these divisions. Under these circumstances it should be understood that any factual report of their accomplishments must at best be incomplete.

In connection with the reconditioning of Mary D. Sturges Hall (Hall 5) many exhibition cases were remodeled and painted gray instead of black, and poison pans were installed to protect the

exhibits from possible attack by insects. The old exhibition cases were removed from the west half of Clarence Buckingham Hall (Hall 35, Rocks and General Geology). The Division of Fishes was moved from its quarters on the third floor to a location on the ground floor (see page 19). The service counter in the lunchroom was remodeled, and a rubber-tile floor was installed in the cafeteria. Extensive measures for the extermination of termites were continued throughout the building. Sash and window frames were repaired, all exterior woodwork was painted, and a new numbering system was adopted for identifying the hundreds of window screens used in the building. A concrete ramp was constructed at the outside entrance of the shipping room for better handling of wheel chairs.

The modernization of the boiler room begun last year was completed (see page 19). All piping and exposed steel work were painted, a hot-water heater with automatic controls was installed, the boilers and breeching were cleaned, and the pumps were repaired. A large crack in the breeching just inside the building line, resulting from

James R. Shouba, Superintendent of Maintenance, Loren P. Woods, Curator of Fishes, Robert F. Inger, Assistant Curator of Fishes, and Robert Kanazawa, Assistant (since resigned), check over the plans for the new quarters of the Division of Fishes.



settlement, came to light during the heavy spring rains. In order to repair this damage it was necessary to break open the cement floor, install a permanent manhole, and replace the broken section of the downspout line. The freight elevator was rebuilt, and the gears, which had been in use for thirty-one years, were replaced. Exhaust fans were installed on the fourth floor in the workroom of Joseph B. Krstolich, Artist in Zoology, to remove fine plastic dust, on the third floor in the Division of Photography and the Division of Motion Pictures, and on the second floor in the Meeting Room, and air ducts were connected with the skin-storage rooms in the Division of Taxidermy in order to avoid the high temperatures that might damage the skins. Fluorescent lighting fixtures were installed in the poison rooms on the fourth floor, in the classroom on the ground floor, and in new wall cases in several exhibition halls, and vapor-proof lights were substituted for the old lights in the hood over the cooking range in the cafeteria to lessen danger of fire. Under contracts in force 16,001,328 pounds of steam were furnished to the Chicago Park District and 16,011,500 pounds to the John G. Shedd Aquarium, a total of 32,012,828 pounds delivered.

MISCELLANEOUS

In the pages that follow are submitted the Museum's financial statements, attendance statistics, door receipts, accessions, list of Members, articles of incorporation, and amended by-laws.

CLIFFORD C. GREGG, *Director*
Chicago Natural History Museum

COMPARATIVE FINANCIAL STATEMENTS

FOR YEARS 1949 AND 1950

INCOME	1950	1949
Endowment funds.....	\$715,206.23	\$708,582.49
Life Membership Fund.....	10,707.04	9,723.03
Associate Membership Fund..	14,399.79	12,891.34
Chicago Park District.....	128,776.81	134,003.04
Annual and Sustaining Mem- berships.....	19,880.00	19,125.00
Admissions.....	30,310.25	30,694.75
Sundry receipts.....	29,179.59	23,927.77
Contributions, general pur- poses.....	1,671.50	886.83
Contributions, special pur- poses (expended <i>per contra</i>)	28,624.59	25,927.67
Special funds—part expended for purpose designated (in- cluded <i>per contra</i>).....	15,230.09	17,894.10
	<u>\$993,985.89</u>	<u>\$983,656.02</u>

EXPENDITURES		
Collections.....	\$ 17,976.48	\$ 41,417.37
Operating expenses capitalized and added to collections..	75,141.85	67,114.92
Expeditions.....	21,506.86	42,645.34
Furniture, fixtures, etc.....	54,536.76	11,116.06
Wages capitalized and added to fixtures.....	2,785.84	4,718.70
Pensions and group insurance..	72,620.66	74,830.94
Departmental expenses.....	105,501.80	89,171.29
General operating expense....	520,451.01	519,799.74
Building repairs and alterations	118,653.06	130,701.90
Reserve for building repairs and mechanical plant de- preciation.....	10,000.00
	<u>\$999,174.32</u>	<u>\$981,516.26</u>
Balance.....		\$ 2,139.76
Deficit....	<u>\$ 5,188.43</u>	<u>=====</u>

The N. W. Harris Public School Extension

	1950	1949
Income from endowments.....	\$ 19,625.98	\$ 18,328.29
Expenditures.....	20,489.72	21,932.94
Deficit.....	<u>\$ 863.74</u>	<u>\$ 3,604.65</u>

COMPARATIVE ATTENDANCE STATISTICS AND DOOR RECEIPTS

FOR YEARS 1949 AND 1950

	1950		1949
Total attendance	1,173,661		1,145,359
Paid attendance	121,241		122,779
Free admissions on pay days:			
Students	31,474		26,923
School children	81,601		79,487
Teachers	3,675		2,974
Members	531		455
Service men and women	1,061		1,380
Special meetings and occasions	4,083		2,096
Admissions on free days:			
Thursdays (52)	161,721	(51)	145,902
Saturdays (52)	309,188	(52)	302,946
Sundays (52)	459,086	(51)	460,417
Highest attendance on any day			
(September 3)	13,889	(September 4)	11,859
Lowest attendance on any day			
(December 6)	98	(December 16)	169
Highest paid attendance (September 4)	3,100	(September 5)	3,739
Average daily admissions (363 days)	3,233	(363 days)	3,155
Average paid admissions (207 days)	586	(209 days)	587
<hr/>			
Copies of <i>General Guide</i> sold	21,722		22,207
Number of articles checked	31,802		33,763
Number of picture post cards sold	177,051		168,862
Sales of Museum publications (both scientific and popular) and photo- graphs; rental of wheel chairs	\$13,177.60		\$10,387.98

ACCESSIONS, 1950

DEPARTMENT OF ANTHROPOLOGY—ACCESSIONS

CHICAGO NATURAL HISTORY MUSEUM:

Collected by Dr. Paul S. Martin (Southwest Archaeological Expedition, 1950): about 2,130 specimens, including clay, bone, shell, and stone artifacts, as well as perishable articles made of wood, cane, leather, and woven sandals and cloth, also "mummies"—Tularosa Cave, near Reserve, New Mexico

Collected by Dr. Alexander Spoehr (Micronesia Anthropological Expedition, 1949-50): pottery vessels and sherds; stone, bone, and shell artifacts; and prehistoric human and animal skeletal material—Saipan, Tinian, and the Palau Islands

Purchases: 1 old beaded shoulder bag and 1 old beaded hair ornament, both Sauk and Fox—Tama, Iowa

GRIER, MRS. SUSIE I., ESTATE OF, Maywood, Illinois: 65 ethnological

specimens—North American Indian (gift)

McCLUN, MRS. JOHN M., Chicago: 8 Egyptian scarabs, 5 strings of Egyptian glass and faience beads, 3 small strings of miscellaneous Egyptian beads, 1 pair of Etruscan earrings—Egypt and Italy (gift)

McCUTCHEON, MRS. JOHN T., Lake Forest, Illinois: 1 book made from palm or dandanus leaves, with inscription in Sanskrit(?)—probably Indian (gift)

MOREY, DR. CHARLES W., Chicago: pottery vessel in form of four fruits joined to central spout—Peru (gift)

PELAEZ, VINICIO R., Cebu City, Philippine Islands: 1 bronze Japanese statue—Philippine Islands (gift)

RANSOM, ROBERT M., Oak Park, Illinois: drum of wood, with hide head, Choco Indians—Colombia (gift)

DEPARTMENT OF BOTANY—ACCESSIONS

ABBOTT, DR. ISABELLA A., Pacific Grove, California: 109 specimens of algae (gift)

ADELAIDE, UNIVERSITY OF, Adelaide, Australia: 300 specimens of algae (exchange)

BARMACK, MRS. B. J., Chesterton, Indiana: 2 specimens of fungi (gift)

BAYALIS, JOHN, Chicago: 2 specimens of fungi (gift)

BERNICE P. BISHOP MUSEUM, Honolulu, Hawaii, T.H.: 994 plant specimens (exchange)

BLUM, DR. JOHN L., Buffalo: 153 specimens of algae (gift)

BOTANISCHE STAATSSAMMLUNG, Munich, Germany: 85 plant specimens (exchange)

BUCHHOLZ, DR. JOHN T., Urbana, Illinois: 2 photographic prints, 1 plant specimen (gift)

BURPEE SEED COMPANY, Philadelphia: 81 legume-seed packets (gift)

BUTLER UNIVERSITY, Indianapolis: 30 plant specimens (exchange)

CALHOUN, BARBARA, Milwaukee: 82 plant specimens (gift)

CALIFORNIA, UNIVERSITY OF, Berkeley: 289 cryptogamic specimens (gift); 1,077 plant specimens, 367 specimens of algae (exchange)

CALIFORNIA ACADEMY OF SCIENCES, San Francisco: 110 plant specimens (exchange)

CAMP, EARL, Iowa City, Iowa: 2 plant specimens (gift)

CATHOLIC UNIVERSITY OF AMERICA, Washington, D.C.: 17 plant specimens (gift)

CHAMBERS, T. C., Auckland, New Zealand: 3 specimens of algae (gift)

CHAPMAN, DR. V. J., Auckland, New Zealand: 6 specimens of algae (gift)

CHASE, VIRGINIA S. H., Peoria Heights, Illinois: 275 plant specimens (exchange)

CHICAGO NATURAL HISTORY MUSEUM:

Collected by Dr. Hugh C. Cutler Southwest Botanical Expedition, 1949 : 312 plant specimens

Collected by D. Dwight Davis and Robert F. Inger (Borneo Zoological Expedition, 1950 : 5 plants of North Borneo

Collected by Henry S. Dybas (South-eastern States Zoological Field Trip, 1949 : 113 specimens of fungi

Collected by Paul C. Standley (Middle Central America Botanical Expedition, 1948-50 : 30,000 plant specimens

Purchases: 500 plant specimens Spain; 649 plant specimens Peru; 2,300 plant specimens southern Mexico; 200 plant specimens South Africa; 115 plant specimens Colombia; 500 plant specimens Formosa and Japan; 126 plant specimens United States, West Indies, Central America, and South America; 573 wood specimens Ecuador

COLEGIO SALESIANO, Lima, Peru: 60 plant specimens (gift)

COLORADO, UNIVERSITY OF, MUSEUM, Boulder: 1 plant specimen and reprint of original description (gift)

COOK, DR. MELVILLE T., Baton Rouge, Louisiana: 4 cryptogamic specimens (gift)

CULBERSON, WILLIAM, Cincinnati: 39 cryptogamic specimens (gift)

CUMMINS, DR. GEORGE, Lafayette, Indiana: 1 plant specimen (gift)

CUTLER, DR. HUGH C., Chicago: 277 plant specimens, 73 cryptogamic specimens (gift)

DAHLGREN, DR. B. E., Chicago: 10 plant specimens (gift)

DAILY, MRS. FAY K., Indianapolis: 12 plant specimens (gift)

DAILY, WILLIAM A., Indianapolis: 118 specimens of algae (exchange)

DAVIS, DR. JARED J., Richland, Washington: 1 cryptogamic specimen (gift)

DILLER, DR. VIOLET M., Cincinnati: 50 algal cultures (gift)

DOMINION BOTANIST, THE, Ottawa, Ontario, Canada: 25 plant specimens (exchange)

DOTY, DR. MAXWELL S., Evanston, Illinois: 5 cryptogamic specimens, 400 specimens of fungi (gift)

DOWNING, GLENN R., Battle Creek, Michigan: 1 plant specimen (gift)

DROLET, DR. FRANCIS, Chicago: 4 plant specimens (gift)

DURHAM, O. C., North Chicago, Illinois: 1 plant specimen (gift)

DYBAS, HENRY S., Chicago: 27 specimens of fungi (gift)

ESCUELA AGRICOLA PANAMERICANA, Tegucigalpa, Honduras: 5,164 plant specimens (exchange)

FASSETT, DR. NORMAN C., Madison, Wisconsin: 3 plant specimens (gift); 78 plant specimens (exchange)

FISHER, GEORGE L., Houston, Texas: 8 specimens of algae (gift)

FRIESNER, RAY C., Indianapolis: 71 cryptogamic specimens (exchange)

FULLER, DR. GEORGE D., Springfield, Illinois: 93 plant specimens (exchange)

GAISER, DR. LULU O., Cambridge, Massachusetts: 4 plant specimens (gift)

GIBBS, DR. R. D., Montreal, Quebec, Canada: 2 specimens of algae (gift)

GIER, DR. L. J., Liberty, Missouri: 46 specimens of algae (gift)

GLASSMAN, DR. SIDNEY F., Chicago: 31 cryptogamic specimens, 553 plant specimens (gift)

HABEER, DR. HERBERT, Grand Falls, New Brunswick, Canada: 58 cryptogamic specimens (exchange)

HARVARD UNIVERSITY, Cambridge, Massachusetts: 341 plant specimens (gift); 421 plant specimens (exchange)

HATHEWAY, WILLIAM H., Waialua, Oahu, Hawaii, T.H.: 102 plant specimens (gift)

HERMANN, DR. F. J., Beltsville, Maryland: 1 plant specimen (gift)

HERTER, DR. W. G., Bern, Switzerland: 1 plant specimen (gift)

HILDEBRAND, B. G., Brooklyn: 15 wood specimens (exchange)

HODGE, DR. WALTER H., Amherst, Massachusetts: 50 plant specimens (exchange)

HOGSHEAD, RAYMOND C., North Miami, Florida: 3 plant specimens (gift)

HUMM, DR. HAROLD J., Tallahassee, Florida: 1 cryptogamic specimen, 2 specimens of algae (gift)

ILLINOIS, UNIVERSITY OF, Chicago: 1,874 plant specimens (gift)

ILLINOIS, UNIVERSITY OF, Urbana: 14 plant specimens (gift)

ILLINOIS STATE MUSEUM, Springfield: 92 plant specimens (gift)

ILTIS, DR. HUGH, St. Louis: 1 cryptogamic specimen (gift)

INSTITUTO GEOBIOLOGICO, Porto Alegre, Brazil: 42 plant specimens (exchange)

INSTITUTO MIGUEL LILLO, Tucumán, Argentina: 1 plant specimen (gift); 1,793 plant specimens (exchange)

JARDIN BOTANIQUE, Brussels, Belgium: 1 plant specimen (exchange)

JOHNS HOPKINS UNIVERSITY, Baltimore, Maryland: 7,059 plant specimens, 2,600 cryptogamic specimens (gift)

JOHNSON, DR. LESLIE, Chicago: 3 specimens of fungi (gift)

JONES, DR. G. NEVILLE, Urbana, Illinois: 1 plant specimen (gift)

KELLY, ISABEL, Mexico, D.F.: 55 plant specimens (gift)

KIENER, DR. WALTER, Lincoln, Nebraska: 508 specimens of algae (gift); 160 specimens of algae (exchange)

LEWIN, RALPH A., New Haven, Connecticut: 3 specimens of algae (gift)

LINDSEY, DR. ALTON A., Lafayette, Indiana: 3 specimens of algae (gift)

LOUDERBACK, HAROLD B., Argo, Illinois: 4 specimens of algae (gift)

MACBRIDE, J. FRANCIS, Stanford University, California: 44 plant specimens (gift)

MADSEN, DR. GRACE C., Tallahassee, Florida: 117 specimens of algae (gift)

MALDONADO, PROFESSOR ANGEL, Lima, Peru: 12 specimens of algae (gift)

MARTINEZ, PROFESSOR MAXIMINO, Mexico, D.F.: 1 plant specimen (gift)

MATUDA, EIZI, Mexico, D.F.: 83 plant specimens (gift); 110 plant specimens (exchange)

MAY, DR. VALERIE, Sydney, Australia: 14 cryptogamic specimens (gift)

MERRILL, DR. ELMER D., Jamaica Plain, Massachusetts: 1 plant specimen (gift)

MICHIGAN, UNIVERSITY OF, Ann Arbor: 144 cryptogamic specimens, 699 plant specimens (exchange)

MICHIGAN STATE COLLEGE, East Lansing: 6 wood specimens (exchange)

MISSOURI BOTANICAL GARDEN, St. Louis: 22 plant specimens (gift); 3,755 plant specimens (exchange)

MOLDENKE, DR. HAROLD N., New York: 51 photographic prints, 35 plant specimens (exchange)

MONCURE, ROBERT C., Guatemala, Guatemala: 1 plant specimen (gift)

MOORE, DR. DWIGHT, Fayetteville, Arkansas: 1 plant specimen (gift)

MORRISON, DR. WARREN, Chicago: 2 plant specimens, 3 cryptogamic specimens (gift)

MUSEO DE CIENCIAS NATURALES, Caracas, Venezuela: 400 plant specimens (exchange)

MUSEO NACIONAL, San José, Costa Rica: 366 plant specimens (gift)

MUSEO NACIONAL DE HISTORIA NATURAL, Santiago, Chile: 1,256 photographic prints (exchange)

NATIONAL MUSEUM, Manila, Philippine Islands: 812 plant specimens (exchange)

NATURAL RESOURCES SECTION, DIVISION OF FORESTRY, San Francisco: 40 wood specimens (gift)

NATURHISTORISKA RIKSMUSEET, Stockholm, Sweden: 1,617 plant specimens (exchange)

NELSON, MRS. NATALIE C., Chicago: 2 specimens of fungi (gift)

NEW YORK BOTANICAL GARDEN, New York: 22 specimens of algae, 216 plant specimens, 10 photographic prints (gift); 375 plant specimens, 44 photographic prints (exchange)

NIELSEN, DR. CHESTER S., Tallahassee, Florida: 131 specimens of algae (gift)

NIELSEN, DR. CHESTER S., Tallahassee, Florida, AND WILLIAM L. CULBERSON, Cincinnati: 82 specimens of algae (gift)

NOGLE, HAROLD, Port Arthur, Texas: 67 wood specimens (exchange)

NORVELL, OLIVER, Stanford University, California: 58 plant specimens (gift)

OAKES, ORVILLE A., Winnetka, Illinois: 1 wood specimen (gift)

OHLENDORF, DR. WILLIAM C., Park Ridge, Illinois: 136 botanical books, 2,788 plant specimens (gift)

OSBORN, DR. BEN O., San Angelo, Texas: 2 specimens of algae (gift)

PALUMBO, DR. RALPH, Philadelphia: 20 specimens of algae (gift)

PATRICK, DR. RUTH, Philadelphia: 133 plant specimens (gift)

PHILADELPHIA ACADEMY OF NATURAL SCIENCES, Philadelphia: 17 plant specimens (gift); 15 specimens of algae (exchange)

PHILIPPINES, UNIVERSITY OF THE, Quezon City, Philippine Islands: 631 specimens of algae (exchange)

PICHI-SERMOLLI, PROFESSOR ROBERTO, University of Florence, Florence, Italy: 100 plant specimens (exchange)

PLANT INDUSTRY STATION, Beltsville, Maryland: 730 plant specimens (exchange)

QUEENSLAND, UNIVERSITY OF, Brisbane, Australia: 55 specimens of algae (exchange)

RICHARDS FUND, DONALD: 199 cryptogamic specimens from Mt. Shasta, 909 cryptogamic specimens, 424 specimens of moss from Finnish Lapland, 383 specimens of moss and lichens from Finland, 50 specimens of fungi from North America, 275 cryptogamic specimens from Alaska

RICHARDSON, EUGENE S., JR., Winnetka, Illinois: 1 cryptogamic specimen (gift)

RIJKSHERBARIUM, Leiden, Netherlands: 860 specimens of algae, 1,439 cryptogamic specimens (exchange)

ROGERS, DR. D. P., New York: 38 specimens of algae (gift)

ROSS, LILLIAN A., Chicago: 11 cryptogamic specimens (gift)

ROUSSEAU, DR. JACQUES, Montreal, Quebec, Canada: 8 specimens of algae (gift)

RUBINSTEIN, DR. AND MRS. JOSEPH, Chicago: 2 cryptogamic specimens (gift)

RUTGERS UNIVERSITY, New Brunswick, New Jersey: 68 cryptogamic specimens (exchange)

SANBORN, COLIN C., Highland Park, Illinois: 26 plant specimens (gift)

SCHALLERT, DR. PAUL O., Altamonte Springs, Florida: 22 specimens of algae (gift)

SCHMIDT, KARL P., Homewood, Illinois: 1 cryptogamic specimen (gift)

SCOTT, MILTON, Miami, Florida: 77 wood specimens (exchange)

SELLA, EMIL, Chicago: 5 specimens of fungi (gift)

SENN, DR. HAROLD A., Ottawa, Ontario, Canada: 18 specimens of algae (gift)

SHERFF, DR. EARL E., Chicago: 1,987 plant specimens (gift)

SILVA, HERMAN, East Lansing, Michigan: 247 specimens of algae (gift)

SILVA, PAUL C., Berkeley, California: 31 specimens of algae (gift)

TAYLOR, DR. WILLIAM RANDOLPH, Ann Arbor, Michigan: 21 specimens of algae (gift)

TENNESSEE, UNIVERSITY OF, Knoxville: 25 plant specimens (gift)

UNITED STATES DEPARTMENT OF AGRICULTURE, FOREST SERVICE, Madison, Wisconsin: 266 wood specimens (exchange)

UNITED STATES DEPARTMENT OF AGRICULTURE, Beltsville, Maryland: 10 pounds of Chilean wood (gift)

UNITED STATES NATIONAL HERBARIUM, Washington, D.C.: reprints, 3 parts (exchange)

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 2 plant specimens (gift)

UNIVERSIDAD DEL Cuzco, Cuzco, Peru: 19 plant specimens, 26 ears of corn (gift)

WHITEHOUSE, DR. EULA, Dallas, Texas: 74 specimens of algae (gift)

WILLIAM JEWELL COLLEGE, Liberty, Missouri: 82 plant specimens (gift)

WILSON, ARCHIE F., Flossmoor, Illinois: 10 plant specimens (gift); 12 wood specimens (exchange)

WILTON, MRS. HENRY G., Arlington, Massachusetts: 3 ears of corn (gift)

WISNIEWSKY, DR. A., Belém, Pará, Brazil: 4 plant specimens (exchange)

WOMERSLEY, DR. H. B. S., Adelaide, Australia: 35 specimens of algae (gift)

YALE UNIVERSITY, New Haven, Connecticut: 28 plant specimens (gift)

DEPARTMENT OF GEOLOGY—ACCESSIONS

AMERICAN MUSEUM OF NATURAL HISTORY, New York: cast of *Pantolambda bathmodon*—New Mexico (exchange)

BRIDWELL, L. H., Forestburg, Texas: vertebrate jaw fragment—Texas (gift)

CHALMERS CRYSTAL FUND: 6 witherite crystals—Illinois (gift)

CHICAGO, UNIVERSITY OF, Chicago: 3 fossil reptile specimens—Texas (gift)

CHICAGO NATURAL HISTORY MUSEUM: Collected by Dr. Robert H. Denison, William D. Turnbull, and Priscilla F. Turnbull (Utah Paleontological Expedition, 1950): 500 fossil-fish specimens—various localities

Collected by Celestini Kalinowski: 1 trilobite—Peru

Collected by George Langford (Wilmington, Illinois, Paleobotanical Field Trips, 1950): 847 fossil-plant specimens, 41 fossil invertebrates—Will County, Illinois

Collected by George Langford and Eugene S. Richardson, Jr. (Tennessee Paleobotanical Field Trip, 1950): 1,463 fossil-plant specimens, 1 fossil insect—various localities

Collected by Bryan Patterson and Dr. Rainer Zangerl (Texas Paleontological Expedition, 1950): collection of microfauna of fish, amphibians, reptiles, and mammals—Texas; 773 fossil invertebrates—Arkansas

Collected by Eugene S. Richardson, Jr. (Wyoming Invertebrate Paleontological Field Trip, 1950): collection of invertebrate fossils and 15 fossil fish—South Dakota and Wyoming

Collected by Robert K. Wyant (Mississippi Valley Geological Field Trip, 1950): 248 specimens of minerals, rocks, and ores—various localities

Collected by Dr. Rainer Zangerl (Alabama Paleontological Field Trip, 1950): 1 fossil turtle—Alabama; (Texas Paleontological Expedition, 1950): 459 invertebrate fossils—Texas

Purchases: 312-gram fragment of Keyes meteorite, 1,802 specimens of invertebrate fossils, collection of vertebrate fossils, 1 fossil jellyfish—various localities

COLOMBIA, CONSUL OF, Colombia: 123 metallic and nonmetallic ores, 17 lithology specimens—Colombia (gift)

DARLING, M. L., Detroit: specimen of native copper—Michigan (gift)

DARTMOUTH COLLEGE MUSEUM, Hanover, New Hampshire: 7 fossil fish-

head shields, 15 casts of fossil fish—Estonia (exchange)

DAVIS, MORGAN, Houston, Texas: gypsum crystals with sand inclusions—Texas (gift)

FELTWELL, H. V., Altoona, Pennsylvania: fossil impression of part of trunk of giant club-moss—Pennsylvania (gift)

HARD, ALLEN M., Tuscaloosa, Alabama, AND ROBERT H. HARD, Flint, Michigan: fossil-turtle fragments—Alabama (gift)

HUTCHINSON, JOSEPH, Morena, Arizona: 11 pieces of agate—Arizona (gift)

MICHIGAN, UNIVERSITY OF, Ann Arbor: collection of 73 invertebrate fossils—various localities (exchange)

PROELL, WAYNE, Chicago: rhinoceros skull—South Dakota (gift)

ROWLEY, ELMER B., Glen Falls, New York: 9 mineral specimens—various localities (exchange)

SASKATCHEWAN PROVINCIAL MUSEUM, Regina, Saskatchewan, Canada: *Hyracodon* jaw—Canada (gift)

SCHMIDT, KARL P., Homewood, Illinois: loess concretion—Germany (gift)

SINCLAIR, G. WINSTON, Ann Arbor, Michigan: *Anacondularia anomala*—Bohemia (gift)

TENNESSEE, UNIVERSITY OF, Knoxville: plaster cast of four peripherals and partial plastron of *Toxochelys weeksi*—Tennessee (gift)

TEXAS MEMORIAL MUSEUM, Austin: *Trilophosaurus* skeleton—Texas (exchange)

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 7 meteorites—various localities (exchange)

WHITFIELD, DR. AND MRS. R. H., AND JON S. WHITFIELD, Evanston, Illinois: 950 fossil plant specimens, 1 fossil invertebrate—various localities (gift)

WRAY, O. R., Moranda, Quebec, Canada: specimen of dalmatianite—Canada (gift)

ZANGERL, DR. AND MRS. RAINER, Hazelcrest, Illinois: 1 miacid jaw—Utah (gift)

DEPARTMENT OF ZOOLOGY—ACCESSIONS

ABBOTT, R. TUCKER, Washington, D.C.: collection of malacological pamphlets (exchange)

ABOULAFIA, LEON R., Tel Aviv, Israel: 1 mammal, 10 reptiles—Israel (gift)

ACOSTA Y LARA, EDUARDO, Montevideo, Uruguay: 7 mammals—Brazil (gift)

ADAMS, PHILLIP A., Berkeley, California: 38 insects—various localities (exchange)

AMERICAN MUSEUM OF NATURAL HISTORY, New York: 2 birds—Argentina (exchange)

AMERICAN TELEPHONE AND TELEGRAPH COMPANY, New York: 1 complete set of climbing equipment (gift)

AUERBACH, DR. STANLEY, Evanston, Illinois: 164 insects and their allies—United States (gift)

BENESH, BERNARD, Sunbright, Tennessee: 310 insects—Tennessee (gift)

BERG, DR. CLIFFORD O., Delaware, Ohio: 2 vials of insects—Michigan (gift)

BERGSTROM, DAVID, Albuquerque, New Mexico: 81 lower invertebrates—Tennessee (gift)

BORRERO, J. I., Bogotá, Colombia: 7 birds—Colombia (exchange)

BRADBURY, MARGARET G., AND PHYLIS A. MADDEN, Chicago: 2,823 fishes—Illinois (gift)

BRODIE, LAURA, Chicago: 1 mammal skeleton, 89 fishes—South Carolina (gift)

BRODIE, LAURA, AND MARGARET G. BRADBURY, Chicago: 211 amphibians—South Carolina (gift)

BUCHEN, WALTHER, Chicago: 1 bird—Africa (gift)

BUCHEN FUND, WALTHER: 132 mammals—Africa (gift)

CALIFORNIA ACADEMY OF SCIENCES, San Francisco: 47 insects—various localities (exchange)

CAMRAS, DR. SIDNEY, Chicago: 1,178 insects—United States (gift)

CARDONA, CAPTAIN FELIX, Caracas, Venezuela: 219 insects—Venezuela (gift)

CARPENTER, SUSAN M., Chicago: 1 annelid worm tube—Florida (gift)

CHAO, HSU-FU, Amherst, Massachusetts: 1 insect paratype—China (gift)

CHICAGO, UNIVERSITY OF, DEPARTMENT OF ZOOLOGY, Chicago: 1 amphibian—Illinois (gift)

CHICAGO NATURAL HISTORY MUSEUM:

Collected by Dr. Francis Drouet and others (Gulf States Botanical Expedition, 1948–49): 62 lower invertebrates—Florida

Collected by Henry S. Dybas and Robert F. Inger (local field work): 136 insects—Indiana

Collected by Philip Hershkovitz (Columbia Zoological Expedition, 1948–51): 39 reptiles and amphibians, 284 insects and their allies—Colombia

Collected by Harry Hoogstraal and others (Philippines Zoological Expedition, 1946–47): 10,715 insects and their allies, 43 lots of lower invertebrates—Philippine Islands

Collected by Bryan Patterson (Texas Paleontological Expedition, 1950): 2 reptiles—Texas

Collected by Clifford H. Pope and Sarah Pope (Appalachian and Ouachita Mountains Zoological Field Trip, 1950): 264 reptiles and amphibians—Oklahoma and Arkansas

Collected by D. S. Rabor (Philippine Islands field work): 365 mammal skins and skulls, 41 mammals in alcohol, 1 mammal skull, 672 birds, 439 reptiles and amphibians—Philippine Islands

Collected by Eugene S. Richardson, Jr. (Wyoming Invertebrate Paleontological Field Trip, 1950): 30 lower invertebrates—Wyoming

Collected by Colin C. Sanborn (Arkansas Zoological Field Trip, 1950): 24 mammals, 14 reptiles and amphibians, 21 lower invertebrates—Arkansas

Collected by Karl P. Schmidt (field work in Germany): 17 mammals, 115 reptiles and amphibians—Germany

Collected by Leon L. Walters and Ronald J. Lambert (Gulf States Zoological Field Trip, 1950): 54 reptiles and amphibians—southeastern United States

Collected by A. Rush Watkins, Colin C. Sanborn, and Frank C. Wonder (Rush Watkins Siam Zoological Expedition, 1949): 138 reptiles and amphibians, 86 insects and their allies—Siam

Collected by Rupert L. Wenzel, Rodger D. Mitchell, and Luis de la Torre (Guatemala Zoological Expedition, 1948): 2,636 insects and their allies—Guatemala

Collected by Loren P. Woods and family (Florida Keys Fish-Collecting Trip, 1949–50): 711 marine fishes—Florida

Collected by Loren P. Woods and Robert F. Inger (Field Work for Cave Fishes, 1950): 17 mammals, 9 reptiles and amphibians, 638 fishes, 18 lots of lower invertebrates—United States

Collected by various Museum workers and volunteers (from animals brought in for Museum collection): 3,920 insects and their allies

Purchases: 489 mammal skins and skulls, 242 mammals in alcohol, 32 mammal skulls, 1 mammal skin and skeleton, 2 mammal skeletons, 16,193 bird skins, 1 set of bird eggs, 409 reptiles and amphibians, 299 fishes, 6,987 insects and their allies, 263 lots of lower invertebrates

CHICAGO ZOOLOGICAL SOCIETY, Brookfield, Illinois: 26 mammals, 39 birds, 2 bird eggs—various localities (gift)

CHOATE, JERRY, Big Spring, Texas: 1 reptile—Texas (gift)

CLEVELAND, THOMAS C., Homewood, Illinois: 1 reptile—Illinois (gift)

COMPANHIA DE DIAMANTES DE ANGOLA, Porto, Portugal: 100 mammals in alcohol—Angola (gift)

CONOVER, BOARDMAN (deceased): 1 bird skeleton—Illinois (gift)

CONOVER, BOARDMAN, ESTATE OF, Chicago: approximately 18,000 game birds—worldwide (gift)

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DUCKWORTH, N. H., Chicago: 1 reptile—Borneo (gift)

DYBAS, HENRY S., Hazelcrest, Illinois: 3,456 insects and their allies—various localities (gift)

EIGSTI, WILBUR E., Hastings, Nebraska: 74 insects—Nebraska (gift)

ELIAS, DR. HANS, Chicago: 5 fishes—Florida (gift)

ENGLISH, DR. (full name lacking), Miami, Florida: 1 mammal—Florida (gift)

FELTON, HEINZ, Frankfort-on-Main, Germany: 9 mammals—Germany (gift)

FIGUEROA, MAURO CARDENAS, Mexico, D.F., 3 reptiles—Mexico (gift)

FLEMING, ROBERT, Mussoorie, India: 133 insects and their allies—India (gift)

FLOHR, RICHARD (address lacking): 1 fish—Florida (gift)

FRIESSER, JULIUS, Chicago: 1 mammal skull—Brazil (gift)

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GANIER, DR. ALBERT F., Nashville, Tennessee: 1 mammal—Tennessee (exchange)

GERHARD, WILLIAM J., Chicago: 1 bird, 1,600 insects—United States (gift)

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GOODNIGHT, DR. AND MRS. CLARENCE J., Lafayette, Indiana: 84 insects and their allies, including 2 paratypes—Mexico (gift)

GORGES, A. J., Eagleton, Arkansas: 5 reptiles—Arkansas (gift)

GOSLINE, WILLIAM A., University of Hawaii, Honolulu, Hawaii, T.H.: 6 fishes—Hawaii (exchange)

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GREEMAN, O. W., Marion, Kentucky: 1 mammal—Kentucky (gift)

HASSLER, WILLIAM G., Nashville, Tennessee: 1 amphibian—tropical America (gift)

HENSON, DANIEL G., JR., Eagleton, Arkansas: 1 reptile—Arkansas (gift)

HILDEBRANDT, R. E., Maywood, Illinois: 1 mammal skull—Florida (gift)

HOOGSTRAAL, HARRY, Cairo, Egypt: 301 mammals, 481 birds, 377 amphibians and reptiles, 5,524 insects and their allies (including 271 paratypes), 1,278 prepared insect microscope slides, 12 lower invertebrates—Egypt (gift)

HUBBARD, DR. C. ANDRESEN, Tigard, Oregon: 206 insects prepared on microscope slides (including 20 paratypes)—western United States (gift)

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MITCHELL, RODGER D., Wayne, Illinois: 14 lots of lower invertebrates United States (gift)

MUNICIPAL AQUARIUM, Key West, Florida: 1 fish Florida (gift)

MURPHY, WALTER P. (deceased): 6 birds various localities (gift)

MUSEUM OF COMPARATIVE ZOOLOGY, Cambridge, Massachusetts: 1 reptile, 2 amphibian paratypes, 8 insects, 105 lots of lower invertebrates various localities (exchange)

MUSEUM OF NATURAL HISTORY, Urbana, Illinois: 2 mammals Illinois (exchange)

NELSON, HARRY, Chicago: 80 insects various localities (gift)

NEW YORK ZOOLOGICAL SOCIETY, New York: 1 bird Belgian Congo (gift)

OHLENDORF, DR. WILLIAM C., Park Ridge, Illinois: 257 birds North America (gift)

ORTIZ DE LA PUENTE, JAVIER, Lima, Peru: 1 reptile and 1 amphibian Ecuador (gift)

PACIFIC SCIENCE BOARD, Washington, D.C.: 89 insects Micronesia (gift)

PARK, DR. ORLANDO, Evanston, Illinois: 311 fishes Indiana (gift)

PARKMAN, MACY, Mt. Sterling, Illinois: 1 bird Illinois (gift)

PARODIZ, JUAN JOSE, Washington, D.C.: 46 lower invertebrates Missouri (gift)

PATTERSON, BRYAN, AND ALAN PATTERSON, Park Forest, Illinois: 500 insects and their allies Florida (exchange); 40 insects Illinois (gift)

PEABODY MUSEUM, Cambridge, Massachusetts: 86 fishes, 10 lots of lower invertebrates southwest Asia (gift)

PENA, COLONEL LUIS E., Santiago, Chile: 1 fish, 2 insect paratypes—Bolivia and Chile (gift)

PRINCETON UNIVERSITY, Princeton, New Jersey: 112 reptiles and amphibians Argentina (gift)

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RICHARDSON, DR. MAURICE L., Lansing, Michigan: 26 lower invertebrates California (gift)

ROMER, J. D., Hong Kong, China: 7 amphibians Hong Kong, China (gift)

ROSS, LILLIAN A., Chicago: 2 reptiles and 1 amphibian, 126 insects and their allies, 6 lower invertebrates—Cuba and United States (gift)

RUSSELL, RICHARD, Belleville, Illinois: 14 lower invertebrates—Illinois (gift)

SANBORN, COLIN C., Highland Park, Illinois: 1 bird—Illinois (gift)

SANDERSON, IVAN T. (address lacking): 1 fish—Yucatan (gift)

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SCHMIDT, KARL P., Homewood, Illinois: 9 lots of lower invertebrates—Germany (gift)

SCHWENGEL, DR. JEANNE S., Greenwich, Connecticut: 191 lower invertebrates (including 2 paratypes)—various localities (gift)

SCOTT DE BIRABEN, DR. M. I. HYLTON, La Plata, Argentina: 431 lower invertebrates (including 6 paratypes)—Argentina (exchange)

SEEVERS, DR. CHARLES H., Homewood, Illinois: 137 insects—North America (gift)

SENCKENBERG MUSEUM, Frankfurt-on-Main, Germany: 7 reptiles—Australia and Madagascar (exchange)

SHEDD AQUARIUM, JOHN G., Chicago: 92 fishes—worldwide (gift)

SHIRK, JOSEPH H., Peru, Indiana: 3 mammal skulls—Arizona (gift)

SHOEMAKER, DR. HURST, Champaign, Illinois: 1 lower invertebrate—Gulf of Mexico (gift)

SIGISMUND OF PRUSSIA, PRINCESS, Barranca, Costa Rica: 8 mammals, 6 reptiles, 10 insects and their allies—Costa Rica (gift)

SIOLI, DR. HARALD, Belem, Brazil: 217 lower invertebrates—Brazil (gift)

SMITH, PROFESSOR CLARENCE R., Aurora, Illinois: 1 reptile—Illinois (gift)

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STEINER, JOHN, Chicago: 3 insects—Chicago (gift)

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STICKEL, DR. WILLIAM H., Laurel, Maryland: 216 amphibians (including 1 type and 2 paratypes)—Philippine Islands (gift)

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THOMPSON, ROBERT T., Cavecreek, Arizona: 2 insects—Arizona (gift)

THUROW, GORDON, Chicago: 15 reptiles and amphibians—Indiana and Bermuda (gift)

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TRAUB, MAJOR ROBERT, Washington, D.C.: 28 mammals, 69 insects (including 10 paratypes, 15 holotypes, and 15 allotypes)—various localities (gift)

TRAYLOR, NANCY, Winnetka, Illinois: 1 bird—Illinois (gift)

UNITED STATES NATIONAL MUSEUM, Washington, D.C.: 55 insects—various localities (exchange)

UNITED STATES NAVY MEDICAL RESEARCH UNIT No. 3, Anglo-Egyptian Sudan: 362 mammals, 25 fishes—Anglo-Egyptian Sudan (gift)

VAN DER SCHALIE, DR. HENRY, Ann Arbor, Michigan: 40 lots of lower invertebrates—United States (gift)

VAZ, DR. EDUARDO, Sao Paulo, Brazil: 13 snake skulls, 7 snake skins—South America (gift)

WARD, RONALD, Chicago: 103 insects—United States (gift)

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WENTWORTH, COLONEL EDWARD N., Chicago: 2 mammal skulls—domestic (gift)

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WIRDHAM, BERT, Eagleton, Arkansas: 1 reptile—Arkansas (gift)

WOODCOCK, H. E., Chicago: 4 insects—Nova Scotia and New Brunswick (gift)

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 Hart, Mrs. Herbert L.
 Hart, Max A.
 Hart, William M.
 Hartmann, A. O.
 Hartshorn, Kenneth L.
 Hartwig, Otto J.
 Hartz, W. Homer
 Harvey, Byron, III
 Harvey, Richard M.
 Harwood, Thomas W.
 Haskell, Mrs. George E.
 Hass, G. C.
 Hay, Mrs. William Sherman
 Hayakawa, Dr. S. I.
 Hayes, Charles M.
 Hayes, Harold C.
 Hayes, Miss Mary E.
 Haynie, Miss Rachel W.
 Hays, Mrs. Arthur A.
 Hayslett, Arthur J.
 Hazlett, Dr. William H.
 Hazlett, Mrs. William H.
 Healy, Vincent Jerrems
 Heaney, Dr. N. Sproat
 Hearst, Mrs. Jack W.
 Heaton, Harry E.
 Heaton, Herman C.
 Heck, John
 Hedberg, Henry E.
 Heffernan, Miss Lili
 Hefner, Adam
 Heide, Mrs. Bernard H.
 Heiman, Marcus
 Heinzelman, Karl
 Heinzen, Mrs. Carl
 Heisler, Francis
 Hejna, Joseph F.
 Heldmaier, Miss Marie
 Helfrich, J. Howard
 Heller, Albert
 Heller, John A.
 Heller, Mrs. Walter E.
 Hellman, George A.
 Hellyer, Walter
 Hemple, Miss Anne C.
 Henkel, Frederick W.
 Henley, Dr. Eugene H.
 Hennings, Mrs. Abraham J.
 Henry, Huntington B.
 Henschel, Edmund C.
 Herrick, Charles E.
 Herron, James C.
 Herron, Mrs. Oliver L.
 Hershey, J. Clarence
 Hertz, Mrs. Fred
 Hertzberg, Lawrence
 Herwig, George
 Herwig, William D., Jr.
 Herz, Mrs. Alfred
 Hesse, E. E.
 Heverly, Earl L.
 Hibbard, Mrs. Angus S.
 Hibbard, Mrs. W. G.
 Hieber, Master J. Patrick
 Higley, Mrs. Charles W.
 Hildebrand, Dr. Eugene, Jr.
 Hildebrand, Grant M.
 Hill, Mrs. Russell D.
 Hill, William C.
 Hill, William E.
 Hille, Dr. Hermann
 Hillebrecht, Herbert E.
 Hills, Edward R.
 Hind, Mrs. John Dwight
 Hinman, Mrs. Estelle S.
 Hinrichs, Henry, Jr.
 Hirsch, Jacob H.
 Histed, J. Roland
 Hixon, Mrs. Frank P.
 Hodgkinson, Mrs. W. R.
 Hodgson, Mrs. G. C.
 Hoefman, Harold L.
 Hoffmann, Edward
 Hempstead
 Hogan, Robert E.
 Hokin, Mrs. Barney E.
 Holabird, W. S., Jr.
 Holden, Edward A.

ASSOCIATE MEMBERS (Continued)

- Hollander, Mrs. Samuel
Holleb, A. Paul
Hollenbach, Louis
Holliday, W. J.
Hollis, Henry L.
Holmburger, Max
Holmes, George J.
Holmes, Miss Harriet F.
Holmes, J. A.
Holmes, Mrs. Maud G.
Holmes, William
Holmes, William N.
Holt, Miss Ellen
Holt, McPherson
Holub, Anthony S.
Holzheimer, Carl
Homan, Miss Blossom L.
Honsik, Mrs. James M.
Hoover, Mrs. Fred W.
Hoover, H. Earl
Hoover, Ray P.
Hope, Alfred S.
Hopkins, Albert L.
Hopkins, Mrs. James M.
Hopkins, Mrs.
James M., Jr.
Horcher, William W.
Horne, Mrs. William
Dodge, Jr.
Horner, Mrs.
Maurice L., Jr.
Hornung, Joseph J.
Horton, Mrs. Helen
Horton, Hiram T.
Horton, Horace B.
Horween, Arnold *
Horween, Isidore
Hosbein, Louis H.
Hottinger, Adolph
Hovland, Mrs. John P.
Howard, Willis G.
Howe, Charles Albee
Howe, Clinton W.
Howe, Mrs. Pierce
Layman
Howe, Ralph B.
Howe, Roger F.
Howe, Warren D.
Howell, Albert S.
Howes, Mrs. Frank W.
Howie, Mrs. James E.
Howse, Richard G.
Hoyne, Miss Susan D.
Hoyt, Mrs. Phelps B.
Hraback, L. W.
Hrdlicka, Mrs. John D.
Hubbard, George W.
Huber, Dr. Harry Lee
Hudson, Miss
Katherine J.
Hudson, Walter L.
Huey, Mrs. A. S.
- Hufty, Mrs. F. P.
Huggins, Dr. Ben H.
Hughes, John E.
Hughes, John W.
Hume, James P.
Humphrey, H. K.
Huncke, Herbert S.
Huncke, Oswald W.
Hunding, B. N.
Hurd, Ferris E.
Hurvitz, H. R.
Huska, Mrs. Joseph
Hust, George
Huszagh, Ralph D.
Hutchinson, Foye P.
Hutchinson, Samuel S.
Hyatt, R. C.
- Ickes, Raymond W.
Idelman, Bernard
Igo, Michael L.
Ilg, Robert A.
Illich, George M., Jr.
Ingalls, Allin K.
Inlander, N. Newton
Inlander, Samuel
Irons, Dr. Ernest E.
Isaacs, Charles W., Jr.
Isham, Henry P.
Ives, Clifford E.
- Jackson, Allan
Jackson, Archer L.
Jackson, Mrs. Arthur S.
Jackson, Miss Laura E.
Jackson, Mrs. W. A.
Jacobi, Miss Emily C.
Jacobs, Julius
Jacobs, Mrs. Walter H.
Jacobs, Whipple
Jacobson, Raphael
James, Walter C.
Jameson, Clarence W.
Jancosek, Thomas A.
Janson, Dr. C. Helge M.
Janusch, Fred W.
Jarchow, Mrs. C. E.
Jarchow, Charles C.
Jarrow, Harry W.
Jeffreys, Mrs. Mary M.
Jeffries, Dr. Daniel W.
Jenkins, David F. D.
Jenkinson, Mrs. Arthur
Gilbert
Jennings, Ode D.
Jerger, Wilbur Joseph
Jetzinger, David
Jirgal, John
Jirka, Dr. Frank J.
Jirka, Dr. Robert H.
John, Dr. Findley D.
Johnson, Dr. Adelaide
- Johnson, Alvin O.
Johnson, Calmer L.
Johnson, Mrs. Harley
Alden
Johnson, Joseph M.
Johnson, Nels E.
Johnson, Mrs. O. W.
Johnson, Olaf B.
Johnson, Philip C.
Johnston, Edward R.
Johnston, Miss Fannie S.
Johnston, Mrs. Hubert
McBean
Johnston, Mrs. M. L.
Jonak, Frank J.
Jones, Albert G.
Jones, Mrs. C. A.
Jones, James B.
Jones, Dr. Margaret M.
Jones, Melvin
Jones, Miss Susan E.
Joseph, Mrs. Jacob G.
Joseph, Louis L.
Joy, Guy A.
Judson, Clay
Juergens, H. Paul
Julien, Victor R.
- Kahn, Mrs. Arthur S.
Kahn, J. Kesner
Kahn, Jerome J.
Kahn, Louis
Kaine, James B.
Kamins, Dr. Maelyn M.
Kane, Jerome M.
Kanter, Jerome J.
Kaplan, Morris I.
Kaplan, Nathan D.
Karpen, Michael
Kasch, Frederick M.
Katz, Mrs. Sidney L.
Katz, Solomon
Katzenstein, Mrs.
George P.
Katzin, Frank
Kauffman, Mrs. R. K.
Kauffmann, Alfred
Kauffman, Justin
Kauffmann, Dr.
Gustav L.
Kavanagh, Clarence H.
Kay, Mrs. Marie E.
Keefe, Mrs. George I.
Kehl, Robert Joseph
Kehoe, Mrs. High Boles
Keith, Stanley
Keith, Mrs. Stanley
Kelker, Rudolph F., Jr.
Kelly, Mrs. Haven Core
Kelly, Miss Katherine
Marjorie
Kelly, William J.

ASSOCIATE MEMBERS (Continued)

- Kemper, Hathaway G.
 Kemper, Miss Hilda M.
 Kempner, Harry B.
 Kempner, Stan
 Kendall, Mrs. Virginia H.
 Kendrick, John F.
 Kennedy, Mrs. E. J.
 Kennedy, Lesley
 Kennelly, Martin H.
 Kenney, Clarence B.
 Kent, Dr. O. B.
 Keogh, Gordon E.
 Kern, Mrs. August
 Kern, H. A.
 Kern, Dr. Nicholas H.
 Kern, Trude
 Kerwin, Edward M.
 Kesner, Jacob L.
 Kestabaum, Meyer
 Kettinger, Mrs.
 Eugene W.
 Kew, Mrs. Stephen M.
 Kiessling, Mrs. Charles S.
 Kile, Miss Jessie J.
 Kimball, David W.
 Kimball, William W.
 Kimbark, John R.
 King, Clinton B.
 King, Joseph H.
 Kingman, Mrs. Arthur G.
 Kinsey, Robert S.
 Kirkland, Mrs.
 Weymouth
 Kitchell, Howell W.
 Kitzelman, Otto
 Klee, Mrs. Nathan
 Kleinpell, Dr. Henry H.
 Kleist, Mrs. Harry
 Kleppinger, William H.
 Kleutgen, Dr. Arthur C.
 Klinefop, Mrs. Charles W.
 Knickerbocker, Miss
 Paula
 Knopf, Andrew J.
 Knutson, George H.
 Koch, Mrs. Fred J.
 Koch, Raymond J.
 Koch, Robert J.
 Kochs, August
 Kochs, Mrs. Robert T.
 Koehnlein, Wilson O.
 Kohl, Mrs. Caroline L.
 Kohler, Eric L.
 Kohlsaat, Edward C.
 Konsberg, Alvin V.
 Kopf, Miss Isabel
 Koppelaar, Dr.
 Elizabeth Thompson
 Kornblith, Mrs.
 Howard G.
 Kosobud, William F.
 Kotal, John A.
 Kotin, George N.
 Koucky, Dr. J. D.
 Kovac, Stefan
 Krafft, Mrs. Walter A.
 Kraft, C. H.
 Kraft, James L.
 Kraft, John H.
 Kraft, Norman
 Kralovec, Emil G.
 Kralovec, Mrs. Otto J.
 Kramer, Leroy
 Kraus, Peter J.
 Kraus, Samuel B.
 Kresl, Carl
 Kretschmer, Dr.
 Herman L.
 Kretschmer,
 Herman L., Jr.
 Kropff, C. G.
 Krost, Dr. Gerard N.
 Kuehn, A. L.
 Kuh, Mrs. Edwin J., Jr.
 Kuhn, Frederick T.
 Kuhn, Dr. Hedwig S.
 Kunka, Bernard J.
 Kunstadter, Albert
 Kunstadter, Sigmund W.
 Kurfess, John Fredric
 Kurtz, W. O.
 Kurtzon, Morris
 Lacey, Miss Edith M.
 Latlin, Louis E., Jr.
 Latlin, Louis E., III
 Lambert, C. A.
 Lampert, Wilson W.
 Lanahan, Mrs. M. J.
 Lane, F. Howard
 Lane, Ray E.
 Lang, Edward J.
 Langenbach, Mrs. Alice R.
 Langford, Mrs.
 Robert E.
 Langhorne, George
 Tayloe
 Langworthy, Benjamin
 Franklin
 Lanman, E. B.
 Lansinger, Mrs. John M.
 Larimer, Howard S.
 Larsen, Samuel A.
 Larson, Mrs. Sarah G.
 Lasker, Albert D.
 Lassers, Sanford B.
 Latshaw, Dr. Blair S.
 Lauren, Newton B.
 Lautmann, Herbert M.
 Lavers, A. W.
 Lavezzorio, Mrs. J. B.
 Lavidge, Arthur W.
 Law, Mrs. Robert O.
 Lawless, Dr. Theodore K.
 Lawson, David A.
 Lax, John Franklin
 Layden, Michael J.
 Lazar, Maurice
 Lazear, George C.
 Leahy, James F.
 Leahy, Thomas F.
 Leavell, James R.
 LeBaron, Miss Edna
 Lebold, Foreman N.
 Lebold, Samuel N.
 Lebold, John Michael
 Lederer, Dr. Francis L.
 Lee, David Arthur
 Lee, Mrs. John H. S.
 Lefens, Miss Katherine J.
 Lefens, Walter C.
 Leichenko, Peter M.
 Leight, Mrs. Albert E.
 Leland, Miss Alice J.
 Leland, Mrs. Roscoe G.
 LeMoon, A. R.
 Lennon, George W.
 Lenz, J. Mayo
 Leonard, Arthur T.
 Lerch, William H.
 Leslie, Dr. Eleanor I.
 Leslie, John Woodworth
 LeTourneau, Mrs.
 Robert
 Leverone, Louis E.
 Levinson, Mrs. Salmon O.
 Levitan, Benjamin
 Levitzet, Nathan
 Levy, Alexander M.
 Levy, Arthur G.
 Lewis, Mrs. Ellis R.
 Lewy, Dr. Alfred
 L'Hommedieu, Arthur
 Liebman, A. J.
 Lillyblade, Clarence O.
 Lindahl, Mrs. Edward J.
 Linden, John A.
 Lindheimer, B. F.
 Lingle, Bowman C.
 Lipman, Robert R.
 Liss, Samuel
 Little, Mrs. E. H.
 Littler, Harry E., Jr.
 Livingston, Julian M.
 Livingston, Mrs.
 Milton L.
 Llewellyn, Paul
 Lloyd, Glen A.
 Lochman, Philip
 Loeb, Hamilton M.
 Loewenberg, Israel S.
 Loewenberg, M. L.
 Loewenherz, Emanuel
 Loewenstein, Richard M.
 Loewenthal, Richard J.
 Logan, L. B.

ASSOCIATE MEMBERS (Continued)

- Long, William E.
 Loomis, Reamer G.
 Lord, Arthur R.
 Lord, John S.
 Lord, Mrs. Russell
 Loucks, Charles O.
 Louer, Albert E. M.
 Louis, Mrs. John J.
 Love, Chase W.
 Lovgren, Carl
 Lucey, Patrick J.
 Ludolph, Wilbur M.
 Lueder, Arthur C.
 Lunding, Franklin J.
 Luria, Herbert A.
 Lusk, R. R.
 Lustgarten, Samuel
 Lyford, Harry B.
 Lynch, J. W.
 Lyon, Charles H.

 Maass, J. Edward
 Mabee, Mrs. Melbourne
 MacDonald, E. K.
 MacIntyre, Mrs. M. K.
 MacKenzie, William J.
 Mackey, Frank J.
 Mackinson, Dr. John C.
 MacLellan, K. F.
 MacMullen, Dr. Della M.
 MacMurray, Mrs.
 Donald
 Madlener, Mrs.
 Albert F., Jr.
 Madlener, Otto
 Maehler, Edgar E.
 Magan, Miss Jane A.
 Magerstadt, Madeline
 Magill, John R.
 Magnus, Albert, Jr.
 Magnuson, Mrs. Paul
 Maher, Mrs. D. W.
 Main, Walter D.
 Majors, Mrs. B. S.
 Maling, Albert
 Malone, William H.
 Manaster, Harry
 Mandel, Mrs. Aaron W.
 Mandel, Edwin F.
 Mandel, Miss Florence
 Mandel, Mrs. Robert
 Manegold, Mrs. Frank W.
 Manierre, Francis E.
 Manierre, Louis
 Manley, John A.
 Mark, Mrs. Cyrus
 Mark, Griffith
 Marquart, Arthur A.
 Marsh, A. Fletcher
 Marsh, John
 McWilliams, II
 Marsh, Mrs. John P.

 Marsh, Mrs. Marshall S.
 Marston, Mrs. Thomas B.
 Martin, Mrs. George B.
 Martin, George F.
 Martin, Samuel H.
 Martin, W. B.
 Martin, Wells
 Martin, Mrs. William P.
 Marx, Adolf
 Marx, Frederick Z.
 Marzluff, Frank W.
 Marzola, Leo A.
 Mason, Willard J.
 Masee, B. A.
 Massey, Peter J.
 Masterson, Peter
 Mathesius, Mrs. Walther
 Matson, J. Edward
 Matter, Mrs. John
 Maurer, Dr. Siegfried
 Maxant, Basil
 Maxwell, Lloyd R.
 Mayer, Frank D.
 Mayer, Mrs. Herbert G.
 Mayer, Herman J., Jr.
 Mayer, Isaac H.
 Mayer, Leo
 Mayer, Oscar F.
 Mayer, Oscar G.
 Mayer, Theodore S.
 Mazurek, Miss Olive
 McAloon, Owen J.
 McArthur, Billings M.
 McBirney, Mrs. Hugh J.
 McCahey, James B.
 McCarthy, Edmond J.
 McCarthy, Joseph W.
 McCausland, Mrs.
 Clara L.
 McClun, John M.
 McCord, Downer
 McCormack, Prof. Harry
 McCormick, Mrs.
 Chauncey
 McCormick, Fowler
 McCormick, Howard H.
 McCormick, Leander J.
 McCormick,
 Robert H., Jr.
 McCrea, Mrs. W. S.
 McCready, Mrs. E. W.
 McCreight, Louis Ralph
 McDonald, E. F., Jr.
 McDonald, Lewis
 McDougal, Mrs. James B.
 McDougal, Mrs. Robert
 McErlean, Charles V.
 McGraw, Max
 McGuinn, Edward B.
 McGurn, Matthew S.
 McIntosh, Arthur T.

 McIntosh, Mrs.
 Walter G.
 McKenna, Dr. Charles H.
 McKinney, Mrs. Hayes
 McMenemy, Logan T.
 McMillan, James G.
 McMillan, John
 McMillan, W. B.
 McNamara, Louis G.
 McNamee, Peter F.
 McNulty, Joseph D.
 McQuarrie, Mrs. Fannie
 McVoy, John M.
 Mead, Dr. Henry C. A.
 Medsker, Dr. Ora L.
 Melcher, George Clinch
 Melnick, Leopold B.
 Merrell, John H.
 Merriam, Miss Eleanor
 Merrill, William W.
 Metz, Dr. A. R.
 Meyer, Mrs. A. H.
 Meyer, Abraham W.
 Meyer, Dr. Charles A.
 Meyer, Charles Z.
 Meyerhoff, A. E.
 Meyers, Erwin A.
 Meyers, Jonas
 Michaels, Everett B.
 Michel, Dr. William J.
 Midowicz, C. E.
 Mielenz, Robert K.
 Milburn, Miss Anne L.
 Milhening, Frank
 Miller, Miss Bertie E.
 Miller, Mrs. Clayton W.
 Miller, Mrs. Donald J.
 Miller, Mrs. F. H.
 Miller, Hyman
 Miller, John S.
 Miller, Mrs. Olive
 Beaupre
 Miller, Oscar C.
 Miller, Mrs. Phillip
 Miller, R. T.
 Mills, Allen G.
 Mills, Lloyd Langdon
 Miner, Dr. Carl S.
 Minturn, Benjamin E.
 Mitchell, George F.
 Mitchell, John J.
 Mitchell, Leeds
 Mitchell, Oliver
 Mix, Dr. B. J.
 Mock, Dr. Harry Edgar
 Moderwell, Charles M.
 Moeling, Mrs. Walter G.
 Moeller, George
 Moeller, Rev. Herman H.
 Moist, Mrs. Samuel E.
 Mojonnier, Timothy
 Mollan, Mrs. Ferne T.

ASSOCIATE MEMBERS (Continued)

- Molloy, David J.
 Mong, Mrs. C. R.
 Monheimer, Henry L.
 Monroe, William S.
 Moore, Paul.
 Moore, Philip Wyatt
 Moran, Miss Margaret
 Morey, Dr. Charles W.
 Morf, F. William
 Morrison, Mrs. C. R.
 Morrison, Mrs. Harry
 Morrison, James C.
 Morrow, Mrs. John, Jr.
 Morse, Mrs. Charles J.
 Morse, Leland R.
 Morse, Mrs. Milton
 Morse, Robert H.
 Morton, Sterling
 Morton, William Morris
 Moses, Howard A.
 Moss, Jerome A.
 Mouat, Andrew J.
 Moxon, Dr. George W.
 Moyer, E. J. T.
 Moyer, Mrs. Paul S.
 Mudge, Mrs. John B.
 Muehlstein, Mrs. Charles
 Mueller, Austin M.
 Mueller, Miss Hedwig H.
 Mueller, J. Herbert
 Mueller, Paul H.
 Mulford, Miss Melinda
 Jane
 Mulhern, Edward F.
 Mulholland, William H.
 Munroe, Moray
 Murphy, Mrs. Helen C.
 Murphy, Joseph D.
 Murphy, O. R.
 Murphy, Robert E.
 Muszynski, John J.
 Myrland, Arthur L.

 Naber, Henry G.
 Nadler, Dr. Walter H.
 Naess, Sigurd E.
 Nagel, Mrs. Frank E.
 Nance, Willis D.
 Naumann, Miss Susan
 Nebel, Herman C.
 Neely, Mrs. Lloyd F.
 Nehls, Arthur L.
 Nellegar, Mrs. Jay C.
 Nelson, Arthur W.
 Nelson, Charles G.
 Nelson, Donald M.
 Nelson, Victor W.
 Neuman, Sidney
 Neumann, Arthur E.
 Newhall, R. Frank
 Newhouse, Karl H.
 Newman, Mrs. Albert A.

 Newman, Charles H.
 Nichols, Mrs.
 George R., Jr.
 Nichols, J. C.
 Nichols, S. F.
 Nilsson, Mrs.
 Goodwin M.
 Nishkian, Mrs.
 Vaughn G.
 Nitze, Mrs. William A.
 Noble, Samuel R.
 Nollau, Miss Emma
 Noonan, Edward J.
 Norman, Harold W.
 Norris, Mrs. Lester
 Norton, Christopher D.
 Norton, R. H.
 Novak, Charles J.
 Noyes, A. H.
 Noyes, Allan S.
 Noyes, Mrs. May Wells
 Nufer, Gene
 Nusbaum, Mrs.
 Hermien D.
 Nyman, Dr. John Egbert

 Oates, James F.
 Oberfelder, Herbert M.
 Oberfelder, Walter S.
 Obermaier, John A.
 O'Brien, Miss Janet
 O'Connell, Edmund
 Daniel
 Odell, William R., Jr.
 Offield, James R.
 Oglesbee, Nathan H.
 O'Keefe, Mrs. Dennis D.
 O'Keefe, William F.
 Olcott, Mrs. Henry C.
 Oldberg, Dr. Eric
 Oldefest, Edward G.
 Oleson, Wrisley B.
 Oliver, Mrs. Paul
 Olsen, Miss Agnes J.
 Olsen, Mrs. Arthur O.
 Olson, Gustaf
 Olson, Rudolph J.
 O'Neil, Dr. Owen
 Onofrio, Mrs. Michael J.
 Ooms, Casper William
 Opeka, Frank M.
 Oppenheimer, Alfred
 Oppenheimer, Mrs.
 Harry D.
 Orndoff, Dr. Benjamin H.
 O'Rourke, Albert
 Orr, Mrs. Robert C.
 Orr, Thomas C.
 Orthal, A. J.
 Ortmayer, Dr. Marie
 Osborn, Theodore L.
 Ostrom, Mrs. J. Augustus

 Otis, J. Sanford
 Otis, Joseph E.
 Otis, Joseph Edward, Jr.
 Otis, Stuart Huntington
 Owings, Mrs.
 Nathaniel A.

 Paasche, Jens A.
 Packard, Dr. Rollo K.
 Paepeke, Walter P.
 Page, John W.
 Palmer, James L.
 Palmgren, Mrs.
 Charles A.
 Pardee, Harvey S.
 Partridge, Mrs. E. W.
 Park, R. E.
 Parker, Dr. Gaston C.
 Parker, Norman S.
 Parker, Troy L.
 Parks, C. R.
 Parmelee, Dr. A. H.
 Parry, Mrs. Norman G.
 Partridge, Lloyd C.
 Paschen, Mrs. Henry
 Pashkow, A. D.
 Patterson, Grier D.
 Patterson, Mrs. L. B.
 Patterson, Mrs. Wallace
 Patzelt, Miss Janet
 Peabody, Howard B.
 Peabody, Miss Susan W.
 Pearl, Allen S.
 Pearce, Langdon
 Pearson, F. W.
 Pearson, George
 Albert, Jr.
 Peck, Dr. David B.
 Peet, Mrs. Belle G.
 Peirce, Albert E.
 Pendell, Charles W.
 Percy, Dr. Mortimer
 Nelson
 Perel, Harry Z.
 Perkins, A. T.
 Perkins, Mrs. Herbert F.
 Perry, Mrs. I. Newton
 Peter, William F.
 Peters, Harry A.
 Petersen, Elmer M.
 Petersen, Jurgen
 Peterson, Arthur J.
 Peterson, Axel A.
 Peterson, Mrs. Bertha I.
 Peterson, Mrs.
 Richard E.
 Pfaelzer, Miss
 Elizabeth W.
 Pflaum, A. J.
 Pillock, Dr. John J.
 Phelps, Mrs. W. L.
 Phemister, Dr. Dallas B.

ASSOCIATE MEMBERS (Continued)

- Phillips, Dr. Herbert
 Morrow
 Phillips, Mervyn C.
 Pick, Albert, Jr.
 Pick, Frederic G.
 Pierce, J. Norman
 Pierce, Paul, Jr.
 Pierson, Mrs. James
 Rhodes
 Pierson, Joseph B.
 Pink, Mrs. Ira M.
 Pirie, Mrs. John T.
 Pitzner, Alwin Frederick
 Plapp, Miss Doris A.
 Platt, Edward Vilas
 Platt, Mrs. Robert S.
 Plummer, Comer
 Plunkett, William H.
 Pobloske, Albert C.
 Podell, Mrs. Beatrice
 Hayes
 Polk, Mrs. Stella F.
 Pollak, Charles A.
 Poole, Mrs. Marie R.
 Poor, Fred A.
 Pope, Herbert
 Poppenhagen, Henry J.
 Porter, Charles H.
 Porter, Edward C.
 Porter, Mrs. Frank S.
 Porter, Henry H.
 Porter, Louis
 Porter, Mrs. Sidney S.
 Portis, Dr. Sidney A.
 Post, Mrs. Philip Sidney
 Pottenger, William A.
 Poulson, Mrs. Clara L.
 Powells, Michael A.
 Pratt, Mrs. William E.
 Prentice, John K.
 Price, John McC.
 Primley, Walter S.
 Prince, Harry
 Prince, Rev. Herbert W.
 Prince, Leonard M.
 Pritchard, Richard E.
 Probst, Marvin G.
 Proxmire, Dr.
 Theodore Stanley
 Prussing, Mrs. R. E.
 Pucci, Lawrence
 Puckey, F. W.
 Pulver, Hugo
 Purcell, Joseph D.
 Purcey, Victor W.
 Putnam, Miss Mabel C.
 Puttkammer, E. W.
 Pyterek, Rev. Peter H.

 Quick, Miss Hattiemae

 Raber, Franklin

 Racheff, Ivan
 Radford, Mrs. W. A., Jr.
 Radniecki, Rev. Stanley
 Raff, Mrs. Arthur
 Raftree, Miss Julia M.
 Raiton, Miss Frances
 Ramis, Leon Lipman
 Randall, Rev. Edwin J.
 Randall, Irving
 Raney, Mrs. R. J.
 Rankin, Miss Jessie H.
 Rassweiler, August
 Rathje, Frank C.
 Ravenscroft, Edward H.
 Raymond, Mrs.
 Howard D.
 Razim, A. J.
 Reach, Benjamin F.
 Redfield, William M.
 Redington, F. B.
 Redmond, Forrest H.
 Reed, Mrs. Frank D.
 Reed, Mrs. Lila H.
 Reed, Norris H.
 Reed, Mrs. Philip L.
 Reeve, Mrs. Earl
 Regan, Mrs. Robert G.
 Rengenstein, Joseph
 Regensteiner, Theodore
 Regnery, Frederick L.
 Regnery, William H.
 Reid, Mrs. Bryan
 Reilly, Vincent P.
 Reingold, J. J.
 Remy, Mrs. William
 Renaldi, George J.
 Renshaw, Mrs. Charles
 ReQua, Mrs. Charles
 Howard, Jr.
 ReQua, Haven A.
 Rew, Mrs. Irwin
 Reynolds, Mrs.
 G. William
 Reynolds, Harold F.
 Rice, Mrs. Charles R.
 Rice, Laurence A.
 Rich, Elmer
 Rich, Harry
 Richards, Mrs. Bartlett
 Richards, Donald
 Richards, Marcus D.
 Richardson, George A.
 Richardson, Guy A.
 Richter, Mrs. Adelyn W.
 Rickcords, Francis S.
 Ridgeway, Ernest
 Rieser, Leonard M.
 Rietz, Elmer W.
 Rietz, Walter H.
 Ripstra, J. Henri
 Ritchie, Mrs. John
 Rittenhouse, Charles J.

 Roberts, Mrs. John
 Roberts, John M.
 Roberts, Shepherd M.
 Roberts, William
 Munsell
 Robertson, Hugh
 Robinson, Sanger P.
 Robinson,
 Theodore W., Jr.
 Robson, Miss Sarah C.
 Roderick, Solomon P.
 Rodgers, Dr. David C.
 Rodman, Thomas
 Clifford
 Rodman, Mrs. Hugh
 Roehling, Mrs. Otto G.
 Roehm, George R.
 Roesch, Frank P.
 Rogers, Miss Annie T.
 Rogers, Mrs. Bernard F.
 Rogers, Joseph E.
 Rogerson, Everett E.
 Roggenkamp, John
 Rogovsky, W. P.
 Roller, Fred S.
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 Romer, Miss Dagmar E.
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- Magnuson, Paul B., Jr.
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- Manning, Dr. Paul D. V.
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Gilbert H.
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Sayre, Jr.
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- Marx, Archibald B.
- Maseng, Trygve
- Mastri, Dr. Aquil
- Masur, Dr. Wolfgang
- Matchett, Hugh M.
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- Mathewson, Lynn L.
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- Matthews, J. H.
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Maurice
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Theris V.
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- McGuire, Simms D.
- McGuire, Thomas P.
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 Seafeld, Clarence P.
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 Gladys M.
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 Sims, Paul K.
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Ware, Willis C.	Whitfield, George B.	Woodward, Arthur H.
Warner, Ernest N.	Whitmore, Lyle S.	Woodyatt, Dr. Rollin
Warner, Mason	Whitnell, William W.	Turner
Washburn, Dr.	Whitney, Mrs.	Woolard, Francis C.
Kenneth C.	Charles R.	Wolf, Lawrence A.
Wasserman, Hy	Wholey, Mrs. Leota	Wooster, Charles C.
Wasson, Theron	Gregory	Worthy, Mrs. James C.
Waterstreet, W. Neal	Wible, R. R.	Woulfe, Henry F.
Watkins, Frank A.	Wickersham, Mrs.	Wright, William Ryer
Watling, John	Lucille	Wrisley, George A.
Watson, David R.	Wickland, Algot A.	
Watson, Norman E.	Wickman, C. E.	Yates, John E.
Watt, Herbert J.	Wilbur, Lawrence S.	Yohs, C. Lloyd
Way, Mrs. Henry J.	Wilby, A. C.	Yonkers, Edward H., Jr.
Weary, Allen M.	Wilds, John L.	Youker, Mrs. Claude W.
Webb, Dr. Edward F.	Wiley, Mrs. Edwin G.	Youmans, Mrs. M. A.
Weber, Harold H.	Wilhite, James A.	Young, C. S.
Weber, James E.	Wilk, Arthur E.	Young, Dr. Donald R.
Webster, Dr. Augusta	Wilk, Dr. Clifford M.	Young, J. H.
Webster, Frederick F.	Wilkinson, William D.	Young, J. L.
Webster, N. C.	Willard, Nelson W.	Youngberg, Arthur C.
Wehmeier, H. A.	Williams, Albert W.	Youngren, W. W.
Weidert, William C.	Williams, Mrs.	
Weigle, Mrs. Mauriece	Allan C., Jr.	Zaczek, Miss
Weiler, C. J.	Williams, Jay C.	Genevieve A.
Weiner, Charles	Williams, Lawrence	Zadek, Milton
Weinress, S. J.	Williams, Ralph E.	Zaderle, A. Arthur
Weinzimmer, Dr. H. R.	Williams, Russell V.	Zaus, Mrs. Earl A.
Weisbrod, Maxfield	Williamson, Henry T.	Zehr, Ores E.
Weismantel, Miss	Williamson, John T.	Zimmer, Harry L.
Theresa A.	Willis, Ivan L.	Zimmerman, Austin M.
Weiss, Alexander	Willott, Mrs. Adele	Zimmerman, Carl
Weitman, W. E.	Willy, Gustave J.	Zimmerman, E. W.
Weitzel, Carl J.	Wilmarth, Donald G.	Zimmerman, Dr.
Welch, M. W.	Wilson, Allen B.	Harold W.
Welfeld, Marvin J.	Wilson, Arlen J.	Zimmerman, Preston
Wellin, Harold	Wilson, H. Fred	Zimmermann, Mrs. P. T.
Wells, C. A.	Wilson, Percival C.	Zipse, Edwin W.
Wells, F. Harris	Wilson, Dr. William	Zitzewitz, Arthur F.
Wells, Frank C.	Windeby, Mrs.	Zolla, Abner M.
Wells, Henry L.	Frederick O.	Zurecher, Mrs. Victor K.

DECEMBER 1950

Barrett, Oliver R.

Bas, Marvin J.

Byfield, Ernest L.

ANNUAL MEMBERS *(Continued)*

Connolly, R. E.	Jarvis, William B.	Petersen, M. H.
Dempsey, John S.	Jolly, John W.	Poyer, Stephen A.
Dillbahrer, Frank J.	Joseph, Albert G.	Randall, Frank A.
Field, Mrs. Wentworth G.	Kinnett, D. H.	ReQua, Mrs. Charles H.
Ganey, Miss Helen M.	Larson, Elis L.	Robinson, Miss Nellie
Hardy, Edward K.	Lichty, E. P.	Schenker, Ben W.
Hills, Charles W.	Lochridge, W. F.	Schwartz, Joseph
	McNally, Frederick L.	Smith, H. S.
	Mills, Ben	Stahl, Felix B.
		Witkowsky, James

Articles of Incorporation

STATE OF ILLINOIS

DEPARTMENT OF STATE

WILLIAM H. HINRICHSSEN, *Secretary of State*

TO ALL TO WHOM THESE PRESENTS SHALL COME, GREETING:

Whereas, a Certificate duly signed and acknowledged having been filed in the office of the Secretary of State, on the 16th day of September, A.D. 1893, for the organization of the COLUMBIAN MUSEUM OF CHICAGO, under and in accordance with the provisions of "An Act Concerning Corporations," approved April 18, 1872, and in force July 1, 1872, and all acts amendatory thereof, a copy of which certificate is hereto attached.

Now, therefore, I, William H. Hinrichsen, Secretary of State of the State of Illinois, by virtue of the powers and duties vested in me by law, do hereby certify that the said COLUMBIAN MUSEUM OF CHICAGO is a legally organized Corporation under the laws of this State.

In Testimony Whereof, I hereto set my hand and cause to be affixed the Great Seal of State. Done at the City of Springfield, this 16th day of September, in the year of our Lord one thousand eight hundred and ninety-three, and of the Independence of the United States the one hundred and eighteenth.

W. H. HINRICHSSEN,

[SEAL]

Secretary of State.

TO HON. WILLIAM H. HINRICHSSEN,

SECRETARY OF STATE:

SIR:

We, the undersigned citizens of the United States, propose to form a corporation under an act of the General Assembly of the State of Illinois, entitled "An Act Concerning Corporations," approved April 18, 1872, and all acts amendatory thereof; and that for the purposes of such organization we hereby state as follows, to-wit:

1. The name of such corporation is the "COLUMBIAN MUSEUM OF CHICAGO."

2. The object for which it is formed is for the accumulation and dissemination of knowledge, and the preservation and exhibition of objects illustrating Art, Archaeology, Science and History.

3. The management of the aforesaid museum shall be vested in a Board of FIFTEEN (15) TRUSTEES, five of whom are to be elected every year.

4. The following named persons are hereby selected as the Trustees for the first year of its corporate existence:

Edward E. Ayer, Charles B. Farwell, George E. Adams, George R. Davis, Charles L. Hutchinson, Daniel H. Burnham, John A. Roche, M. C. Bullock, Emil G. Hirsch, James W. Ellsworth, Allison V. Armour, O. F. Aldis, Edwin Walker, John C. Black and Frank W. Gunsaulus.

5. The location of the Museum is in the City of Chicago, County of Cook, and State of Illinois.

(Signed)

George E. Adams, C. B. Farwell, Sidney C. Eastman, F. W. Putnam, Robert McCurdy, Andrew Peterson, L. J. Gage, Charles L. Hutchinson, Ebenezer

Buckingham, Andrew McNally, Edward E. Ayer, John M. Clark, Herman H. Kohlsaat, George Schneider, Henry H. Getty, William R. Harper, Franklin H. Head, E. G. Keith, J. Irving Pearce, Azel F. Hatch, Henry Wade Rogers, Thomas B. Bryan, L. Z. Leiter, A. C. Bartlett, A. A. Sprague, A. C. McClurg, James W. Scott, Geo. F. Bissell, John R. Walsh, Chas. Fitzsimmons, John A. Roche, E. B. McCagg, Owen F. Aldis, Ferdinand W. Peck, James H. Dole, Joseph Stockton, Edward B. Butler, John McConnell, R. A. Waller, H. C. Chatfield-Taylor, A. Crawford, Wm. Sooy Smith, P. S. Peterson, John C. Black, Jno. J. Mitchell, C. F. Gunther, George R. Davis, Stephen A. Forbes, Robert W. Patterson, Jr., M. C. Bullock, Edwin Walker, George M. Pullman, William E. Curtis, James W. Ellsworth, William E. Hale, Wm. T. Baker, Martin A. Ryerson, Huntington W. Jackson, N. B. Ream, Norman Williams, Melville E. Stone, Bryan Lathrop, Eliphalet W. Blatchford, Philip D. Armour.

STATE OF ILLINOIS)
 COOK COUNTY) ss.

I, G. R. MITCHELL, a NOTARY PUBLIC in and for said County, do hereby certify that the foregoing petitioners personally appeared before me and acknowledged severally that they signed the foregoing petition as their free and voluntary act for the uses and purposes therein set forth.

Given under my hand and notarial seal this 14th day of September, 1893.

G. R. MITCHELL,

[SEAL]

NOTARY PUBLIC, COOK COUNTY, ILL.

CHANGE IN ARTICLE 1

Pursuant to a resolution passed at a meeting of the corporate members held the 25th day of June, 1894, the name of the COLUMBIAN MUSEUM was changed to FIELD COLUMBIAN MUSEUM. A certificate to this effect was filed June 26, 1894, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 1

Pursuant to a resolution passed at a meeting of the corporate members held the 8th day of November, 1905, the name of the FIELD COLUMBIAN MUSEUM was changed to FIELD MUSEUM OF NATURAL HISTORY. A certificate to this effect was filed November 10, 1905, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 3

Pursuant to a resolution passed at a meeting of the corporate members held the 10th day of May, 1920, the management of FIELD MUSEUM OF NATURAL HISTORY shall be invested in a Board of TWENTY-ONE (21) TRUSTEES, who shall be elected in such manner and for such time and term of office as may be provided for by the By-Laws. A certificate to this effect was filed May 21, 1920, in the office of the Secretary of State for Illinois.

CHANGE IN ARTICLE 1

Pursuant to a resolution passed at a meeting of the corporate members held the 15th day of November, 1943, the name of FIELD MUSEUM OF NATURAL HISTORY was changed to CHICAGO NATURAL HISTORY MUSEUM. A certificate to this effect was filed November 23, 1943, in the office of the Secretary of State for Illinois.

Amended By-Laws

DECEMBER, 1945

ARTICLE I

MEMBERS

SECTION 1. Members shall be of twelve classes, Corporate Members, Honorary Members, Patrons, Corresponding Members, Benefactors, Contributors, Life Members, Non-Resident Life Members, Associate Members, Non-Resident Associate Members, Sustaining Members, and Annual Members.

SECTION 2. The Corporate Members shall consist of the persons named in the articles of incorporation, and of such other persons as shall be chosen from time to time by the Board of Trustees at any of its meetings, upon the recommendation of the Executive Committee; provided, that such person named in the articles of incorporation shall, within ninety days from the adoption of these By-Laws, and persons hereafter chosen as Corporate Members shall, within ninety days of their election, pay into the treasury the sum of Twenty Dollars (\$20.00) or more. Corporate Members becoming Life Members, Patrons or Honorary Members shall be exempt from dues. Annual meetings of said Corporate Members shall be held at the same place and on the same day that the annual meeting of the Board of Trustees is held.

SECTION 3. Honorary Members shall be chosen by the Board from among persons who have rendered eminent service to science, and only upon unanimous nomination of the Executive Committee. They shall be exempt from all dues.

SECTION 4. Patrons shall be chosen by the Board upon recommendation of the Executive Committee from among persons who have rendered eminent service to the Museum. They shall be exempt from all dues, and, by virtue of their election as Patrons, shall also be Corporate Members.

SECTION 5. Any person contributing or devising the sum of One Hundred Thousand Dollars (\$100,000.00) in cash, or securities, or property to the funds of the Museum, may be elected a Benefactor of the Museum.

SECTION 6. Corresponding Members shall be chosen by the Board from among scientists or patrons of science residing in foreign countries, who render important service to the Museum. They shall be elected by the Board of Trustees at any of its meetings. They shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 7. Any person contributing to the Museum One Thousand Dollars (\$1,000.00) or more in cash, securities, or material, may be elected a Contributor of the Museum. Contributors shall be exempt from all dues and shall enjoy all courtesies of the Museum.

SECTION 8. Any person paying into the treasury the sum of Five Hundred Dollars (\$500.00) at any one time, shall, upon the unanimous vote of the Board, become a Life Member. Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Life Member. Non-Resident Life Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to members of the Board of Trustees.

SECTION 9. Any person paying into the treasury of the Museum the sum of One Hundred Dollars (\$100.00) at any one time, shall, upon the vote of the Board,

become an Associate Member. Associate Members shall be exempt from all dues, and shall be entitled to tickets admitting Member and members of family, including non-resident home guests; all publications of the Museum issued during the period of their membership, if so desired; reserved seats for all lectures and entertainments under the auspices of the Museum, provided reservation is requested in advance; and admission of holder of membership and accompanying party to all special exhibits and Museum functions day or evening. Any person residing fifty miles or more from the city of Chicago, paying into the treasury the sum of Fifty Dollars (\$50.00) at any one time, shall, upon the unanimous vote of the Board, become a Non-Resident Associate Member. Non-Resident Associate Members shall be exempt from all dues, and shall enjoy all the privileges and courtesies of the Museum that are accorded to Associate Members.

SECTION 10. Sustaining Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Twenty-five Dollars (\$25.00), payable within thirty days after notice of election and within thirty days after each recurring annual date. This Sustaining Membership entitles the Member to free admission for the Member and family to the Museum on any day, the Annual Report and such other Museum documents or publications issued during the period of their membership as may be requested in writing. When a Sustaining Member has paid the annual fee of \$25.00 for six years, such Member shall be entitled to become an Associate Member.

SECTION 11. Annual Members shall consist of such persons as are selected from time to time by the Board of Trustees at any of its meetings, and who shall pay an annual fee of Ten Dollars (\$10.00), payable within thirty days after each recurring annual date. An Annual Membership shall entitle the Member to a card of admission for the Member and family during all hours when the Museum is open to the public, and free admission for the Member and family to all Museum lectures and entertainments. This membership will also entitle the holder to the courtesies of the membership privileges of every museum of note in the United States and Canada, so long as the existing system of co-operative interchange of membership tickets shall be maintained, including tickets for any lectures given under the auspices of any of the museums during a visit to the cities in which the co-operative museums are located.

SECTION 12. All membership fees, excepting Sustaining and Annual, shall hereafter be applied to a permanent Membership Endowment Fund, the interest only of which shall be applied for the use of the Museum as the Board of Trustees may order.

ARTICLE II

BOARD OF TRUSTEES

SECTION 1. The Board of Trustees shall consist of twenty-one members. The respective members of the Board now in office, and those who shall hereafter be elected, shall hold office during life. Vacancies occurring in the Board shall be filled at a regular meeting of the Board, upon the nomination of the Executive Committee made at a preceding regular meeting of the Board, by a majority vote of the members of the Board present.

SECTION 2. Regular meetings of the Board shall be held on the third Monday of the month. Special meetings may be called at any time by the President, and shall be called by the Secretary upon the written request of three Trustees. Five Trustees shall constitute a quorum, except for the election of officers or the adoption of the Annual Budget, when seven Trustees shall be required, but meetings may be adjourned by any less number from day to day, or to a day fixed, previous to the next regular meeting.

SECTION 3. Reasonable written notice, designating the time and place of holding meetings, shall be given by the Secretary.

ARTICLE III

HONORARY TRUSTEES

SECTION 1. As a mark of respect, and in appreciation of services performed for the Institution, any Trustee who by reason of inability, on account of change

of residence, or for other cause or from indisposition to serve longer in such capacity shall resign his place upon the Board, may be elected, by a majority of those present at any regular meeting of the Board, an Honorary Trustee for life. Such Honorary Trustee will receive notice of all meetings of the Board of Trustees, whether regular or special, and will be expected to be present at all such meetings and participate in the deliberations thereof, but an Honorary Trustee shall not have the right to vote.

ARTICLE IV

OFFICERS

SECTION 1. The officers shall be a President, a First Vice-President, a Second Vice-President, a Third Vice-President, a Secretary, an Assistant Secretary and a Treasurer. They shall be chosen by ballot by the Board of Trustees, a majority of those present and voting being necessary to elect. The President, the First Vice-President, the Second Vice-President, and the Third Vice-President shall be chosen from among the members of the Board of Trustees. The meeting for the election of officers shall be held on the third Monday of January of each year, and shall be called the Annual Meeting.

SECTION 2. The officers shall hold office for one year, or until their successors are elected and qualified, but any officer may be removed at any regular meeting of the Board of Trustees by a vote of two-thirds of all the members of the Board. Vacancies in any office may be filled by the Board at any meeting.

SECTION 3. The officers shall perform such duties as ordinarily appertain to their respective offices, and such as shall be prescribed by the By-Laws, or designated from time to time by the Board of Trustees.

ARTICLE V

THE TREASURER

SECTION 1. The Treasurer shall be custodian of the funds of the Corporation, except as hereinafter provided. He shall make disbursements only upon warrants, signed by such officer, or officers, or other persons as the Board of Trustees may from time to time designate.

SECTION 2. The securities and muniments of title belonging to the corporation shall be placed in the custody of some Trust Company of Chicago to be designated by the Board of Trustees, which Trust Company shall collect the income and principal of said securities as the same become due, and pay same to the Treasurer, except as hereinafter provided. Said Trust Company shall allow access to and deliver any or all securities or muniments of title to the joint order of the following officers, namely: the President or one of the Vice-Presidents, jointly with the Chairman, or one of the Vice-Chairmen, of the Finance Committee of the Museum. The President or any one of the Vice-Presidents, jointly with either the Chairman or any one of the other members of the Finance Committee, are authorized and empowered (a) to sell, assign and transfer as a whole or in part the securities owned by or registered in the name of the Chicago Natural History Museum, and, for that purpose, to endorse certificates in blank or to a named person, appoint one or more attorneys, and execute such other instruments as may be necessary, and (b) to cause any securities belonging to this Corporation now, or acquired in the future, to be held or registered in the name or names of a nominee or nominees designated by them.

SECTION 3. The Treasurer shall give bond in such amount, and with such sureties as shall be approved by the Board of Trustees.

SECTION 4. The Harris Trust & Savings Bank of Chicago shall be Custodian of "The N. W. Harris Public School Extension of the Chicago Natural History Museum" fund. The bank shall make disbursements only upon warrants drawn by the Director and countersigned by the President. In the absence or inability of the Director, warrants may be signed by the Chairman of the Finance Committee, and in the absence or inability of the President, may be countersigned by one of the Vice-Presidents, or any member of the Finance Committee.

ARTICLE VI

THE DIRECTOR

SECTION 1. The Board of Trustees shall elect a Director of the Museum, who shall remain in office until his successor shall be elected. He shall have immediate charge and supervision of the Museum, and shall control the operations of the Institution, subject to the authority of the Board of Trustees and its Committees. The Director shall be the official medium of communication between the Board, or its Committees, and the scientific staff and maintenance force.

SECTION 2. There shall be four scientific Departments of the Museum—Anthropology, Botany, Geology, and Zoology—each under the charge of a Chief Curator, subject to the authority of the Director. The Chief Curators shall be appointed by the Board upon the recommendation of the Director, and shall serve during the pleasure of the Board. Subordinate staff officers in the scientific Departments shall be appointed and removed by the Director upon the recommendation of the Chief Curators of the respective Departments. The Director shall have authority to employ and remove all other employees of the Museum.

SECTION 3. The Director shall make report to the Board at each regular meeting, recounting the operations of the Museum for the previous month. At the Annual Meeting, the Director shall make an Annual Report, reviewing the work for the previous year, which Annual Report shall be published in pamphlet form for the information of the Trustees and Members, and for free distribution in such number as the Board may direct.

ARTICLE VII

THE AUDITOR

SECTION 1. The Board shall appoint an Auditor, who shall hold his office during the pleasure of the Board. He shall keep proper books of account, setting forth the financial condition and transactions of the Corporation, and of the Museum, and report thereon at each regular meeting, and at such other times as may be required by the Board. He shall certify to the correctness of all bills rendered for the expenditure of the money of the Corporation.

ARTICLE VIII

COMMITTEES

SECTION 1. There shall be five Committees, as follows: Finance, Building, Auditing, Pension, and Executive.

SECTION 2. The Finance Committee shall consist of not less than five or more than seven members, the Auditing and Pension Committees shall each consist of three members, and the Building Committee shall consist of five members. All members of these four Committees shall be elected by ballot by the Board at the Annual Meeting, and shall hold office for one year, and until their successors are elected and qualified. In electing the members of these Committees, the Board shall designate the Chairman and Vice-Chairman by the order in which the members are named in the respective Committee; the first member named shall be Chairman, the second named the Vice-Chairman, and the third named, Second Vice-Chairman, succession to the Chairmanship being in this order in the event of the absence or disability of the Chairman.

SECTION 3. The Executive Committee shall consist of the President of the Board, the Chairman of the Finance Committee, the Chairman of the Building Committee, the Chairman of the Auditing Committee, the Chairman of the Pension Committee, and three other members of the Board to be elected by ballot at the Annual Meeting.

SECTION 4. Four members shall constitute a quorum of the Executive Committee, and in all standing Committees two members shall constitute a quorum. In the event that, owing to the absence or inability of members, a quorum of the regularly elected members cannot be present at any meeting of any Committee, then the Chairman thereof, or his successor, as herein provided, may summon any members of the Board of Trustees to act in place of the absentee.

SECTION 5. The Finance Committee shall have supervision of investing the endowment and other funds of the Corporation, and the care of such real estate as may become its property. It shall have authority to make and alter investments from time to time, reporting its actions to the Board of Trustees. The Finance Committee is fully authorized to cause any funds or investments of the Corporation to be made payable to bearer, and it is further authorized to cause real estate of the Corporation, its funds and investments, to be held or registered in the name of a nominee selected by it.

SECTION 6. The Building Committee shall have supervision of the construction, reconstruction, and extension of any and all buildings used for Museum purposes.

SECTION 7. The Executive Committee shall be called together from time to time as the Chairman may consider necessary, or as he may be requested to do by three members of the Committee, to act upon such matters affecting the administration of the Museum as cannot await consideration at the Regular Monthly Meetings of the Board of Trustees. It shall, before the beginning of each fiscal year, prepare and submit to the Board an itemized Budget, setting forth the probable receipts from all sources for the ensuing year, and make recommendations as to the expenditures which should be made for routine maintenance and fixed charges. Upon the adoption of the Budget by the Board, the expenditures stated are authorized.

SECTION 8. The Auditing Committee shall have supervision over all accounting and bookkeeping, and full control of the financial records. It shall cause the same, once each year, or oftener, to be examined by an expert individual or firm, and shall transmit the report of such expert individual or firm to the Board at the next ensuing regular meeting after such examination shall have taken place.

SECTION 9. The Pension Committee shall determine by such means and processes as shall be established by the Board of Trustees to whom and in what amount the Pension Fund shall be distributed. These determinations or findings shall be subject to the approval of the Board of Trustees.

SECTION 10. The Chairman of each Committee shall report the acts and proceedings thereof at the next ensuing regular meeting of the Board.

SECTION 11. The President shall be ex-officio a member of all Committees and Chairman of the Executive Committee. Vacancies occurring in any Committee may be filled by ballot at any regular meeting of the Board.

ARTICLE IX

NOMINATING COMMITTEE

SECTION 1. At the November meeting of the Board each year, a Nominating Committee of three shall be chosen by lot. Said Committee shall make nominations for membership of the Finance Committee, the Building Committee, the Auditing Committee, and the Pension Committee, and for three members of the Executive Committee, from among the Trustees, to be submitted at the ensuing December meeting and voted upon at the following Annual Meeting in January.

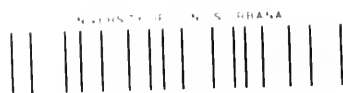
ARTICLE X

SECTION 1. Whenever the word "Museum" is employed in the By-Laws of the Corporation, it shall be taken to mean the building in which the Museum as an Institution is located and operated, the material exhibited, the material in study collections, or in storage, furniture, fixtures, cases, tools, records, books, and all appurtenances of the Institution and the workings, researches, installations, expenditures, field work, laboratories, library, publications, lecture courses, and all scientific and maintenance activities.

SECTION 2. The By-Laws, and likewise the Articles of Incorporation, may be amended at any regular meeting of the Board of Trustees by a vote in favor thereof of not less than two-thirds of all the members present, provided the amendment shall have been proposed at a preceding regular meeting.







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